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PRACTICAL MEDICO-HISTORICAL

ACCOUNT

OF THE

WESTERN COAST OF AFRICA:

EMBRACING

A TOPOGRAPHICAL DESCRIPTION

OF ITS

SHORES, RIVERS, AND SETTLEMENTS,

WITH THEIR

SEASONS AND COMPARATIVE HEALTHINESS;

TOGETHER WITH THE

CAUSES, SYMPTOMS, AND TREATMENT,

OF THE

FEVERS OF WESTERN AFRICA;

AND A SIMILAR ACCOUNT

RESPECTING THE OTHER DISEASES WHICH PREVAIL THERE.

By JAMES BOYLE, M.C.S. L.

COLONIAL SURGEON TO SIERRA LEONE, SURGEON R.N., ETC.

LONDON:

S. HIGHLEY, 32, FLEET STREET;

OLIVER & BOYD, EDINBURGH; AND HODGES & SMITH, DUBLIN.

MDCCCXXXI.

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TO

THE RIGHT HONOURABLE

FREDERICK, VISCOUNT GODERICH,

PRINCIPAL SECRETARY OF STATE FOR THE COLONIES,

&c. &c. &c.

My Lord,

It is with pride I have received your Lordship's permission to dedicate to you this Volume, not because I am a politician, for I am none, but because you preside over that department of His Majesty's Government under which I have served, and am still serving, and from which I have received every assistance likely to be conducive to the discharge of my public duties, and every indulgence consistent with their fulfilment.

The reason I ventured to solicit your Lordship's name arose simply from this circumstance: the greater part of the materials of the volume were acquired in the course of my professional labours in the Colonial Service, and my inclination, as well my duty, made me anxious to address it to your Lordship's more immediate consideration, being thoroughly convinced that that was the best possible way of

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giving efficiency to any improvements, and promulgating any information I might have been fortunate enough to arrive at.

I will only detain your Lordship by adding, that the pleasure I feel in inscribing this volume to your Lordship, has been greatly enhanced by the frank and unhesitating manner my request has been complied with; and in which I find, not only a prompt readiness on the part of your Lordship to attend to, and to forward the important duties of your high office, but also a confidence in the discretion and the sincerity of those under your direction, which is too highly valued ever to be forfeited by

Your Lordship's

Most obliged, and most obedient,

Humble Servant,

JAMES BOYLE.

London, November 10, 1831.

INTRODUCTION.

It is not a little extraordinary in these days of unparalleled thirst for knowledge that no work, until the present, has been attempted, specifically upon the Diseases of Western Africa.* Whilst the most persevering, fearless, and devoted efforts have been made, year after year, to press into the interior of that country, out of motives of national curiosity, policy, or benevolence, it is strange if not humiliating to reflect that the great object of health should have been so long, and apparently so apathetically passed over without due public consideration; and this circumstance appears the

* Dr. Winterbottom's work treats more particularly of the History, Habits, and Manners of the different Tribes of Natives in the neighbourhood of Sierra Leone, than of the Diseases which have hitherto proved one of the greatest barriers against the civilization of this portion of the world.

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more astonishing and unaccountable, when the awful sacrifice of human life in Western Africa is borne in mind, together with the great interest excited respecting the people of that country, whether physically, morally, or politically. For it is naturally to be presumed, that if the character and treatment of the diseases that have hitherto proved so destructive of European life in our settlements upon the coast of that country had been better understood, the results of our efforts would, in all probability, have been more prosperous as regards the past, and infinitely more encouraging with respect to the future.

Nor is it only in the immediate sacrifice of life, fearful and appalling as it is, that this deficiency in our medical annals has operated prejudicially to the accomplishment of the religious, moral, and beneficent designs of our country. The terrors of the climate have been displayed, oftentimes too truly, but sometimes with exaggeration, and no adequate corresponding effort has been made to counteract their influence. The bane has been set forth in all its desolating power; but the antidote, as far as the public, and even the medical world in general are concerned, has been left in utter obscurity. The consequence has been, that

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men of acquirement and ability, in whatever calling, have been generally intimidated, by the character of the climate, from attempting to serve in it, and even a considerable portion of the few who have struggled strenuously to brave the danger have been hastened to the grave by the working of forebodings of an impending dissolution, stamped upon their mind previous to their quitting England.

These are important considerations, but there are yet others which deserve attention. There is an actual connexion between England and Western Africa; one from which this country cannot retire without great and various losses; and thousands of our fellow-countrymen, and a considerable mass of property, are necessarily employed in its maintenance.

With the coast in general an extensive trade in gold-dust, ivory, palm-oil, wax, and hides, is carried on: we have several settlements there, in some of which an important trade in timber is prosecuted. In these settlements a large military force was stationed during the late war, and even subsequently; and it is impossible to say that a necessity for its re-organization or the establishment of similar protection may not arise.

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Besides, for many years past, the western coast of Africa has been the cruizing-ground of a British naval squadron for the suppression of the illicit trafic in human beings; and Freetown, Sierra Leone, is the spot selected by the Conventional Powers for the seat of the Mixed Courts, constituted for the adjudication of vessels charged with the crime of slaving.

The colony of Sierra Leone is in itself important: in addition to its being the seat of the Mixed Commission Courts, it is the chief station for the location of the liberated Africans; it is also the principal residence upon the coast of the agents of the Church Missionary and other religious societies devoted to the extension of Christian knowledge; and it is a place of considerable trade in the article of African teak timber, with many capabilities for carrying on a large traffic in the general productions of the country: it is, in fact, the chief British settlement on the coast, and contains a considerable number of European civil and military officers, and merchants and their assistants, together with a coloured population of about twenty-six thousand souls; to which may be added, a casual annual influx of from ten to twelve hundred British seamen employed in the ships in the timber and other

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trades, and from two to three hundred foreign seamen, detained as witnesses or prisoners, in prizes or other detained vessels.

The importance of the subject then, when viewed with respect to existing circumstances, is beyond dispute; and, if pursued in to the probable result of well-directed labours for a few years it would be found to increase greatly in extent and intensity. To take that course, however, would be foreign to the design and spirit of the present volume, which purposes rather to deal with actual practical facts than to dive into the boundless sea of speculation—to attempt to fill, or, more properly, to commence the task of destroying that hiatus in the records of medical history, which it is palpably so desirable to effect.

And precedent sanctions the undertaking, and public feeling, as well as humanity and science, call for it. To become acquainted with the nature and treatment of diseases prevalent in, or peculiar to, almost all the other habitable parts of the globe, has, of late years, been an important desideratum, not only with the medical world, but with the thinking portion of the community in general. The diseases of the East and

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West Indies, of the whole of the Mediterranean, and of almost every other shore on which the flag of England waves, have been repeatedly and accurately portrayed, and are tolerably well understood as to their peculiarities and the most efficient mode of treating them. The page of Western Africa alone presents a dreary blank, or, at the best, but a few isolated, confused, and unsatisfactory passages; and it would be difficult to account for this melancholy fact, for it surely will not be contended, that that portion of the globe is wanting in claims upon our sympathy and consideration.

It has been urged that, from the insalubrity of the climate, medical officers serving upon the coast and in the settlements, do not live or remain long enough to judge correctly of its fatal disorders. This, however, is in opposition to fact; but, if it were not, it is greatly to be regretted, that the fruits of such experience as has been had, have not been given to the public. However circumscribed the information and the facts, their publication would have evinced a becoming zeal for science and a Christian-like interest in the preservation of our species, and, in all probability, have formed the "happy prologue" to that consummation "so devoutly to be wished."

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It was from these considerations, among others, that the following pages were written: that they will fully supply the deficiency in our medical history, which the author deplores, he is not vain enough to imagine; they may, nevertheless, be useful; they may serve to stimulate far abler writers to investigate the subject; and, if they do so, they will have a happy, and, to many, a blessed effect. Some may think that the author would have done well to have waited till he possessed a more ample experience than he has acquired, and, as a general principle, it is certainly advisable not to attempt a task until one is fully qualified for its discharge; but it should be remembered, that in the clime of Western Africa time is rarely given for "much deliberation, long choosing, and beginning late." The author felt this; and, as it had fallen to his lot to occupy situations on the coast, which he believes were never before filled by any one individual, he has considered it his duty to publish the result of his experience, imperfect as it may be. The situations alluded to are those of Colonial-surgeon, and Surgeon to a king's ship: the latter he filled in the years 1822 and 1823, and the former in the years 1827, 1828, 1829, 1830, and the commencement of the present year. While thus employed, he had an opportunity of treat-

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ing the climatorial diseases, both as they presented themselves on ship-board and on shore, and watching them in all their various forms and grades, even from incipiency to completion. This peculiarity of service furnished him with advantages of no ordinary importance; and, although he does not venture to hope that he derived the greatest possible benefit from them, still he looks back with satisfaction to their occurrence, from having conscientiously endeavoured to discharge his various, and sometimes overpowering duties, to the benefit of those committed to his charge.

Having said thus much respecting the importance of the subject, and the considerations which have induced the author to enter upon the present undertaking, it may be desirable to give an outline view of the arrangement which has been adopted.

To embody such medical knowledge as has been attained regarding the western coast of Africa, its climate, and its diseases, has been the great object aimed at; and, to accomplish that design, a medico-topographical account of the coast and settlements has been given, together with a description of the seasons and their effects; and also a practical account of the dis-

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eases, their known symptoms, treatment, and general consequences.

For the purposes of perspicuity and convenience, the body of the work has been divided into chapters, each chapter having a distinct and separate object in view. To the medical topography the attention was first directed, because that branch of the subject appears to be the best calculated to lead the mind to a contemplation of the effects of the climate, and to prepare it for the investigation of diseases which, for the most part, arise out of local peculiarities prevalent upon this line of coast. As, however, there is a marked and material difference, in many respects, between what is called, at Sierra Leone, the windward and the leeward coasts, the topography has been divided according to those distinctions, and advantage has been taken of the separation to insert the chapters upon the Fevers of Western Africa immediately after the first portion. This arrangement may at first appear to disconnect parts which are naturally consecutive, but it has the advantage of introducing the discussion of the most important of the diseases peculiar to the climate, at the precise period when the mind is best prepared for their consideration.

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The first division of the medical topography embraces the coast and islands from the river Gambia to cape Sierra Leone, and the second extends from that cape to cape Lopez, and includes the island of Fernando Po. In many respects, this portion of the work will be found particularly full, when compared with the sketches in existence which are extremely few; and considerable pains have been taken to render it as accurate as possible. To all who have any connexion with Western Africa, whether the statesman, the merchant, the philanthropist, the ship-owner, the seaman, or the life-insurer, the medical topography of the coast, and the nature and treatment of the fevers, must be matters of great interest, which has received a fresh impulse from the recent discovery of the long sought source of the Niger.

These subjects disposed of, a chapter is devoted to the consideration of such diseases, not fevers, as are peculiar to a tropical climate; and, in another chapter, the concluding one, the treatment of diseases common to many parts of the world, and of casualties desirable to be prevented or remedied in Western Africa, are pointed out.

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It now becomes the pleasing duty of the author to mention the sources, in addition to personal experience, from whence he has derived his information. To Sir William Burnett, M. D., and Sir James Macgrigor, M. D., he is deeply indebted for their kind and liberal indulgence, in affording him every facility of access to the different official documents respecting the Coast of Africa, which are preserved in the archives of the establishments, at the heads of which those justly respected members of the profession have so pre-eminently distinguished themselves. To the reports of Mr. Whitelaw, surgeon, R. N., Mr. John Bell, staff-surgeon, and the late Mr. Tedlie, acting staff-surgeon, the author is peculiarly indebted. The labours of others of his medical brethren have been consulted, and often furnished extracts; but, as the names of the writers are invariably set forth in the body of the work, it is not, perhaps, necessary they should be enumerated here. All comment upon the conduct or writings of others, which might be mistaken either for adulation or ungenerous remark, has been studiously and scrupulously avoided.

In extenuation of the imperfections of the work the author might urge many difficulties which he has had to

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encounter, but to the candid reader, and he who knows how difficult it is to discover a passage in a strange country, all excuses must be a mere work of supererogation. It is but right, however, the author should remark, that whilst abroad, his duties were so onerous as to barely allow him time to note his materials, and that since he has returned to England, his health has been so precarious, and he has suffered so much from attacks of intermittent fever, an acquaintance made in Sierra Leone, that he has found even the labour of compilation harassing. Still he has toiled to the end; and he now launches his bark upon the sea of popular remark, sincerely conscious of having endeavoured to do well; himself again on the eve of departing for that clime he has striven to delineate, he is alive to all the anxious fears and doubts of those whose friends are sojourners there; and it will ever be to him a source of the proudest gratification to reflect, that he spent the few months which might have been devoted to ease and pleasure, in an humble, but trying effort to lessen the appalling dangers and the distressing fears hitherto associated with the bare mention of Western Africa.

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ON

THE DISEASES

OF

WESTERN AFRICA,

&c. &c. &c.

CHAPTER I.

MEDICAL TOPOGRAPHY OF THE BRITISH SETTLEMENTS ON THE NORTHERN, OR WINDWARD, PORTION OF THE WESTERN COAST OF AFRICA; ALSO OF THAT COAST, EXTENDING FROM THE RIVER GAMBIA TO SIERRA LEONE, BOTH INCLUSIVE; TOGETHER WITH A SIMILAR ACCOUNT OF THE ISLES DE LOS AND THE BANANA ISLANDS.

The River Gambia, or Gambra.

THE Gambia, or Gambra, is a great and noble river running into the sea on the western coast of Africa, between Bird or Broken Island, on the north, in lat. 13° 40′ N. and long. 16° 40′ W. and Cape St. Mary on the south, in lat. 13° 30′ N. and long. 16° 42′ W. It is navigable, during a certain period of the year, by vessels of 150 tons burthen, for 250 miles, in a direct line, and its whole course is computed to be upon the

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same measurement about 500 miles. The Gambia has several mouths formed by shoals and sand-banks. The principal mouth has a sufficient depth of water to admit of the entrance of the largest vessels, and the secondary one is navigable by the smaller classes of shipping. The river, as distinguished from its mouths, terminates between Barra Point on the north, about 12 miles distant, S. E. ½ E., from Bird Island, and the Island of St. Mary, a short distance to the eastward of Cape St. Mary, on the south. The breadth of the Gambia, between these places, exceeds three miles, and it rapidly increases to above seven miles. The breadth then gradually declines, but the river presents a broad stream of water, wholly uninterrupted in its course for nearly 100 miles, excepting by a small island called St. James, which is situated near the centre of the river, and is about twenty miles above Barra Point. Elephant Island then occurs, and thence to Macarthy's Island, distant about 250 miles from the sea, the channel is diversified with islands, apparently beautifully wooded, sand-banks, and shoals. The period of the year during which the Gambia is safely navigable, is from December to June, or the dry season, when the tides are regular, and there is a rise of about six feet at the mouths, and of three feet opposite Pisanea, the ruins of a factory about twenty miles above the upper extremity of Macarthy's Island. During the remainder of the year, or the wet season, the navigation is impracticable, in consequence of the extraordinary swell occasioned by the rains. The banks of the Gambia, near its mouth, are in general low, and in some places sandy and sterile, although for the most part they are marshy and of black mud, thickly wooded. This, indeed, is the character common to the banks of the whole river. The stream is muddy, and the borders in general are low, swampy, and, from low water-mark, covered with mangroves and aquatic shrubs and thick reeds. The adjacent country is thickly wooded, and may almost be styled an impenetrable

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bush. Much of it is marshy. The inland soil is mostly sand, with some clay and rocky ground. Vegetation is extremely rapid, so much so that if a spot be cleared of the bush, and neglected but for one season, it appears again in nearly its original state. These circumstances, together with the climate and the rains, render the Gambia and its neighbourhood extremely unhealthy. Europeans, who pass any time, either in exploring the adjacent country or in shooting in the woods, almost invariably suffer from remittent fever. Nor do the natives of the country escape from disease, especially those who come from a distance for the purposes of traffic. These natives often fall victims to remittent fever, but more often to dysentery; and, allowing for the difference in habits and constitution, the fevers of the natives and Europeans are alike, and require the same mode of treatment. They occur at the same season and from the same causes. The greater liability of the natives to dysentery may be accounted for by the difference of diet. At a considerable distance up the river the banks become more elevated, the woods more open, the stream more rapid, from being contracted, and consequently there is less disease. The European, however, still suffers from fever at the commencement and the end of the rains; but whilst the rains are at the full, the sun is absent, evaporation ceases, and fresh fever cases rarely occur; and during the dry season, when the effect of the rains has ceased, the same may be said to be the case. The Gambia abounds with fish, hippopotami, and alligators. The marshy tracts on its banks yield luxuriant crops of rice, while horses, cows, sheep, and goats, pasture on the plains and on the declivities of hills. Noxious reptiles and insects almost cover the surface of the earth, and beasts of prey, occasionally leaving the forests, are found on the banks. The native inhabitants, who are few in number, reside mostly in towns or villages of huts, round which a portion (sometimes considerable) of ground is cleared, and

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in a state of cultivation for the production of rice, maize, tobacco, and some other articles.

The Settlement of Bathurst.

Bathurst is the name of the northernmost British settlement on the western coast of Africa, and is also the chief British settlement in the river Gambia. It is situated in a small island, bearing the name of St. Mary, of something less than two miles in length, with a breadth, at its greatest extent, of scarcely half a mile. St. Mary and Barra Point on the main form the narrows of the Gambia, and the island is therefore well situated for commanding the navigation of that river; but it would be difficult to select a spot, even on the western coast of Africa, worse adapted for the preservation of European health. St. Mary may be divided into two unequal districts. About one-third of the island consists of barren sand, and the rest of tenacious black mud, overgrown with mangrove bushes, and other shrubs and plants that thrive in a wet soil, together with a few palm trees. The sandy part is occupied by the town and fortification, which are so situated as to command a view to seaward, and also up the river.

Bathurst was established as a British settlement in the year 1816, by Lieut.-Colonel Brereton, accompanied by Captain Alexander Grant, who took the command there. The town is about a mile in length; the principal houses are along the beach and in a street at the back; they are from one to two stories in height, built of stone, with large piazzas, principally formed of stone pillars; well finished, and convenient, both for domestic comfort and trade. The town allotments of ground are 75 feet by 300 feet, generally occupied by outhouses for the natives and stores. There are about thirty white inhabitants and twelve hundred Africans, many of whom have been liberated from slave

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vessels. The soil is sandy, and at the depth of three feet good water may be obtained in any part of the island. It is much infested with musquitoes and sand-flies. The heavy rains commence in July, and generally are at an end about the middle of September. During that period the rain falls in terrific quantities, and it is not rare to see the streets flooded two feet deep.

Fish is not superabundant; beef tolerably good; mutton rare: there are some partridges and guinea-fowls in the neighbourhood, which is also famous for its palm wine.

The produce of the country is hides, wax, gold, ivory, mahogany, and rose-wood. Very decent craft are built in the vicinity, of as much as seventy tons measurement, and remarkably fast sailers. The Joloff residents are generally good seamen.

The lower classes commonly inhabit huts, raised after the fashion of the country, of clay and reeds, and possessed of but one recommendation, that of affording shelter from the climate. The commercial stores are numerous and well adapted for the purposes for which they were erected. On the whole, Bathurst is a neat, cleanly town, and is as well calculated for success as any settlement probably can be near the mouth of the Gambia. Its position, when viewed by the legitimate trader or the philanthropist, who desires the suppression of the traffic in negroes, holds out flattering prospects; but, when examined with a view to health, it presents a very different appearance. The region of the Gambia, generally, is extremely unhealthy, and the island of St. Mary forms no favourable exception to the rule. It is exceedingly low, and is, therefore, peculiarly subject to the bad influences of the climate. As is commonly the case on the western coast of Africa, especially within the tropics, there are two seasons, the dry and the wet; the former usually extending, about the Gambia, from the latter part of

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October to the close of May, and the latter occupying the rest of the year. When the dry season has thoroughly set in, Bathurst is healthy. From the period the atmosphere becomes clear, frequently not till December, until the latter part of May, disease is rare, except when, through former suffering, some organic derangement of the liver or spleen remains. If fever does occur during this period, it is mild in type, and rarely proves fatal. Towards the conclusion of the dry season the heat is certainly excessive, and vegetation languishes; but the immediate effect produced upon the human constitution is trifling, compared with that caused by the rains and their consequences. The wet season is immediately preceded by tornadoes or thunder storms, which, together with the harmatan, another wind peculiar to this coast, will be described under the head of Sierra Leone, as they are the most strongly felt at that settlement. The rains are tremendous, and swell the river so considerably, that, during their fall, almost the whole of the island is inundated. The part upon which the town is built escapes not, and but for the precaution taken in building the houses, many would be uninhabitable during this period. When the rains subside, and the river returns to its level, an immense deposit of vegeto-animal matter is left behind, the whole of which undergoes the process of decomposition, and, from being acted upon whilst in that state by the rays of an almost vertical sun, fills the air with noxious effluvia. This effluvia, combined with the remaining moisture and the high range of temperature, form the great cause of fever and of ague, which prevail during its existence to so lamentable an extent as to make this settlement appear a focus for those diseases and the grave of Europeans.

Bathurst, for some years after its formation, was under the authority of the governor of Sierra Leone, but it is now a separate government, and has the control of the other British dependencies in the Gambia. They consist of a tract

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of land (excepting a small space, which is occupied by a French factory, and called Albreda,) on the northern bank of the river, extending one mile inland from the beach and from Boonyadoo Creek, half way between Bird Island and Barra Point, to Jukarda Creek, about fifteen miles above St. James's Island; St. James's Island; and Macarthy's Island; and at distances of every twenty or thirty miles on the banks of the river there are British factories. None of the stations or settlements however call for particular notice, the character of their localities precisely according with the description already given to that of St. Mary. Bathurst has the advantage of having a resident colonial surgeon, whose duties are to prescribe for the government civil officers and the negroes dependent on the government, and to furnish them with medicines from the public stores. This officer also extends his professional assistance to the merchants and the shipping frequenting the river upon an application being made to him. The troops, which consist at present of a captain's company of the African regiment, are attended by an army medical officer.

METEOROLOGICAL TABLE kept at the Military Hospital, at Bathurst, St. Mary's Island, River Gambia, for the Year 1821.

	Thermometer.			Barometer.			REMARKS.
	Max.	Med.	Min.	Max	Med.	Min.	
Jan.	85	80	75	29.93	29.86	29.81	Harmatan or E. close & sultry, foggy
Feb.	86	82	75	29.96	29.86	29.82	N. W. S. W. (sea breeze) ditto. } occasionally fine clear weather.
Mar.	86	82	78	29.96	29.86	29.83	N. W. & S. W., ditto.
Apr.	87	82	76	30.20	29.92	29.80	Sea breeze from N. W. very fine weather.
May	86	81	80	30.10	29.80	29.80	S. W. & N. W. generally fine, a few tornadoes.
June	86	80	78	30.10	27.70	29.50	S. W. & N. W. rainy, with strong tornadoes.
July	85	81	83	29.56	29.52	29.68	From N. W. & W. N. W. heavy rains.
Aug.	87	85	82	29.50	29.48	29.46	Tornadoes and rain.
Sept.	89	87	85	29.53	29.52	29.52	Ditto, ending with slight rains.
Oct.	85	80	79	29.93	29.86	29.81	N. W. & S. W. close and sultry.
Nov.	86	82	76	29.96	29.86	29.82	N. W. & S. W. ditto.
Dec.	86	80	78	29.96	29.86	29.83	N. W. & S. W. ditto.

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The Coast, Rivers, and Settlements between the Gambia to the Isles de Los.

On leaving the Gambia and proceeding along the coast to the southward the land is rather low, thickly wooded, and intersected by many streams. There is no river, however, accessible until you come to the Kasamansa, which is in lat. 12° 48′ N. It has three fathoms at the entrance, with rocks on either side, and is a muddy stream branching into narrow creeks. The country about the river is tolerably well cultivated, and is rather numerously peopled, but the inhabitants are in a most savage state. They are equally incapable of acknowledging a kindness, or of forgiving an injury. Near the mouth of the river, in an unhealthy tract, the Portuguese have a wretched fort and sort of garrison. Leaving the Kasamansa, and still proceeding to the southward, Cape Roxo is the next most striking object. Cape Roxo is in lat. 12° 27′ N. and long. 16° 28′ W. About it the land is low, with some remarkable trees and a sandy beach. This was formerly the southern boundary of the English government of Senegambia. The natives are simple, superstitious negroes, abhorring the Portuguese, by whom they have been greatly oppressed. Nine leagues E. by S. of Cape Roxo is the St. Domingo, or Chacheo River. At a considerable distance up this river, on the south side, the Portuguese have their principal settlement, which is defended by two forts and a small garrison. Its situation is marshy and unhealthy. From the Chacheo to Rio Grande innumerable islands occur. Many of them are evidently alluvial, being a deposition from the waters of the neighbouring rivers. A few of these islands are partially inhabited and cultivated, and abound in game. Bissao is the largest, and is about thirty leagues in circuit, with a clear channel of one mile from the continent, and a commodious roadstead. The Portuguese have settlements in this island,

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at one of which vessels of considerable size used to be built, but now the settlements are in a state of decay. A group of islands to the S. W. of Bissao, is called the Bissagots, and some of the most westerly, as Kazegut, are inhabited by a robust, passionate, and cruel race. These people subsist on fish, maize, roots, and rice, and they have armed canoes of considerable size. The climate of the coast, and the banks of the creeks and of the rivers present no novelty to a person acquainted with the Gambia and its vicinity. Low land, swamps overgrown with bush, mangroves, and other trees that luxuriate in moisture, patches of sand, and occasional acclivities covered with rank vegetation, are almost the only features in the latter, and the climate is marked by the same characteristics as it exhibits at Bathurst.

Rio Grande is an immense river and has a rapid tide with a rise of nine feet. It is said to be navigable 150 leagues above its mouth. It is seldom visited by the British trader, but a few years since it used to be occasionally searched for the prevention of the slave trade, by the boats of British ships of war. That important service may be performed with perfect safety, by observing proper precaution, during the months of December, January, February, March, April, and May, which embrace the dry season. The boats of the Iphegenia and Owen Glendower, carrying a hundred and fifty men, were for a month at a time in this river, or its numerous branches, in 1822, exposed to every change of weather, without any fatal case of disease occurring. Though complicated in their navigation there is so much of uniformity in the general appearance and characteristics of the rivers in this part of Western Africa, particularly the smaller ones, that a description of one of them would apply almost to all. In the dry season the stream is muddy and silent, abounding with fish, and its surface is frequently covered with flocks of pelicans and other aquatic birds. The banks are mostly mud, thickly overgrown with mangroves, which, being marked by

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the floods to a great height, serve as an index of the extent to which the river is swollen by the rains, and afford an ample proof that, during that period, the adjacent country is flooded to a considerable extent. It was in one of the islands, at the mouth of Rio Grande, that Captain Beaver attempted a settlement, the melancholy termination of which is too well known to require any observation here, excepting that Bulam island seems to have been very unfortunately chosen, it being swampy and covered with bush. It has certainly a beautiful appearance to the eye; but under that fascinating allurement lie lurking the causes of the most violent remittent fever.

Passing to the southward of Rio Grande the immediate coast accords with that already described, but at a short distance inland the country becomes elevated and even mountainous; some of the rocky ledges, indeed, closely approach the ocean. This is the case until the vicinity of the Riopongeos, in lat. 9° 55′ N. and long. 13° 46′ W., is arrived at. Between the Pongeos and the Grande is the Rionoonas, a broad and rapid river with a rise of nine feet. It is navigable by ships of burthen to a considerable extent, and the Portuguese had formerly a fort about forty-five miles above the mouth, but they were expelled by the natives in consequence of their mal-practices. Riopongeos is less extensive than Rionoonas, but it is easy of access for vessels of twelve or fourteen feet draught, and has commodious sheltered roads. The tornadoes here blow from the E. S. E. Both the Pongeos and the Noonas are noted for considerable trade in ivory, wax, and rice. Formerly the slave trade was carried on in these rivers to a great extent by the Portuguese, and there is every reason to believe that that horrible traffic has recently been revived with far too much activity and success. To describe these rivers or the coast more particularly would be foreign to the object we have in view, which is merely to present such an outline of their topography as will enable the reader clearly to appreciate the observations

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we shall have to make respecting the diseases which are known to prevail here at certain periods, their causes, and their treatment. Tumbo Point is about eleven leagues S. E. of the Pongeos, and the coast is low and intersected by the rivers Kalkungee, Dembia, and Dania, navigable for small vessels, and much frequented by the Portuguese for ivory, wax, and, it is to be feared, for slaves.

The Isles de Los, or Ilhas dos Idolos.

The position, formation, and qualities of the Isles de Los entitle them to a particular description. They are situated off Tumbo Point, and are six in number; viz. Tamara, Factory, Rooma, Whites, Coral, and Kidd. Factory is the most easterly of the group, and its nearest coast to the main land is distant from Tumbo Point about two miles and a half. Tamara is the most westerly, and its N. E. point is distant from the N. W. point of Factory about one mile and a half, and from Tumbo Point four miles and a half. Rooma, or Crawford Island, lies between Tamara and Factory, distant from the former about one mile and three quarters, and from the latter rather more than two miles, and is in lat. 9° 27′ N. and long. 13° 48′ W. The other islands are insignificant; but Tamara, Factory, and Rooma, from being so shaped and placed as to form an extensive and commodious bay extremely easy of access, with a middle bank, from being in the vicinity of the mouths of the Noonas, the Pongeos, and other rivers, from commanding the in-shore channel, and from their easy distance from Sierra Leone, about sixty miles, together with their localities, are worthy consideration.

The whole of these islands were rented by the British government from the neighbouring main land chiefs in 1818, at about sixty-five pounds a-year, payable in merchandise. The late Sir Charles Macarthy commenced an attempt to establish a British military force in them, which, during the

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governorship of General Turner, had a melancholy termination through the prevalence of fatal disease among the troops. Owing to this circumstance, the Isles de Los have been condemned as being generally unhealthy, but this verdict appears contrary to fact and to reason. Rooma was selected, most unaccountably, as the island on which the establishment of the head-quarters of the military force was to be fixed, and it may, therefore, with propriety be first described. This island is low, the highest point being (only three hundred feet above the level of the sea,) almost entirely of granite rock, very irregular in its form, and not quite one mile long by half a mile in extreme breadth. It has but little jungle, although weeds are abundant, and no wood but the Pullom, or silk cotton tree, of which the produce is said to be of very superior quality. Immediately on landing, the military buildings attract attention. The barrack-room, as it stands, was intended for thirty black soldiers only; its dimensions are 80 feet by 18, and it has no windows or any openings whatever in the rear, for the admission of air. When the fatality occurred among the troops, a hundred and twenty white soldiers were lodged in this room, where a double range of bedsteads was placed, and, therefore, the mortality, though dreadful, cannot be considered as at all deciding the character of these islands in respect of health. The officers' apartments, on the contrary, are extravagant in the extreme: they are tastefully arranged and extensive; and, although the services of but two or three officers were contemplated or required, the mess-room is sufficiently ample in its dimensions to dine a party of between thirty and forty persons. These latter buildings, however, have more of effect and show in them than of utility and healthful arrangement. A guard-room, office-houses, &c., and a massive stone wall, complete a neat square. The hospital, formerly the parsonage house, occupies a more elevated and airy situation. It is a small stone house, of one story. All these

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buildings are in a state of rapid dilapidation. There are two other buildings only worthy of notice upon the island, and they are private property; the one belongs to the only European resident, Mr. Proctor, and a merchant; the other to a Mr. Leigh. There are about one hundred inhabitants on the island, originally Soosoos and Bagos people, from the neighbouring main. Generally they speak the language of the two countries. Upon the whole of this strangely-selected place for the capital of the islands, there is but one patch of ground capable of being converted into a farm. The water of Crawford Island is tolerably good, and procured with sufficient facility for the wants of its present inhabitants. The people appear healthy and happy, and are said to live to the ordinary period of longevity observed as a medium in Europe. A few bullocks and sheep thrive well. Wild pigs were formerly seen in great numbers, but are now nearly all destroyed. There are two varieties of snake not considered very venomous. Of birds there are few, affording but little variety of kind. Upon the whole this island seems only originally destined by Nature to assist Tamara and Factory in the formation of the extensive bay already noticed.

Tamara, or Footaba, is the queen of the islands, and it is certainly a most unaccountable circumstance, that it was not originally selected as the head-quarters instead of Crawford. Its extent, the fertility of its soil, the circumstance of its being in many parts perfectly clear, and in all fit for the purposes of cultivation, render it at once attractive as a British possession on the coast, and peculiarly calculated to aid the ostensible objects of Sierra Leone as a very fit place, in proportion to its extent, for the location of liberated Africans. Tamara has a semicircular form on its southern side, which, with Crawford and Factory, forms the beautiful bay of the islands, wherein there is excellent anchorage for the largest fleet, and the rise of the tide is thirteen feet. This island is more than five miles in length, and averages

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about three-quarters of a mile in breadth; its greatest breadth being about a mile and a quarter, with a gradual declination towards the southern extremity. Its greatest height is four hundred and sixty-five feet above the level of the sea. The soil of this island appears to be chiefly a dark rich loam, with a sandy intermixture towards the base, and that of small pebbles in its more elevated parts. The common cotton tree abounds on the island, and its produce is manufactured by the natives chiefly into common cloths, which they either wear or exchange with the natives of the main for other essential commodities. The palm tree is also in vast numbers all over the island, affording large supplies of palm wine, as well as palm oil. The cultivation of rice, which is said to grow well on the island, seems not to have been practised with any zeal, consequently not to sufficient extent, even for the purposes of the inhabitants; but cassada, which is produced in great quantity, is exchanged for rice and other articles on the main land, some of which are again bartered to the British trader or European adventurer. Of birds and snakes, and the smaller animals, there is a variety, but strange to say, it does not include parrots nor monkeys. Water of very good quality is to be procured all over the island. Granite and clay-stone, the latter well calculated for rapid building, are abundant. The pullom, or cotton tree, is very frequently converted into large convenient canoes, though not very durable. The only wood capable of being applied to the purposes of building is called simmai: this is said to be very useful in the construction of boats. There are seven native villages, and one for the location of pensioned soldiers. The number of residents on the whole island is computed at about four hundred. Clarkson, or Freetown, is the name given to the pensioners' settlement, and it is situated on the north-east end of the island, where there is an elevated fertile perfect flat of dark loam, intermixed with pebbles, of about three-quarters of a mile square. On this desirable

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spot several discharged pensioners were located in 1818, of whom twenty-five still remain, all, to a man, apparently satisfied, and, although some of them are very old, they are all in excellent health. It is gratifying to observe the vast superiority which this settlement exhibits over the native villages, for though not any thing like what this beautiful and fertile spot might be made to be, by the exercise of skill and labour, still its various lots of different kinds of country corn, of rice, cassada, and yam; its clear pathways, and its one broad street, constituting the town, are at once striking and illustrative proofs of the great advantages of discipline; of its very superior effects over the negro race to that of mere advice or instruction to be followed at discretion. In the neighbourhood of Freetown, Sierra Leone, there is not one farm cultivated by the liberated Africans, of equal extent, that presents any display of industry and actual practical improvement at all comparable with that of the disciplined pensioned soldiers' settlement on the island of Tamara.

Factory Island is nearly four miles long, and not quite averaging half a mile in breadth. Its western side forms a semicircle opposed to that of Tamara, and the greatest distance between the two islands is about five miles, while that between the northern point is one and a half mile. The soil of Factory is very similar to that of Tamara, but it has been much better cultivated, and is more known than the latter, from the circumstance of its having been for very many years the residence of the late Mr. Samuel Samo, a merchant: it was also formerly the seat of an extensive slave factory, of which there are still some remains. Near to the site of the slave factory there is a neat jetty, or platform, on the mainland side of the island, together with a landing-place and dock, which latter is capable of admitting schooners, sloops, or other small vessels, for the purpose of being careened or repaired: all these natural advantages have been improved by art, and might, with great facility, be made as available for the pur-

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poses of legitimate commerce, and the suppression of the slave trade, as they no doubt were originally for the prosecution of that odious traffic. In respect to fruit trees, and other indigenous productions, the description of those of Tamara supersedes the necessity of enumerating those of Factory, excepting that, in the latter island, monkeys and parrots are very numerous, and indigo grows wild, as in Sierra Leone, in considerable quantities, while neither of those productions are to be found on Tamara. Stock of every kind seems to thrive admirably on Factory, and its inhabitants, Mahometans, about three hundred in number, are healthy and athletic. There are three native towns. Like the other islands, this is well supplied with good water. Situated as Factory is, in respect to the main land, its advantages or disadvantages to the lawless slaver must obviously be determined by the course adopted by the British Government. If this island, in particular, which commands the in-shore channel, between Sierra Leone and the rivers to the northward, be not protected and looked after, not only will the slave traders, though it is a British possession, find it a useful place of rendezvous, but its inhabitants, some of whom are already more or less engaged in slaving, will again become active traders.

Coral, Kidd and White's Islands are only worthy of notice as assisting to form the bay of the islands.

It is worthy of remark, that there is not a swamp in any of these islands; that, more or less, breeze is generally experienced upon them; that the temperature, seldom above eighty of Fahrenheit, is lower and more uniform than upon the main; and finally, that the rains are lighter and of shorter duration than they are either on the main or on the peninsular of Sierra Leone.

Tumbo Point, though a projection of the main land, may be considered in connexion with the Isles de Los. At high-water it is divided from the main, and forms, apparently, a

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distinct and sister island. Its vicinity to Factory, and its power in commanding the in-shore passage, together with the facility it possesses for intercourse and trade with the interior, would seem to render it an important acquisition as an additional possession to that of the islands.

This point is comparatively flat, and it is of an oblong form, of nearly a mile and a half by a mile. Its sea aspect exhibits a splendid palm grove, to which the approach is very difficult of access, owing to a chain of irregularly-placed, and not less irregularly-formed rocks, which encompass it. On Point Tumbo there are three native villages or towns, but the hand of industry has made but little way. The natives support themselves upon the productions of nature, and the manufacture of salt and palm oil. Cotton is grown sufficient for their own purposes, but not cultivated as an article of trade; and the growth of rice, to which the soil is peculiarly favourable, is very little attended to. The colah tree, whose fruit is so much valued all over Africa, and so very precious in the interior, grows abundantly on Tumbo Point. The teak tree is also found there. The pullom, or cotton tree, is of enormous size, and of its trunks the natives make large canoes. The ordinary tropical fruits grow spontaneously, and the uncultivated, dark, rich loamy soil promises the best results from cultivation. The water is very abundant and very good. The connexion between the point and main becomes a narrow fordable creek at low water; being in extent across from fifty to a hundred yards.

To the Isles de Los and Tumbo Point, as places of trade, no great importance is to be attached, but as auxiliaries to Sierra Leone, already complained of as being not sufficiently extensive for the further location of liberated Africans, they would be found immediately available, and unquestionably serviceable; and their vicinity to the rivers Mellacoree, Noonas, and Pongeos, renders them important as points of

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observation and obstruction of the practice of slaving pursued in those rivers.

The Coast and Rivers from Tumbo Point to Cape Sierra Leone.

From Tumbo Point, at a distance of seven leagues, S. E. by S., lies the island of Matagong. The intervening coast forms a deep bay, in which the Tannaney, Mahneah, and Morebiah rivers occur, at about equal distances. The land is low and marshy, and the rivers are accessible only to the smaller classes of vessels. They are extremely unhealthy, but esteemed as places of trade, of which it is to be feared slaves again form a considerable item. S. by E. of Mattagong, at a distance of five leagues, lies Sallahtook Point, and the intermediate space is occupied by the mouths of the rivers Foreecarreah and Mellacoree. Neither the country nor the rivers present any novel peculiarity. Proceeding along the coast, the River Scarcies appears, distant from Mattagong seven leagues and a half. The Scarcies is divided into two streams, and the land in the neighbourhood is extremely low, woody, and marshy.* A bank runs out W. N. W., two leagues and a half from the south side of the Little Scarcies, and tapers away to the southward as far as Leopard's Island, which lies at the mouth of the River Sierra Leone.

The Sierra Leone, or Ritomba, or Tagrim, is a large river, the entrance to which is formed by the above island on the north, and by Cape Sierra Leone on the south, distant from each other between eleven and twelve miles, and bearing

* A trade in teak timber has recently been established at the Mellacoree and the Scarcies by some of the merchants residing at Sierra Leone, but the navigation of those rivers is so little known, and they are so prejudicial to life, that the rate of insurance is higher than for the Sierra Leone River.

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S. by W. ½ W., and N. by E. ½ E. An extensive sand-bank, called the Middle-ground, which at low water is dry in many parts, obstructs the river at its embouchure, and divides it into two channels, the northern of which is navigable by small vessels, and the southern is one mile and a half broad, with a depth of from four fathoms to thirteen. In the south channel, and within the middle bank, for two or three miles, there is excellent anchorage for the largest vessel. About eight miles within the inner extremity of the middle bank the river is divided into two branches; the northern or principal one of which retains the parent name, and the southern one is called Bunce River. These rivers are studded with islands, and they send off creeks, long, deep, and narrow, in every direction. The islands generally are small, low, thickly-wooded, with abrupt banks, composed of layers of thick tenacious black mud, overgrown with mangrove and other bushes. The general character of both of these rivers is extremely similar to that of the Gambia, excepting that they are very inferior in size and extent, especially Bunce River. The Sierra Leone is navigable by vessels of burthen for between fifteen and twenty miles above the point of division, or about twenty-five miles above the entrance at Cape Sierra Leona; and the Bunce is navigable by similar vessels for a few miles only. The tide flows twice in every twenty-four hours, at rather a rapid rate, with a rise of twelve feet and a half. In the rainy season the streams are considerably swollen, and cover the greater part of most of the islands. The northern or left bank of the Sierra Leone, or, as it is more commonly called, the Bullom shore, is low and swampy; and the creeks which intersect it form numerous marshes, the bottoms of which are mud teeming with animal life. The appearance of this shore is extremely beautiful; and, in the height of the dry season the country is tolerably free from malaria, but immediately and for some time after the rains the very air is pregnant with putrid exhalations, ex-

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cited by the heat of the sun from this extensive tract of swamp and marsh. The southern or right bank of the Sierra Leone above the point of division, and the banks of Bunce River, are of a similar character, excepting, perhaps, that the creeks are less frequent and the banks hardly so low. The southern bank of the Sierra Leone, from the Cape to Bunce River, is bounded by the rocky peninsula of Sierra Leone, a group of mountains, the most elevated of which are from 5,700 feet to 6,000 above the level of the ocean. These mountains are composed of granite, indurated clay-stone, magnetic iron-ore, some quartz and sand-stone, and are covered with lofty trees and verdure, but capable of little cultivation.

A considerable and valuable trade in teak timber and cam-wood, is carried on in the River Sierra Leone, and some fancy woods for furniture are also procured there. The teak timber is produced principally on the shores of the upper part of the river, and it is collected into quantities at factories formed on the banks and on the islands, in the navigable part of the stream. The first of these establishments, Tasso, which occurs on proceeding up the river, is distant from the entrance to the south channel rather more than five leagues, and is situated upon the south bank. The rest occur in the following order, and the whole of them lie within the space of a few miles:—on the north side are Robump, Papel, Upper Robump, and Kasanka; on the south side are Upper Tasso, Bance Island, Tombo, Upper Tombo, Rokelma, Maquarie, and Corribli. Besides these factories there are others higher up the river, but they are merely used as stations for the security of the timber previous to its being rafted to these depôts for shipment. A particular description of these establishments in general, is unnecessary, but circumstances entitle that of Bance Island to some further notice.

Bance Island is occupied by Mr. T. H. Barber, a British merchant of Sierra Leone, as a timber factory. It was for-

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merly in the possession of the firm of Anderson and Co., of London, as a great slave establishment, and was, in fact, the largest on the coast of Africa. The island is small and principally rock, with occasionally a slight deviation caused by large fissures, now filled up with a soil formed apparently of decayed vegetation, and deposited from the river. On these spots its former possessors have industriously planted a vast quantity of lime trees, now extremely productive. There are some large pullom trees, which, with the limes, have a conspicuous appearance from the river; and these, together with a few climbers and shrubs on the sides of the island, compose the whole of its vegetation. There is a burial-place of some extent, with several tombstones of a respectable appearance, made in Europe; but, notwithstanding this apparent proof to the contrary, the island is a healthy spot. Under the Bance Island Company, the principal conductor of the establishment was authorized by Government to assume the title of Governor, and a fort and other buildings were erected. They have an imposing effect, though they are now in a ruinous condition, with the exception of a wing of a large building, which has been converted into stores and a residence by its present possessor. Its former extensive dealings with the natives give to the possessor of Bance Island, at all times, some influence in the river. Monkies and snakes are found on the island; the latter of a very venomous description: a large white mastiff dog, belonging to Mr. Barber, attacked one of them, which kept the dog at bay for some time, and at length bit it in the neck, when the animal immediately fell, howled, and died. The wound was almost imperceptible, and the skin about it turned perfectly black in a few minutes.

The shipping employed in the timber trade generally lie in Tomba Roads, a large open space in the river, and about the centre of the factories mentioned. This is an extremely desirable arrangement, and should be adhered to as much as possible. In some instances, however, ships are anchored

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close to the shore, where, being necessarily deprived of the salutary influence of the breezes, which are generally felt in the open stream, they are peculiarly exposed to the great causes of disease.

In Bunce River ships also load with timber, but to a far less extent than in the Sierra Leone. Here, from circumstances, the ships anchor close to the shore, almost touching mud and mangrove, whence a particularly unpleasant, most oppressive, and necessarily unsalutary effluvia arises at low water, under the influence of a powerful sun. The crews of vessels stationed here generally suffer much more than do those stationed at Tomba Roads; and this is natural, from the difference in the localities of the two places. It may be confidently asserted, however, that the fevers from the Sierra Leone River and its branches, altogether are much less fatal, in respect to numbers, than they were a few years back; a circumstance which must depend upon the late great increase of factories, the burning of bush, the clearing and draining of ground, and the consequent reduction of malaria. A modification of the disease incidental to the above situations necessarily follows such local improvements. This fact is clearly, though sadly illustrated by drawing a comparison between the rivers just mentioned and those of the Scarcies and Mellacoree, in which latter no local improvement of any consequence has yet taken place; and wherein fever, when it does occur, for the most part proves fatal.

That the majority of the ships, however, employed in the timber trade in the Sierra Leone, even of those which load in Tomba Roads, suffer greatly from fever, is but too true. This is to be attributed, in a considerable degree, to the following causes:—Frequent immersion in the water whilst the head and upper parts of the body are exposed to the rays of a powerful sun, and consequently in a state of perspiration; breathing a contaminated atmosphere, particularly during the closeness of the night, through the evaporation arising

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from the timber shipped on board in a wet or damp state; and occasional excesses in the use of spirits.

The Settlement of Sierra Leone, its Capital, and its Villages.

Sierra Leone is the name of the principal British settlement on the western coast of Africa, and it consists of a rocky peninsula, which is bounded on the west and S. W. by the Atlantic Ocean, on the north by the River Sierra Leone, on the N. E. by Bunce River, and on the S. E. and south by the Sherbro country. The capital of the settlement is named Freetown, and stands in lat. 8° 29′ N., and long. 13° 14′ W. There are very few parts in the tropical world, which, at first sight, hold out more allurements, even to the experienced traveller, than Sierra Leone. Its splendid scenery, and its beautiful river, together with its extensive, commodious, and generally secure harbour, and pleasant-looking town and villages, are calculated to excite the most flattering hopes in respect of health and enjoyment, notwithstanding strong previous impressions to the contrary. On making Sierra Leone from the north, the mountains from which the peninsula was named, first excite attention. They are lofty, perpetually clothed, from their summits to their bases, in all the fertile gaiety of nature's verdant and richest scenery; and there is a pleasing and endless variety in the outline of their countless peaks and declivities. As the ship draws in with the shore signs of civilization appear and increase with rapidity, both in number and attractiveness. Freetown and the lately-formed villages in its neighbourhood at first shew like anomalous patches in the view, but, on a nearer approach, they add greatly to its beauty and its interest. When the ship has arrived just at that point of distance from which a person may see all the broad outlines and apparent characteristics of an extensive scene, without being

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able to discern the minute details, the effect is magnificent. On the left hand is the Bullom shore, low but covered with luxuriant and richly-coloured bush, an occasional palm and pullom tree, rising in graceful form above the neighbouring mangroves: in appearance it seems to embody the notions formed of fairy land, but its realities most sadly illustrate the folly of such dreams. The middle ground also occurs on the left hand, and it gives a variety to the view. In front are the spacious river, (extending farther than the eye can reach) and the north side of the peninsula, with its lofty mountains and Freetown, running to the water's edge, and surmounted by barracks, and protected by a handsome fort, and a coast forming numerous small and convenient bays from the town to its termination at the cape, which runs boldly into the sea. On the right is the Atlantic. That a scene, composed of such ostensible material features, is grand and imposing, may readily be supposed; but those who are ignorant of the peculiarities of a tropical clime, and its seductive influences on a stranger, can form no adequate notion of the character and extent of its actual power. For the moment home is forgotten, or if remembered, the remembrance is accompanied with a desire it should be situated in such a seeming paradise. In thus speaking of the view on arriving at Sierra Leone, we are supposing that settlement to be made on a fine clear day, when the atmosphere is bright and comparatively devoid of malaria, and the river runs its natural course, unswollen and free from discolouration. Should the arrival, however, happen at a different period, when the atmosphere is dense, oppressive, and fraught with deleterious exhalations, and the rains are deluging the face of the country, and at once augmenting the river and destroying its beauty, then Sierra Leone presents a very different appearance: there is little or nothing to excite a pleasing anticipation, but there are a world of causes for apprehension and for dread. The realities of the scene are of course unaltered, for the two periods are the property

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of the climate, and must be alike endured by the colonist, but the appearances present a melancholy and a fearful contrast.

Freetown is situated on about the centre of the north coast of the pensinula, and is distant from Cape Sierra Leone between five and six miles. It stands on a very gradual acclivity, and occupies a space of about two miles and a half in circumference, which is regularly laid out in streets of good dimensions, running from the water's edge directly inland, and intersected at right angles by others of similar dimensions. Immediately behind the centre of the town is the fort, which is a semicircular building of considerable extent, but badly situated for protecting the town, and in very indifferent order.

In the rear of the fort, and on a desirable elevation of about two hundred feet above the town, is a magnificent range of barracks, capable of accommodating a large number of troops, and built in a very superior manner, both with respect to style and convenience. Between the barracks and the fort there is a military hospital of good dimensions and construction. The mountains form the back ground: in sweep they have a horse-shoe appearance, or resemble the segment of a circle, and towards their lateral boundaries the streets of the town have been and are still progressing with each passing year.

In its details, as well as in its position, the town is well constructed, and also suited to the climate. All of the principal streets are between fifty and sixty feet in width, and have regular convex carriage and foot-ways, with broad channels at either side for water-courses. The principal houses, whether government or private, with very few exceptions, occupy the central streets of the town. They generally consist of two stories, and have piazzas in front, erected on stone or iron pillars of from six feet to nine in height, and are built of a red clay-stone, which abounds in the vicinity. The

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rooms are of good dimensions, lofty and of a large area; they mostly contain fire-places, and are protected by verandahs, which have recently been fitted up on an improved plan. Formerly venetian blinds were much used, and the lower part of the verandah was open, which left the room (glass windows being extremely rare) exposed to the influence of violent winds and rains; but now strong jalousie blinds are commonly adopted, and the lower part of the verandah is closely boarded. The interiors of these houses are tolerably well finished, but the wood and iron-work require continual repair and attention, owing to the decomposing and corroding effects of the climate: frequent painting is one of the best preservatives, and scarcely occasions as much inconvenience as in a temperate climate. The kitchens and other domestic offices are detached from the residence, which is an arrangement of considerable importance with respect to health. The second class of houses stand in streets on either side of the principal ones, and occupy a large portion of the town. They are called frame houses, and are composed of wood, the frame being very substantial, and they generally consist of two or three rooms. These buildings are placed either on stone pillars or a wall of some feet in height, and the space between the floor and the ground is generally occupied by a store. These houses, like the better ones, have verandahs, which are fitted after the same fashion, but in a less finished and efficient manner. They are mostly detached, with yards or small gardens, and so placed as to afford a free circulation of air. Beyond these again, at a greater distance from the central streets, are the suburbs, which, for the most part, are composed of huts, formed of stakes, wattles, and clay, and each containing two apartments, the division being made of the same materials as the hut, or of strong coarse matting. In the laying out of this part of the town due attention has been paid to health. The streets are wide, and though not

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yet properly formed, there is plenty of room and good material to work on. Such is the general arrangement of the town, but a few large stone houses, incomplete and unfinished, are to be found among the frame houses and in the suburbs. These buildings were commenced when the Government expenditure was very much more considerable than it is at present, and their projectors were chiefly black people, who did not see that reduced means on their part would be the necessary consequence of a diminution in the outlay of the Government. The entrances to the town, whether by land or by water, are convenient and good. The chief landing-place is on the centre of the sea-side, and there is a secondary one to the westward, but which is chiefly used as a watering place. There are four roads from the town, which, with the exception of one that leads to the mountains, are intended for the use of carriages. Of the public buildings in Freetown little can be said; but an author, in a work very recently published, is mistaken, in stating that they are comprised in "the jail, the barracks, the commissariat, and the buildings of the liberated Africans."* In addition to these are the military-hospital, Fort Thornton, the north-east battery, the market-house, government-house, the secretary's office, and several other buildings of a similar character with the last-mentioned. An expensive attempt has been made to build a church in the centre of the town, but it has been very properly arranged that the burial-ground shall be continued at a distance. A few years ago the dead were interred in the immediate vicinity of the town, but as that was found to be offensive, and was likely to be prejudicial to health, a more distant spot has since been used. It must be remarked, that many of the buildings, the public ones especially, are in a state of dilapidation.

Before noticing the population and the other matters con-

* Major Rickets, on the Ashantee War.

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nected with Freetown, which we shall have briefly to describe, it may first be right to allude to the situation and character of several villages, which have been built in different parts of the peninsula as auxiliaries for carrying into effect the objects for which the settlement was formed. These villages may be divided into three districts; the sea, the river, and the central or inland. The first district comprises six villages, which are called Murray, Aberdeen, Wilberforce, Denham or Lumley, York, and Kent. The first is distant westward from Freetown about three miles, and the last, by water, about twenty-five miles, and by land, eighteen or nineteen miles. The others are situated between Murray and Kent, at convenient distances. In the river district there are six; Kissey, Wellington, Hastings, Waterloo, Allen-town, and Calmont. These villages are all situated on the Bunce River, or the immediate neighbourhood of its branches. Kissey is distant from Freetown four miles, and Calmont about sixteen miles. Wellington and the other villages are placed between Kissey and Calmont. In the remaining district there are four; Gloucester, Regent, Bathurst, and Charlotte. They are situated on the mountains, and are all within five miles of Freetown. Of these villages, those composing the sea district are decidedly the most healthy, and this is owing to their exemption from the malaria of the Bullom shore, through the intervention of the mountains, and the enjoyment of the pure sea-breeze, which they exclusively possess. The mountain villages are next in point of healthiness. They are tolerably free from malaria, but, owing to their internal situation, do not, of course, enjoy the immediate sea-breeze. They are, however, far more healthy than Freetown, are better cleared, and the temperature is decidedly lower. The river district is the least healthy, especially those villages which are the most distant from Freetown; a circumstance which obviously arises out of their localities, they being surrounded by mud and mangrove, and unrelieved by a sea-

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breeze. With respect to the buildings of these villages, a description of one of them may serve to enable the reader to form a sufficiently accurate idea of the whole. They were all established for the location of liberated Africans. Kissey, to the medical observer, is the most important, and, therefore, we shall select it for the example. In its general construction it resembles the other villages, but it likewise contains, ex-exclusively, two hospitals, which are devoted to liberated Africans. One of these hospitals is used for general purposes, and is situated on an elevated site; and the other is used as a sort of lazaretto, and is placed upon the beach, and surrounded by a wall which prevents all improper communication. The village consists of a stone church of considerable size, of school-houses for the liberated Africans, and large houses for the manager and members of the Church Missionary Society, built of the same material, together with huts for the negroes, composed of stakes, wattles, and clay. The buildings are raised at a convenient distance from each other, and upon a regular plan, and patches of ground about them have been cleared, and are in a state of cultivation. The villages of course vary in size, and the extent of ground cleared is more or less considerable, according to circum-cumstances; but they have most decidedly a common character, and there is not one about which the land has not been better cleared, in proportion, than it has been round Freetown. This last fact is of vast importance. There is nothing more conducive to health on the western coast of Africa than the land being thoroughly cleared of the bush, and Freetown would do well to follow the example set by the villages.

The population of the settlement amounts to between twenty-five thousand and twenty-six thousand souls. About one-third of the whole number inhabit Freetown, and the rest are distributed in the villages, with the exception of very few, who reside at the factories on the banks of the

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rivers. The inhabitants of Freetown consist of Europeans, Maroons, Settlers or Nova Scotians, exiles from Barbadoes, discharged soldiers from the West India regiments, Mandingos, liberated Africans, and Kroo-men; while those of the villages consist almost exclusively of a very few Europeans, (as the managers and most of the church missionaries) discharged soldiers, and liberated Africans. To the curious observer of human nature, such a population would, of course, present an ample field for remark; but we have only to notice the constitution, the habits, and the occupations of the different classes, in as far as they may affect health, whether prejudicially or not. We may remark, generally, that no portion of the population is located so densely as to be likely to cause disease or to favour its propagation or continuance.

The Europeans are about a hundred and twenty in number, and, with very few exceptions, male adults. European females and children, whether English or not, are rarely to be met with, and still more rarely resist the influence of the climate for any considerable period. This remark, however, must be understood to apply particularly to Freetown, for in the villages, as far as the experiment has been tried, a more favourable result has been observed. Upon the original constitution of the European population it is unnecessary here to offer any remark. Respecting the habits of the male Europeans it must be confessed, that they would be injurious to health, on many grounds, in any climate, but they are especially inimical to it in Sierra Leone. They are too frequently loose, careless, and dissipated; and, although some improvement has occurred in the last few years, there is still an abundance of room for amendment. In saying this, however, we are speaking of the Europeans as a body: there are unquestionably many among them whose habits are regular and exemplary. The employment of this class is various, but there is no portion of it hostile to health, excepting the laborious part of the timber trade, which is attended with

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particular risk, from its occasioning great unavoidable exposure and fatigue, and rendering the use of that stimulus, which often excites the diseases that destroy life, almost necessary for its temporary preservation. It would not be difficult to assign many other reasons for much of the suffering notoriously endured by Europeans in this settlement; but, after all, the great leading cause would be found to be the intrinsic quality of the climate of that region. Wholly and successfully to oppose that cause human ingenuity can hope to devise no adequate plan, but many suggestions might be offered calculated to meliorate its influence. It may be sufficient to remark in this place, that a moral life, freedom from fear, cheerfulness, moderate exercise, and particular care in avoiding the extremes of the atmosphere, are absolutely necessary to allow the English constitution in this climate a fair chance of sustaining life. To the practice of these auxiliaries to health, Sierra Leone offers no preventives; but, on the contrary, many facilities, which are to be found in the construction of Freetown and in the mountains.

The Maroons are rather a numerous class. They came originally from the island of Jamaica, and may be said to stand next to the Europeans in consequence and wealth. They are generally shop-keepers, traders, or clerks, and are very rarely employed in manual labour. All of them Africans by descent, and many by birth, it is only upon extraordinary occasions, and at peculiar periods, that they suffer from the climate.

The class called Settlers, or Nova Scotians, are also rather numerous, and originally came from Nova Scotia. They are industrious, and comprise the principal artizans in the town. These people, when first located here, suffered dreadfully in their health, but now their constitutions seem to have accommodated themselves to the climate so completely, that they may be said to be acclimated, and the diseases they experience are those common to the original African.

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The exiles from Barbadoes are extremely few in number, indeed so few that it is not necessary they should be more particularly noticed in this work.

The Mandingos are a class of people who come from a country in the immediate neighbourhood of Sierra Leone. They are principally traders, and not to be regarded as fixed residents in Freetown, for there are but few of them who do not frequently visit their native land, and, sooner or later, return to it for a permanence. They generally profess the Mahomedan religion; and, in too many cases, it would seem for the mere privilege of having a plurality of wives. Their numbers are perpetually fluctuating, and the population of the settlement, as far as the liberated African portion is concerned, would, perhaps, be materially increased, if they ceased altogether to form an item in the classes of inhabitants of Freetown.

The discharged soldiers and the liberated Africans may be considered under one head with respect to health. When the latter have recovered from the effects of the slave ship the remarks applied to the present health of the Maroons and Settlers are also applicable to both of these classes. The discharged soldiers are generally employed in carrying on a petty traffic in rice, or some other ordinary article; and some of them have accumulated sufficient capital to enable them to keep a shop. The liberated Africans display almost every variety of the negro character. Generally speaking, those, who were consigned to slavery through the fortune of war, are desirous of returning to their native countries, and frequently effect their wish, either with or without the leave of Government, which, however, is never refused them when asked; while those who were sold into slavery as a punishment for the commission of some crime, or have passed the whole of their lives in bondage in their native countries, at once adopt their new homes, as a permanent residence. For the first six months after their liberation these people are supported and clothed by the Government. They are at once placed under the direction of an official department, constituted for the

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purpose, and for the first three months employed on public works; when they are located in some of the villages for the remainder of the period, at the expiration of which they are left to their own resources. This is the case with respect to the men. The women mostly get married on their being liberated, for the men are not allowed to take them upon any other terms. Of the children, both boys and girls, many, on liberation, are apprenticed to inhabitants of Freetown, and the others are sent to the villages, where there are regular schools, under church missionaries, and supported, clothed, and instructed, until they are apprenticed or qualified to provide for themselves. These people but seldom make good mechanics. Their inclination seems chiefly for traffic, and some of them have acquired considerable property. They rarely follow the sea, whether in ships or boats; and those among them who possess canoes, generally employ the natives of the neighbouring coast to work them. Many of them will readily hire themselves as servants, and, after much tuition and looking after, they are well enough in that capacity. A few have been taken by merchants, principally in the timber trade, as apprentices, and they are said to have turned out tolerably good clerks. The great body of them, however, have made but little progress in European civilization, and adhere most tenaciously to their early habits. They are tolerably cleanly, and have no peculiarities or habits likely to produce disease. One of their customs, although distinct altogether from considerations connected with health, may be noticed here without much impropriety. A secret institution has been introduced among them by the Bulloms and Timmanees, called *purrha*, which seems to bear some resemblance, at least in its spirit, to freemasonry. The meetings of *purrha* are held at irregular periods, and they are strictly confined to the members, who are extremely numerous, and embrace many liberated Africans.

The last class of inhabitants to be noticed is the Kroomen.

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These people come from the Kroo country, distant from Sierra Leone about one hundred and fifty miles to the southward and eastward. They are mostly labourers, and employed in domestic purposes. Like the Mandingo people, they rarely fix their residence permanently in the settlement; but, unlike that class, they are not suspected of being at all concerned in the slave trade. When in service, their effort is, by saving and otherwise, to get together a box of clothes, or of more valuable articles, and when they have succeeded they leave the settlement and visit their own country, where they remain enjoying themselves until their little store is exhausted, when, in most cases, they return to Freetown. The Kroomen, who are between seven hundred and eight hundred in number, are perhaps the healthiest class in the settlement; a circumstance which may easily be accounted for. Taken as a body, they are hardy and powerful, and the only persons who do not labour under some adventitious disadvantage. The disadvantages suffered by the European are too obvious to require enumeration: the change of climate alone is of incalculable importance; the Maroon and the Settler may be considered as acclimated, but the mode of life of the former, and the employment of the latter, are in some degree injurious to health; with respect to the discharged soldier, he has rarely acquired his pension or allowance without age, accident, or length of service, having entitled him to a cessation from severe labour; the Mandingo, though in a certain way civilized and often extremely active, is generally enervated in a greater or less degree by his mode of living and irregular employment; and the liberated African, in addition to the horrid sufferings he experiences in the slaver, and which often produce a lasting effect, has new habits of life to adopt. Upon the Krooman none of these incitements to weakness, sickness, or disease, can be said to operate. The climate is natural to him; his mode of life and his employment are

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improved, whether considered with respect to health or in any other light; the horrors of the slaver he has never encountered, and his habits essentially are unchanged.

All these several classes of inhabitants maintain their original characters to a striking extent. The European of course stands alone; but it might have been expected that the other classes would have amalgamated and lost their distinctive peculiarities through marriage and intercourse. This, however, is not the case: the Maroon and the Settler have each their peculiar features, language, and habits; and so have the soldier, the Mandingo, the liberated African, and the Krooman. Indeed so strongly are the distinctions preserved, that one part of Freetown is called Kroo-town, another Maroon-town, a third Settler-town, a fourth Gibraltar or Soldier's-town, and a fifth might, with propriety, be named European-town. The Mandingos inhabit the suburbs. Among the liberated Africans there is, of course, a great variety of languages, and it has been computed that, in the whole settlement, not less than sixty different tongues are spoken.

It is greatly to be lamented, that the soil of the peninsula of Sierra Leone, particularly in the neighbourhood of Freetown, is very inferior to what might be expected from the luxuriant appearance of the bush. In the direction of the mountains it is generally thin, arid, and pebbly, with occasional large granite rocks projecting; and in the lower parts it is odinarily either light unproductive sand, or a superficial and equally barren strata of loose dark loam: some patches of argillaceous clay are to be met with; and in some of the valleys not yet under cultivation, the ground is of a more promising character. Even under these circumstances, nature is bountiful. Sierra Leone produces most of the fruits peculiar to tropical countries, and almost every species of European esculent is now raised there, besides such esculents as are indigenous. In the neighbourhood of Freetown and of the villages are many farms, but they are

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rarely in a state of even tolerable cultivation; indeed in agriculture a vast deal remains yet to be done before Sierra Leone can be said to have been fairly tried. With respect to the great staple necessaries used for the sustenance of life, they are plentiful and easy to be procured. Water is abundant, and of very excellent quality, owing to the prevalence of the iron-ore before mentioned: a public tank is conveniently placed in the town, near the western or second landing-place, for the use of the inhabitants and of the shipping. Rice, cassada, and yams, are plentiful; beef, mutton, pork, and poultry, are easily to be procured, and are of medium quality; and there is a full supply, generally twice a day, of a great variety of fish. The following is a list of the principal vegetable articles cultivated or growing spontaneously on the peninsula of Sierra Leone:—

Amomum grana paradisi .. ..Malagnetta pepper
Anguria trilobata .....Water melons
Arachis hypogea.....Ground nuts
Bromelia ananas.....Ananas (pine apple)
Capsicum frutescens .....Red, or Cayenne, pepper
——— medium .....The larger ditto
——— minimum .....The strong ditto
Carica papaya.....Papay tree
Citrus aurentium ....Orange tree
—— medica.....Lemon tree
Cocos nucifera .....Cocoa nuts
—— butyracea.....Palm oil tree
Coffea arabica.....Coffee
Convolvulus patatas .....Sweet potatoes
Croton tiglium .....Purging nut
Dioscorea bulbifera.....Yams
Gossypium .....Cotton tree
Guayava psidium .....Guayaves
Holcu { lanatus..... / mollis ..... } Millet
Indigo fera .....Indigo
Jatropha *janipha*.....Cassada
Maranta arundinacea ....Arrow root
Musa sapientum .....Plantain
—— paradisaica.....Banana
Oryza sativa .....Rice

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Panicum { scabrum, pyramidale, tenellum } Guinea corn, of different species
Phenix dactylifera ..... Date tree
Ricinus Africanus ..... Castor oil tree
Saccharum officinarum ..... Sugar cane
Tamarindus Indicus ..... Tamarind tree
Vitis vinifera ..... Common vine
Zea mays ..... Indian corn or maize
Zingiber officinale ..... Ginger.

The climate of this settlement has now to be considered. It is decidedly unfavourable to the human constitution in general, and especially to the European. It has no marked peculiarities which distinguish it from the climate of the other parts of the western coast of Africa which lie within the tropics; but, nevertheless, it seems to merit especial consideration; for Sierra Leone has presented far better opportunities, since it became a British settlement, of acquiring an accurate knowledge of the atmospheric influences in those regions than had ever before been possessed. We may remark, also, that the description now about to be given will be found to be applicable to the whole of the coast from the Gambia to Fernando Po. Some modifications will of course be necessary when it is applied to particular points, but they will be only such as will readily and obviously suggest themselves, and arise out of the localities peculiar to the spot referred to. For instance, where the coast is particularly low, marshy and embayed, as about the mouths of the Mellacoree and Scarcies rivers, malaria and all its conquences are more active than at points running boldly into the ocean, and on which a pure sea-breeze may be enjoyed, as Cape Roxo and parts of the Isles de Los. To this qualification another must be added: as a general position, it should be remembered, that the seasons occur at an earlier period in the south than they do in the north. In effect, they appear to be sent forth from the equator, and touching, on the coast we have to treat of, first at Fernando Po, they progress

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regularly towards the north till they reach the Gambia: the several seasons commence about a month earlier at Sierra Leone than they do at the Gambia.

In order to describe the climate of Sierra Leone it is convenient, if not absolutely necessary, to have recourse to the customary plan of dividing it into seasons, and to commence with the beginning of the natural, rather than of the calendar year. Before making the division proposed, however, it may be desirable that a concise summary should be given of the revolution of a year. The natural year commences in the month of September; and then Nature puts forth her creative powers in a remarkable degree, and, as at the commencement of the rains, vegetation assumes its greenest vigour. The weather, from that month to the end of October, may be compared in its effects with the Spring of our northern climate. During that period unsettled weather and variable winds prevail. The thermometer, at its maximum, averages about 83½°, at its medium, 80½°, and at its minimum, 78½°; and the barometer, at its maximum, 30° 15′; medium, 29° 84′, and minimum, 29° 30′. In November the weather becomes settled, and in its general character continues so until the end of January. During the space of time between those dates the sun exercises its power without obstruction, nature progresses, and vegetation reaches maturity: the average maximum of the thermometer is about 86½°, and minimum 80°; and of the barometer, maximum 30° 30′, medium 29° 91′, and minimum 29° 81′. In February the climate again becomes variable and unsettled. Shifting winds, with dull, oppressive, cloudy weather, and occasional rains, mists, and terrific storms, are experienced; and these alternations continue to be of frequent occurrence until May, when rains set in, and prevail to the close of the natural year. The average maximum of the thermometer, from February to April, is about 85°, the medium 80°, and the minimum 79°; of the barometer the average maximum is 30° 40′, medium 29° 95′, minimum 29° 87′; and the

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average maximum of the thermometer, from May to August, is 82°, medium 80°, and minimum 77¼°; and of the barometer, the average maximum is, about 30° 44′, medium 29° 82′, and minimum 29° 80′. Having given this general outline of the progress of the year, we shall proceed to notice the particular seasons, their peculiarities, and their effects upon the human constitution.

The seasons of Sierra Leone may, perhaps, be better delineated by merely dividing them into two in number, the wet and the dry, and describing the peculiarities of each, respectively, than by framing numerous sub-divisions, which might confuse through the very circumstance of their multiplicity.

To commence, then, with the dry season. It may be said ordinarily to begin about the termination of September, but its approach is almost invariably announced by two or three tornadoes, which commonly succeed each other at intervals of from one to two or more days. When these tornadoes occur the weather is generally close, sultry, and oppressive, and, through their powerful influence, it becomes clear, exhilarating, and comparatively healthy. The tornado is an awful elementary commotion; but both natives and experienced Europeans are alike earnest in their supplications for its occurrence; sensible as they are that improved and invigorated feelings on their parts are among its common successors. There are not many, however, who have the curiosity to inquire into the cause of those agreeable sensations so certainly and sensibly experienced by all, or to reflect upon the necessarily great physical revolution which the atmosphere must undergo before they can be felt. At this time a few fever cases may be expected among unseasoned Europeans, but no general climatorial disease prevails or is to be apprehended; and the reasons are obvious upon a moment's reflection. It is not necessary here to develop the primary cause of the tornado, which may be traced in the positions and revolutions of the earth with reference to the sun; but it will be at once

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proper and sufficient to describe it as it appears, and to notice the palpable facts and reasons of its influence.

A violent tornado appears to strangers a most appalling visitation, and produces an extraordinary effect upon their feelings. It consists of successive flashes of most vivid lightning, tremendous shocks of thunder rapidly and alarmingly reiterated, impetuous gusts of wind, and deluging rain. This terrific combination of the elements sweeps along the whole of the coast under consideration; but it occurs with peculiar violence, on what is called the windward coast, especially at Sierra Leone. Its denomination is derived from the Portuguese, it being a corruption of the word *Trovado*, which means thunder-storm. Its approach is first discernible by the appearance of a small, clear, silvery speck at a high altitude in the heavenly expanse, which increases and descends towards the horizon with a gradual and slow, but visible motion. In its descent it becomes circumscribed by a dark ring, which extends itself on every side, and as soon as the silvery cloud approaches the horizon, veils it in impenetrable gloom. At that moment the elements seem to have ceased their operations, and the very functions of nature to be paralyzed; the atmosphere appears to be deprived of the spirit of vitality, and a sensation of approaching suffocation pervades and oppresses the physical system. The mind is wrapt in awe and suspense, but the latter is speedily relieved by the dark horizon being suddenly illumined by one broad blaze of electric fluid; peals of distant thunder then break upon the ear and rapidly approach and increase in frequency and violence till the shocks become appalling; when the thunder is at its loudest a tremendous gust of wind rushes with incredible, and often irresistible vehemence from the darknened part of the horizon, not rarely in its course carrying away roofs of houses and chimney-tops, blowing down or up-rooting trees and laying the stiffest and largest ships on their beam-ends, or sinking them, whether under-

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weigh or at anchor; and to that succeeds a furious deluge of rain, which falls in one vast sheet rather than in drops, and concludes this terrible convulsion.

The lightning is of the most vivid description, and, contrary to what has been reported of it, seldom sheet lightning, but faulked and piercing, and often extremely destructive both to things animate and inanimate. Its apparently doubtful wild course is sometimes directed to a large and lofty tree, and the foliage, at the points of contact, is blasted on the instant the exposed branches are severed from the trunk, and the probably enormous trunk itself is rent to its basis and destroyed. When it comes in contact with a house it frequently leaves it as great a wreck as ships have been seen to be on coming out of a severe action or after a destructive storm; and occasionally, the building entered by it, may happen to remain untouched, and its inmates, some, or all of them, as the author has known to occur, perish under its scorching influence. Occasionally, the spindle of a ship's mast, the most elevated part of it, may appear to be the point of attraction, and it will sometimes dart among the spars and cordage harmless, descending till it reach the deck, when it will suddenly quit the vessel by some aperture, and rapidly returning through another, seem to have acquired a new character with incredible velocity, for, steering its strange and rapid course into the main deck, or hold, it will kill, maim, or injure, every thing animate or inanimate with which it comes in contact. Much good has unquestionably been effected by conductors; but those who have watched the progress of the electric fluid will hold the theorist in no estimation who does not make the atmosphere the first and most important point of consideration. The heavy peals, or rather the terrifying shocks of thunder, which follow the lightning, frequently not only shake the buildings at Freetown, but the very foundations on which they stand; and the reverberations from the surrounding

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mountains increase, if possible, the awe excited by the elementary commotion. The succeeding rain, or rather deluge, is happily of short duration, and, rushing down the various inlets and indentations in the adjoining mountains, it forms into streams, even a few minutes after its commencement, which sweep through the streets of Freetown with astonishing velocity, bearing with them all the exposed vegetable and other matter in a state of putridity or decay.

Such is the tornado; and it is by the preponderating power of its gusts, and the atmospheric influence of its lightning and its rain, that noxious exhalations from the earth, and deleterious miasmata, before confined to the neighbourhood of their origin by opposed or light currents of air in the day, or attracted by the land (the more lofty the more attractive) in the night, are removed; and, consequently, the indescribably distressing feelings occasioned by a foul atmosphere are superseded by those comparatively pleasureable and enlivening sensations which have been already noticed.

The weather immediately after the commencement of the tornadoes becomes more hot, but clear and much less sultry. Occasional showers and tornadoes are experienced during several weeks, when the wind veering round from the northward and eastward to the S. W. or to the westward, thus passing over the Atlantic, and a point of high, tolerably well-cleared mountain, the weather becomes settled, and is comparatively healthy. It is not uncommon, at this period, however, for an occasional case of fever to occur amongst newly-arrived Europeans; but these, for the most part, are of a milder character than those which take place at the beginning of the rains, and the probable reason will be explained hereafter.

From the setting in of the dry season, until about Christmas, no very important fixed change is commonly experienced. About that time what are called the harmatans set in, and

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continue, generally, during a period of from six to ten weeks. Their direction is ordinarily from the eastward: temporary shifts of wind during the harmatans do occasionally take place, but they are of short duration, and when they occur the air appears to possess the same qualities and to communicate the same sensations as it does during the winds, which are pronounced to be the genuine harmatans.

These winds produce a very different effect upon different persons. Generally they are spoken of as being pleasant, by newly-arrived Europeans; whereas, to the European, who has been some time in the colony, who has been seasoned, or had the specific endemic bilious remittent fever of Sierra Leone, and also to the natives, with few exceptions, the harmatans, though by no means dangerous in their consequences, are exceedingly annoying. They impregnate the air with an almost impalpable fine sand, which they take up in their passage over the Bullom shore, and which, in itself, is a source of great inconvenience to those whose avocations oblige them to go much out of doors. It is exceedingly irritating to all susceptible parts with which it comes in contact; such, for instance, as the nostrils, the ears, not unfrequently the mouth, and particularly the eyes.

The atmosphere during the harmatans is ordinarily dark and misty in the mornings; and sometimes continues in that state for the whole day. Furniture is found in every house to be covered with fine sand, already noticed, and such is the extraordinarily penetrating and drying nature of the wind that conveys it, that tables, chairs, doors, or any other material of wood, or even of glass, which is exposed to it will be found to split, or seen or heard to crack; ink, in open stands, quickly evaporates to dryness; pens become unusually brittle and disposed to split, and writing-paper becomes shrivelled in a curious degree, and easily torn under its wonderful influence. But to return to its effects upon the native or seasoned European; they are coughs, colds, and a species of irregular

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intermittent fever—so irregular in its form and peculiar in its character, that no attempt will be made here to offer a description by which it might be known, and this the more especially, as its particularities as a disease will be treated of in a subsequent chapter. About the termination of the harmatans, generally in February or the beginning of March, an occasional tornado signalizes the approach of the rains. Those tornadoes are in every way similar to the others already spoken of, but of greater frequency.

Respecting the rains, persons, even of local experience, do not always agree as to the actual period of their duration; some seeming to entertain the idea that nothing short of a threatening flood can constitute a regular Sierra Leone rain, while others adopt the opposite extreme, and date the commencement of the wet season from the occurrence of two or three showers. The truth, however, appears to lie in a medium course: the rains may be said to commence in April, to vary greatly in frequency and power until the latter end of June, in July to assume their greatest strength, to continue at it through August, and to subside in September. During July and August, twenty-four hours of uninterrupted fair weather is rarely experienced; and, on the other hand, it is uncommon for the rain to fall for a longer period than forty-eight hours without any intermission. At the commencement, and for some time after the setting-in of the rainy season, the wind blows ordinarily from the northward and eastward, and it is then that fever is most frequent and fatal. As the wet-season advances and the rains attain their height, the wind gradually veers round to the southward, and for the time being, there is an end to fever.

A sea-breeze, more or less strong, is generally felt in Freetown; but this, unfortunately, is not regular morning and evening; and, from the peculiar manner in which the town is surrounded by mountains, the indraft is not so strong, nor

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is the air so pure as it is in the elevated sea-district villages, where unobstructed sea breezes are enjoyed. In those villages, and the mountain villages also, the temperature is some degrees lower throughout the year than in Freetown, and better health is undoubtedly the consequence; indeed, premature death is of such rare occurrence amongst the Europeans stationed in them, that there was but one such case during a period of four years.

To these remarks we add a meteorological table for a year, and also rather a copious diary of the weather for about a similar period.

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METEOROLOGICAL TABLE, kept at the Military Hospital, Freetown, Sierra Leone, for the Year 1820.

	Thermometer.			Barometer.			Hygrometer.			Weather.			REMARKS.
	Max.	Med.	Min.	Max.	Med.	Min.	Max.	Med.	Min.	Wet.	Fair.	Cloudy.	
January.	86	80	79	29·99	29·93	29·80	9·2	3·2	1·2	2	25	3	E. or Harmatans, occasionally W. cloudy mornings, 12th and 13th rain fell.
February	87	80	80	30·30	29·91	39·81	8·6	2·7	1·1	2	24	3	Do. little sea-breeze, two tornadoes, hot and sultry.
March..	86	80	79	30·40	29·95	29·87	10·3	2·6	1·7	4	23	4	N. N. W.. no regular sea-breeze, hot and sultry.
April ..	84	81	79	30·99	29·85	29·81	4·2	3·8	2·0	2	28	0	From S. W. to N. W. fine weather.
May ..	85	81	79	30·91	29·85	29·82				10	15	6	From S. E. to N. W. close and sultry, 4 tornadoes.
June ..	80	80	78	30·92	29·86	29·81				11	15	5	Do. to do.
July ..	84	80	78	30·0	29·87	29·81	The instrument was accidentally broken.			In consequence of the temporary absence of the officer, the account was not kept.			Hot and usually fine weather, from S. W. to N. W.
August ·	82	80	75	29·91	29·70	29·82							Hot and sultry end of month, with heavy rain.
Sept. ..	83	80	78	29·93	29·91	29·84							Close and sultry, heavy rains night and day.
October.	83	80	78	30·10	29·86	29·30							Heavy rains in the night, and hot and sultry during the day.
Nov. ..	83	81	79	30·20	29·86	29·20							Do. tornadoes.
Dec. ..	85	82	77	30·40	29·30	29·60							Do. Harmatans.

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*General Diary of the Weather at Sierra Leone, from the 13th of October, 1829, to the 3d of October, 1830, inclusive.**

DATE.		REMARKS.
October	13	Fine—a little rain in the night.
..	14	Heavy shower from 9 to 10—slight rains throughout the day and a heavy shower in the night.
..	15	Fine—rain in the night.
..	16	Fine day—heavy clouds towards sun-set, with light occasional showers—strong wind, accompanied by rain in the night.
..	17	Fine—shower in the night.
..	18	Fine morning—slight tornado—between 5 and 6 very heavy rain—showers during the evening and night.
..	19	Dull morning—excessively hot during the day—tornado in the night.
..	20	Dry clear day, oppressively hot—rain in the night.
..	21	Clear day, as yesterday—heavy rain in the night.
..	22	Very foggy and damp until 9—cleared and became very hot—rained in the night.
..	23	Foggy morning—very hot day—dull at sun-set—at 10 p. m. signs of a heavy tornado—no wind—heavy rain—showery during the night.
..	24	Clear morning—hot day, as usual—no rain in the night.
..	25	Fine day, like yesterday—heavy rain, with a tornado.
..	26	Dull cool morning—fine day—tornado in the evening about 8, and another at 11 p. m.
..	27	Fine day—very heavy tornado between 3 and 4 p. m.—another at 5—occasional rains during the evening—lightning and thunder—rain in the night, and very stormy.
..	28	Fine until 3 p. m., when a heavy shower, followed by drizzling at intervals, until after sun-set—a tornado in the night.
..	29	Fine, clear, hot day—also a fine night.
..	30	Ditto, ditto ditto.

* The range and variations of the thermometer are not offered here, as the table which precedes the diary appears to be sufficient upon those points.

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DATES.	REMARKS.
October 31	Dull morning, with thunder—a southerly tornado about ½ past 1—threatening evening—rain in the night, and much distant thunder.
November 1	Rainy morning—much thunder and lightning—cleared up at 9, and continued fine during the day, but cloudy evening, and a heavy tornado about 11 p. m.
.. 2	Fine clear day—fine night.
.. 3	Ditto, very warm.
.. 4	Ditto, ditto, ditto.
.. 5	Ditto, ditto, ditto, but windy.
.. 6	Ditto, ditto, until 2, when thunder, lightning, and rain—threatened with a tornado, it however passed over—in the night much thunder and lightning, but little rain, although it looked very heavy.
.. 7	Fine, but oppressively hot—rain and wind in the night.
.. 8	Fine—heat almost insupportable—very oppressive in the night, until a tornado set in.
.. 9	Fine—night squally.
.. 10	Fine—night cool—full moon.
.. 11	Dull morning—the first of the harmatan season—found the E. wind very unpleasant, as usual—the sea-breeze drove it off late in the afternoon—dry night.
.. 12	Heavy tornado observable about 4 miles off—thunder heard about 7 a. m.—fine day, no harmatan wind—thunder from seaward all night.
.. 13	Dull morning—much thunder and lightning, and heavy rain, this continued till 9 a. m., when there was the appearance of a tornado over the town, which passed—thunder continued until 11—fine night.
.. 14	Clear sunny morning—harmatan wind from 11 till ½ past 2—tornado between 3 and 4, with very heavy rain—fine moonlight evening—clear night.
.. 15	Fine clear day until ½ past 2, and then a light tornado—very heavy rain—heavy tornado in the night.
.. 16	Fine clear morning and day—oppressively hot from 6 till 7 p. m.
.. 17	Ditto, ditto, ditto, ditto.
.. 18	Ditto, ditto, ditto, ditto.
.. 19	Fine morning—shower between 10 and 11, ditto, ditto, and during night.
.. 20	Ditto, ditto, ditto, ditto.
.. 21	Heavy shower in the afternoon, between 3 and 4.
.. 22	Fine day and cool.
.. 23	Fine morning, little sea breeze, which, after 2 p. m., set in again, and we had a cool evening and night.

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DATES.		REMARKS.
November	24	Fine morning—beautiful day—rather misty out to sea.
..	25	Ditto, ditto, clear.
..	26	Ditto, ditto, ditto.
..	27	Ditto, ditto, ditto—shower in the night.
..	28	Ditto, ditto, misty afternoon
..	29	Ditto, hazy at a distance, ditto—close and misty about evening.
..	30	Ditto, and clear ditto, ditto, ditto.
December	1	Ditto, hazy in the distance—harmatan wind.
..	2	Harmatan wind occasionally during the day.
..	3	Ditto, ditto—very fine day.
..	4	Ditto, ditto—very hot—much heavy lightning.
..	5	A tornado set in last night and distant thunder, but went off lightly in an hour—rain continued some time.
..	6	Fine day—misty in the distance—slight harmatan.
..	7	Ditto, ditto, ditto, ditto.
..	8	Ditto, very misty ditto—a most violent tornado in the night—little rain—3 persons killed by lightning, and their house burnt down.
..	9	Ditto, very hot and misty.
..	10	A thick fog, like a London November fog—From this date dry, warm weather prevailed until January, when the particular changes are again noticed.
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January	25	Rain in morning, and at 11 a. m.
February	1	Rain for 12 hours, commencing in the night—at one time very heavy.
March	6	Tornado from east, at ¼-past 5 p. m., but little rain with it.
..	7	Heavy dark day—slight drizzle occasionally—tornado from about S. E., between 8 and 9 p. m., accompanied by heavy rain.
..	8	Dull weather until 11 a. m.—slight drizzle occasionally—sun oppressively hot during the remainder of the day.
..	13	Two tornadoes before day-break—little lightning—no thunder—very heavy rain with the first.
..	18	Slight shower about six a. m.
..	24	Tornado at ¼-past 8 p. m. but little lightning, and thunder—heavy rain for a quarter of an hour.
April	1	Dull cloudy-looking day.
..	2	Tornado about 4 a. m.—heavy rain and heavy thunder of short duration, accompanied by vivid lightning.
..	3	Heavy tornado from S. E. passed clear of the town about 7 p. m., giving a little breeze in passing—broke at sea in N. W.—at 9 p. m. another tornado nearly E.—heavy wind and rain with this—not much thunder and lightning.
..	4 & 5	Heavy shower a little before day-light each morning.

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DATES.		REMARKS.
April	7	Occasional light showers for five minutes at a time between 8 and 10 a. m.
..	8	(Full moon)—heavy showers at ½-past 2 and 5 a. m.—the preceding evening closed heavily and threatened a tornado, which however passed off.
..	9	Heavy shower at 3 a. m.—dull threatening afternoon—at 7 p. m. a heavy tornado from about E. by S., which passed along the opposite shore of the river—much lightning and distant thunder during the evening—about 10 p. m., wind commenced from E., and continued to blow in gusts, to the strength of half a gale, all night.
..	10	Very clear, in consequence of the heavy wind, which only ceased about 5 a. m., and was succeeded by a pleasant, fresh land-breeze.
..	11	A tornado some 3 hours before day-break from S. E., not heavy.
..	13	Light rain for ten minutes about 8 a. m.—extremely dull until afternoon, when the fog cleared away—much distant thunder towards the north.
..	15	Cloudy evening—about ½-past 10 p. m., a heavy tornado passed over town, and broke towards the northward—a little light rain, with a fresh breeze—heavy shower about one o'clock—much lightning and distant thunder, this continued partially through the night.
..	16	About 5 a. m. part of another tornado was felt as it passed to the northward—much rain and wind with this and distant thunder, leaving a fresh breeze, accompanied by light rain, which continued until 9 a. m.—dull day after this, with occasional very light showers.
..	17	Heavy rain some time before day-break—a summer shower between 11 and noon—sun most oppressive afterwards.
..	18	Heavy shower before day-break—light rain for five minutes about 10 a. m.
..	19	At 1 a. m., a heavy tornado—thunder and lightning all night, accompanied by heavy showers, which latter continued until ½-past 1 p. m.—afternoon heavy and damp.
..	20	At eleven p. m., a heavy tornado commenced and continued for nearly two hours.
..	21	Very heavy all the morning, when the showers became light and continued until noon—very dull, damp, and cloudy afternoon.
..	23	Much distant thunder from 10 to noon—about 1 p. m. a tornado, accompanied by heavy rain, which continued about one hour and a half—heavy showers until four, when drizzly rain set in and continued until sun-set.

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DATES.		REMARKS.
April	24	Heavy showers before day-break, when a slight tornado passed to the southward of the town—heavy rain—drizzly from 6 to 8 a. m.
..	25	Light tornado about 11 p m.—heavy rain.
..	26	Light showers before day-break—signs of a heavy tornado about 10 p. m., which passed off, and heavy breeze set in from N. W.
..	27	A shower before day-break.
..	30	A drizzly summer shower for ten minutes between 7 and 8 a. m.—about 1 p. m. very heavy.
May	1	Ditto ditto ditto for half an hour, set in from seaward —heavy tornado about ½-past 4 p. m., which continued until near sun-set—fine evening.
..	2	At 10 p. m., strong appearances of a heavy tornado, which, after some time, passed away, and was followed by a heavy shower, which continued for about two hours.
..	4	Heavy tornado shortly after midnight—fine morning and day —about 8 p. m. another tornado, tolerably heavy—rain continued at intervals for about four hours after.
..	5	A very heavy tornado about ½-past 1 a. m.—heavy shower at 4 p. m.
..	6	Shortly after midnight, a heavy tornado.
..	8	Strong land-wind at ½-past 1 a. m., which was succeeded by a heavy shower, continued about half an hour.
		Some fine weather now followed.
..	17	Heavy rain before day-break—about 12 at noon a heavy squall from S. W., accompanied with heavy rain and very vivid lightning—the squall continued in full force an hour and a half, and the rain was exceedingly heavy—Mr. Barber's house was struck with lightning at both ends, when large iron bolts were withdrawn from the beams forming the piazza, many of which were rent or pierced to a considerable extent, the broken fragments of large dimensions being scattered about in all directions.
		Misty, with occasional showers throughout the day.
..	22	Shower at 8 a. m.—heavy shower from 4 to 5 p. m.
..	26	Showery throughout the day—blew very heavy at midnight
..	27	for half an hour, followed by much rain until near morning.
..	28	Showery until after 8 a. m.—light showers in afternoon.
..	29	Light drizzly shower about noon.
..	30	About 4 p. m., heavy rain to windward of town, and very cloudy around—much heavy distant thunder and very vivid lightning.

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DATES.		REMARKS.
May	31	About 2 a. m. a heavy shower commenced with strong breeze from eastward, accompanied by much lightning —heavy shower for about an hour, commencing at ½-past 8 p.m.
June	1	About ½-past 1 a.m. a stiff breeze commenced from the E., accompanied by rain—the wind increased, and the rain became heavier as the wind grew stronger—vivid lightning and heavy thunder—after nearly an hour and a half the tornado abated and was succeeded by showers, which lasted till sun-rise.
..	5	A very heavy shower, for nearly an hour, from southward, began about ½-past 11 a.m.
..	7	A very heavy tornado from S. E. passed to northward of the town about 5 a. m.—the distant thunder was more than ordinarily heavy, and the lightning most vivid—another, but less heavy, tornado passed to the northward of the town at about ½-past 12 at noon, with a little misly rain, which continued until sun-set.
..	8	Misly shower about 11 a. m.—at 3 p. m. a heavy shower for a few minutes from S. W.
..	9	A misly rain from E. at 1 p.m. was followed by a heavy shower, accompanied with much thunder and lightning—the heavy rain continued an hour, and was succeeded by drizzle, which continued until near 5 p. m.—very threatening appearances of a tornado at 10 p. m., which passed to northward of town, leaving a fresh breeze and a little misly rain.
..	10	Heavy rain a little before day-break.
..	11	Ditto ditto, accompanied by thunder and lightning, and a light breeze from eastward, between 4 and 5 a.m.—at 4 p.m. heavy squall from E.—rain continued until 9 p. m., with occasional light tornadoes.
..	12	About 4 p.m., squall from E.,—rain continued until 9 p.m. —hazy shower at midnight.
..	13	Rain some time before day-break—about 9 a.m., heavy shower, followed by a squall from S. W.—rain continued until 1 p.m., when it held up partially until 3—rained till 5—set in very heavily from S. W. at 8 p. m., and continued through the night, with very slight intermission.
..	14	Heavy shower from S. W. between 7 and 8 a. m.
..	15	Heavy showers before day-break—rain commenced from E., about 2 p. m., and continued with little intermission until 8—at ½-past 9 the rain commenced again, and continued throughout the night, until near day-break.

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DATES.		REMARKS.
June	16	At 4 p. m., a heavy squall accompanied a little thunder and lightning, from S. W.—it got round to S. E.—continued until 6—heavy rain for an hour from ½-past 7 p. m.—drizzly damp evening and night.
..	17	Drizzly, light shower at ½-past 7 a. m.—from ½-past 4 until 5 p. m., a heavy shower from S. and E.
..	18	A light shower shortly after midnight—rain commenced about noon and continued throughout the day—about 8 p. m., a heavy tornado from N. E., lasted about an hour—rain continued throughout the night until near day-break.
..	19	Light, occasional showers, from 1 to 4 p. m.
..	20	Light showers about 10 a. m. and 1 p. m.
..	21	Very heavy all day.
..	22	Drizzly evening.
..	23	Two showers, rather heavy, during the day—very wet evening.
..	24	Light shower in morning—drizzly at times in afternoon—heavy rain from ½-past 9 p. m., with occasional intermissions, until day-break of the 25th.
..	25	Shower about 7 a. m.—at 7 p. m., a heavy squall from S.—rain continued until near 11.
..	26	Rain all night, in occasional showers, until day-break—two light showers a little before noon—heavy showers in afternoon.
..	27	Fine morning until 8 a. m., when slight drizzle commenced—ended, after two or three smart showers, about 1 p. m.—fine afternoon and evening—showery night.
..	28	Fine day until noon—two heavy showers, and occasional drizzle until near sun-set.
..	29	Fine day throughout.
..	30	Showers before day-break—at 4 p. m., heavy shower set in from S. W., accompanied by a little distant thunder, lasted until near 6—heavy rain set in about ½-past 7 p. m., and continued, with little intermission, until near day-light of the
July	1	Drizzly shower about 11 a. m.—at ½-past 3 p. m., drizzly rain set in, which was quickly followed by very heavy rain from S., which continued, with little intermission, throughout the night.
..	2	Frequent heavy showers throughout the day.
..	3	A beautiful day until 1 p. m., when a heavy shower from S., which lasted for an hour—(full moon).
..	4	Beautiful clear morning, except about Leicester and the Sugar-Loaf Mountains—at ½-past 3 p. m. a heavy shower set in, which lasted until 5—drizzly until 7—a little misly rain occasionally during the evening.

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DATES.	REMARKS.
July 5	A heavy shower before day-break—drizzling rain set in at 10 a. m., and continued until 12—½-past 12, heavy shower from S. W., rain set in then, for the whole day—very heavy shower about ½-past 2, and at ½-past 8 p. m.
.. 6	Tremendous rain in showers from midnight until day-break—the rain continued throughout the night until ½-past 9 a. m. —Very hot during the day until 2—at ½-past 3, a very heavy shower from S., which lasted until ¼-past 4—drizzly showers until sun-set—very heavy shower about 7.
.. 7	Occasional showers until day-break—two drizzly showers between 7 and 9 a. m.—showers from 10 to ½-past 12 p. m.—showery towards sun-set—very heavy rain during evening, and tremendous showers from 9 p. m. until day-break.
.. 8	Drizzly in showers until near 9 a. m.—very hot for three hours, when rain came on lightly, and continued in showers until near 4—about ½-past 5 rain set in again, and, with occasional intermissions, continued until the morning of the 9th—the rain from midnight was tremendous.
.. 9	The rain continued from day-break without intermission until about 4 p. m.—occasionally very heavy for a quarter or half an hour—at other times light rain—drizzly towards sun-set —heavy rain during evening and night, with occasional short intervals—it was extremely foggy all this day.
.. 10	Heavy occasional showers before and shortly after sun-rise—cleared away towards 8 a. m., and became extremely hot—at 4 p. m. distant showers, with thunder—rain threatened to approach, but did not reach Freetown until sun-set —very wet evening—heavy showers throughout the night.
.. 11	Heavy showers until 8 a. m.—at ½-past 10 p. m. the sky was very dark and had the appearance of an approaching tornado, with this difference, that the whole horizon presented a similar threatening appearance—heavy rain came on and continued throughout the night, with slight intermissions—at 2, on the morning of the 12th, heavy lightning and thunder came on, and continued until ½-past 3, with appalling violence—nothing can be conceived so terrific and so awful as were the thunder and lightning.
.. 12	Fine day, with occasional misly rain.
.. 13	Light showers from noon to sun-set—light showers during the evening.
.. 14	A shower about day-break—cloudy and confined horizon in the morning—light drizzly showers from noon until sun-set heavy showers shortly after midnight.

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DATES.		REMARKS.
July	15	Little rain in the morning until ½-past 9 a. m.—fine day, very hot—heavy showers till after midnight.
..	16	Drizzly showery morning until 9 a. m., when heavy rain set in and continued in showers until 3 p. m.—occasional light drizzly showers during afternoon and evening.
..	17	Very heavy showers from midnight until day-break—heavy showers commenced about 9 a. m., and continued throughout the day—some of the showers in the morning were tremendously heavy—weather cleared up half an hour before sun-set—the heavy showers commenced again when the sun had set, and continued throughout the night.
..	18	Heavy showers cleared off for two hours from ½-past 8 a. m. —it appeared as if it would have proved a fine day—the heavy rain, however, commenced again about ½-past 11 a. m., and continued with occasional intermissions, when it was drizzly until near sun-set—rain set in again heavily—heavy showers during the night, but not so frequent as they had latterly been.
..	19	Drizzly morning and day, with an occasionally heavy shower —drizzle set in again towards 8 p. m., and continued, with occasional showers, through the night.
..	20	Very heavy rain in showers until about an hour after noon, when it held up for a short time—heavy rain and drizzle until sun-set—damp showery evening—two or three heavy showers in the night.
..	21	Very fine from about 8 a. m.
		From this day until the 2d of August, the gentleman, from whose notes these are extracts, was unwell.
August	3	A very fine morning—two light showers about noon—exceedingly hot during the day—fine night.
..	4	Very fine day—dull and cloudy towards sun-set.
..	5	Fine day—shower about noon—cloudy ditto.
..	6	Several showers between 10 and 5 p. m.—fine at sun-set.
..	7	Heavy showers for some time previous to day-break—they set in again after sun-rise and continued until 9 a. m.—showery during the day—clear at sun-set—shower about ½-past 9 p. m.
..	8	Heavy showers during the night and shortly after sun-rise—light showers frequently during the morning—rather fine from noon until 3 p. m., when heavy rain set in and continued in violent showers until 10 p. m.
..	9	Heavy showers until near day-break—fine day—cloudy and threatening towards sun-set—beautiful evening.

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DATES.		REMARKS.
August	10	Little rain before day-break—very cloudy about 4 p. m.—heavy rain set in about sun-set, and continued for 3 hours.
..	11	Showery before day-break—two or three light showers before noon—showery and threatening from 4 p. m. until sun-set—two heavy showers during the evening.
..	12	Very heavy rain, in showers, from midnight until 8 a. m.—occasional heavy and drizzly showers throughout the day—heavy rains from sun-set until 10 p. m.
..	13	Showers from midnight until about 9 a. m., the rain fell occasionally in torrents—drizzly showers until 11 a. m., when it cleared up for about 3 hours—drizzly unpleasant afternoon, and evening until 9 p. m.
..	14	Heavy showers before day-break—cleared up towards 8 a. m.—drizzly shower or two before noon—heavy showers from 1 p.m. until 3, with much fog—cleared up near sun-set, when it became again drizzly—heavy showers early in the evening, which were followed by very heavy rain.
..	15	Tremendously heavy rain throughout the day and evening, with powerful wind from S. W.—it did not cease raining in any part of the town for more than 5 or 10 minutes during the day.
..	16	Very heavy rain, and tremendous breezes throughout the night—drizzly rain, in showers, during the afternoon and evening.
..	17	Very little rain before day-break—much wind—occasional light showers during the day—the sun appeared frequently and was very oppressive—fine evening.
..	18	Light shower a little before sun-rise—beautiful day, equal to the dry season—a new moon to-day—fine evening.
..	19	Very little rain before day-break—foggy seaward—a slight shower about 9 a. m.—[The weather now cleared up, and continued fine, with tremendous sea breezes until the 23d.]
..	23	Cloudy, dull-looking morning—little shower between 8 and 9 a. m.—cloudy day, with occasional sunshine.
..	24	Fine clear morning—became cloudy about 9 a. m. and continued to look doubtful throughout the day—a little drizzly rain threatened at sun-set, and continued, at intervals, during the evening until about midnight.
..	25	The rain set in about 10 a. m. and continued heavy until just before day-break—during the day occasional drizzly showers, as also in the evening.
..	26	Heavy showers from midnight until day-break—at intervals, occasional light drizzly showers until sun-set—fine evening.

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DATES.	REMARKS.
August 27	Fine clear morning—a dry season-like day and evening.
.. 28	Dull cloudy morning—much misty atmosphere floating about the mountains, and every appearance of a wet day—rained a little, and then cleared up about 10 a. m.—in the afternoon frequent light, drizzly showers.
.. 29	Very heavy rain before day-break, which continued, with little intermission, until near sun-set—heavy rains in the evening.
.. 30	Heavy showers before sun-rise, which continued until 10 a. m. —occasional light, drizzly showers during the day and evening.
.. 31	Heavy rain before sun-rise, which again continued until 10 a. m.—near 11, heavy shower, which was succeeded by a light, drizzly rain that continued until near 2 p. m.—cloudy afternoon—fine evening.
September 1	Very little rain before day-break—fine clear morning until between 10 and 11, when heavy rain set in, and continued until near 2 p. m.—frequent drizzly showers until sun-set—beautiful evening until 11, when heavy showers commenced, which continued with little intermission during the night.
.. 2	Heavy showers until near noon—cleared away for about three hours—about ½-past 2 p. m. doubtful weather set in again, and we had frequent drizzly showers during the day and evening.
.. 3	Little heavy rain before day-break—fine day—clear and bright, like dry season—lovely moon-light night.
.. 4	Very heavy rains between 2 and 4 a. m.—during the day, until about 3 p. m., it was occasionally very clear and bright, and alternately heavy rains and drizzle succeeded clear periods—about 3 very heavy rain set in and continued to sun-set—heavy showers—a little thunder in the afternoon.
.. 5	Heavy rain before sun-rise—fine day until sun-set, when it became showery and continued so during the evening and night—the rain fell very heavy in the night.
.. 6	Dull morning—much rain from day-break until 11 a. m., cleared up after this, and was tolerably fine during the afternoon—heavy showers occasionally during the evening, and much lightning.
.. 7	A little heavy rain before day-break—showers until near 10 a. m., when it cleared up—rainy shortly after noon—again cleared and was fine till evening, when frequent showers.

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DATES.	REMARKS.
September 8	Very heavy rain, in showers, until sun-rise—heavy showers until 9 a. m., when it cleared a little—drizzly weather until 1 p. m., when it cleared up and became dull and cloudy about sun-set—slight drizzle in the evening.
.. 9	A little light rain before day-break—beautiful clear morning—sea-breeze—a fine day throughout—fine evening.
.. 10	Very little light rain before day-break—beautiful clear day—cloudy towards sun-set—after sun-set heavy showers set in, and continued throughout the evening.
.. 11	Very heavy and continued showers from midnight until 9 a. m.—cleared up and became most oppressively hot—occasional light showers during the day, until ½-past 4 p. m., when very heavy rains set in, which continued with little intermission until 8 p. m.—slight cessation—heavy shower about 12 p. m.—the rain came on very heavily, and continued in showers until day-break.
.. 12	Dull threatening day, but the rain kept off until late in the evening, with the exception of a drizzly shower, about 3 p. m.—light rain between 9 and 10, and heavy rain towards midnight.
.. 13	Frequent heavy showers before day-break—a torrent of rain fell between 6 and half-past 7 a. m.—much distant thunder, fine morning afterwards—fine day—light rain about 2 p. m.—fine afternoon—a little drizzle in the evening.
.. 14	Heavy rain until near 9 a. m.—heavy showers during the day, from half-past three p. m. until sun-set—rain fell in torrents—showery evening—very heavy towards midnight.
.. 15	Very heavy rain until about 9 a. m., when it became light and showery—frequent showers during the day—heavy and damp at sunset, and drizzly showers during the evening.
.. 16	Very heavy showers until about 7 a. m.—drizzly from 9 to 11 a. m.—heavy showers frequently until near 4 p. m.—frequent light showers until near sun-set.
.. 17	Very heavy rain before sun-rise—continual showers and light rain throughout the day—drizzly evening—frequent distant thunder during the day.
.. 18	Beautiful clear dry season-like morning—this weather continued throughout the day and evening—sun was oppressively warm in the day, and the lightning vivid in the evening.
.. 19	Several smart showers before sun-rise, and after it, until 8 a. m.—a heavy shower from N. E., about 11 a. m.—continued for twenty minutes—very little breeze with it—the last three days strong indication of tornado season setting in

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DATES.	REMARKS.
	—dull afternoon—very cloudy to E., like a tornado—at sun-set heavy squall from E., accompanied by very heavy rain, which lasted half an hour—drizzly evening.
September 20	Much rain until day-break—frequent showers until 8 a. m. when it became drizzly for an hour—three or four trifling showers during the day—drizzly, dirty evening, with occasional showers.
.. 21	Much rain in showers until sun-set—light rain in the evening.
.. 22	Heavy rain until sun-rise—frequent showers throughout the day, some very heavy—heavy rain in the evening—much distant thunder.
.. 23	Very little light rain before sun-rise—a beautiful dry-season day and evening.
.. 24	Very fine day again—after sun-set heavy thunder, much lightning, and every appearance of a tornado, which set in between 9 and 10 p. m.—the tornado was very heavy, and followed by a flood of rain, which continued, with short intermissions, until about 4 o'clock.
.. 25	Fine day—sun oppressively warm.
.. 26	Light showers before and after sun-set, until about 11 a. m. —fine day—damp evening.
.. 27	Very heavy rains until sun-rise—heavy showers afterwards—slight cessation, about 9 a. m., for an hour, and also from 4 p. m. to sun-set—heavy evening.
.. 28	Tremendously heavy rain just before sun-rise, and afterwards for some hours—a perfect rainy-season day and evening.
.. 29	Very heavy rains from 4 a. m. until 8 a. m.—the remaining part of the day, until between 3 and 4 p. m. being attended with very heavy showers—fine moonlight evening.
.. 30	Rain began about half-past 2 a. m., and increased in violence till towards sun-rise—heavy showers afterwards until 9 a. m. when it cleared up—occasional light shower during the day —fine evening.
October 1	Very little rain before day-light—damp morning until near 8 a. m.—fine day and evening—showery towards midnight.
.. 2	Little rain about sun-rise—damp, dull morning till near 9 a. m.—very warm during the day.
.. 3	Rainy before and after sun-set, accompanied by much thunder and lightning till 9 a. m.—dull day—little rain in the afternoon.
	Ill-health prevented a record being kept of the last ten days, but during them nothing unusual occurred.

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Having thus given a general notion of the climate, a favourable opportunity now presents itself, for offering a few suggestions connected with that subject; and which, if adopted, might lead to the prevention of much disease in Freetown and its vicinity: and prior to making these recommendations, it may be observed, that although as given they are peculiarly adapted to that town and its neighbourhood, still the general reasoning and the inferences deduced from it, upon which they are founded, are applicable to the whole of that portion of the western coast of Africa, of which this work treats.

There are a few swampy spots to the southward and westward of the town, which might be greatly improved by burning the bush, draining and filling up. Though, apparently, a trifling matter, and certainly most easily to be effected, this is a very important point. Nothing can be more injurious to health than the exhalations from spots where the rains have formed stagnant pools, especially when the soil of the hollow, as is generally the case, is loose and overgrown with bush. From the violence of the rains they stream down the mountains and the higher lands, and carry with them an immense quantity of vegetable matter, the greater part of which is deposited at the lowest point of descent. When the wet season subsides, these collections of water are rapidly evaporated, and the vegetable matter, being acted upon by the burning rays of an almost vertical sun, soon experiences decomposition, and, while undergoing that process, emits a noxious and most unsalutary effluvia. The height of the dry season would, perhaps, be the best time for clearing and filling up these places; and, in doing this, care should be taken to destroy the bush thoroughly, and to render the artificial ground somewhat higher than the adjoining parts, and as solid as possible. If these points be not attended to, the succeeding rains, naturally pursuing the courses from the higher lands which have been formed by nature or their predecessors, will rush to the old spots, and effect, in a greater

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or less degree, according to circumstances, a lodgment there, and the bush will certainly re-appear at no very distant period.

The stranger to this climate can hardly form a notion of the immense importance of burning fires in the wet season. In the description of Freetown we have noticed that most of the better rooms contain fire-places, and we would now suggest particular care in using those conveniences constantly during the rains, and also that attention should be paid to the fuel, which should be perfectly dry and easily susceptible of ignition. A moment's reflection will shew the importance of acting in accordance with this suggestion. Through the agency of fire the great humidity of the air, and the effluvia and malaria consequent upon such a state of atmosphere, and which are among the great causes of disease, are corrected or avoided. By fire the air is rarified, and, of course the usual concurrents or successors of a dank atmosphere have no existence where that precaution has been used.

The great source of malaria and sickness, however, in Freetown, in the lower portion of the Sierra Leone, and in that part of the peninsula which is northward of the mountains, appears to be the Bullom shore. Of the nature of that shore we have already spoken, and its general character may be given in a very few words: it is a vast swamp, of the most unhealthy description. To clear and drain the whole of that tract of country is impracticable—it is even beyond attempt; and, therefore, the utmost that can be hoped or looked for is the conception and execution of some plan which will protect Freetown from its influences. On considering this subject, and reflecting on all the information that has been derived from experience, it would seem, that if an obstructing medium could be established on the Bullom beach, immediately N. E. of Freetown, and of sufficient length to stand between the whole range of buildings and the N. E. tornado, it would have the effect of sheltering the town from the rava-

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ges of such epidemics as those of 1823 and 1829, and which unquestionably proceeded from the Bullom shore. When the writer of this volume was on the spot he reflected much upon the subject, and devised a plan, which appeared to him at once practicable and calculated to effect the object in view. Further consideration has not altered that opinion. The plan is subjoined, therefore, and it is given precisely in the language in which it was submitted to his Majesty's Government on its conception. Should its style be objected to, it is to be observed in excuse, that it was written with the utmost haste, and during a period of excessive labour, when the urgent claims of humanity left no room or time for thoughts of verbal criticism.

"The mode of carrying the measure into effect is now to be considered, and consists, first in obtaining from the chiefs or proprietors the necessary lands for the contemplated object—say three miles and a half long, by half a mile in the rear, with the power of extending the same by admeasurement, should such, at any time hereafter, appear expedient. This, I doubt not, would be procurable on moderate terms, as we have already one mile square on the Bullom shore, at a rent of twenty pounds per annum; and which, as it is altogether unoccupied, might no doubt be bartered, should its situation not come within the intended site of location. This part of the expense might be from sixty to eighty pounds annually. The next point for consideration is the safety of the occupants from slavery and disease, and, consequently, the question as to who are the proper persons to carry the practical part of the plan into effect.

"The pensioned liberated African soldiers are the men, they having some knowledge of our laws, of discipline, and of agriculture. A desire to hold their pension would be the best possible guarantee for good conduct. These people might be placed in equi-distant situations from one end of the intended range to the other; the interspaces being filled up

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by such persons (newly-arrived liberated Africans always excepted) as might volunteer for the new residence: thus, they would be under the immediate observation of the old soldiers, who should be made as responsible as possible, and be designated sub-managers, constables, &c.

"The house of the manager, who, from a consideration of health, should be a native, ought to be as near the centre of the range, as the advantage of its being, also, in the immediate vicinity of a convenient landing-place, would admit. That house might at first be of mud, in the country style, at an outlay of about twenty pounds; the manager's pay being one hundred per annum. The houses for the inhabitants would, of course, be constructed by themselves, with the assistance, perhaps, of a temporary working party of convicts, &c., and would, therefore, be free of expence. So, the whole of the plan for the achievement of the important objects, primary and secondary, that might reasonably be expected to follow the lessening of disease and death in Freetown, if such should happily be the result, would cost from one hundred and sixty to one hundred and eighty pounds yearly, besides the immediate outlay of twenty pounds. I would, therefore, respectfully submit, that if Sierra Leone be worth any thing, commercially, morally, or politically, it is worth the trial of this suggestion for lessening its proneness to disease, and the consequent impediments to its welfare.

"Presuming all things to be now in progress, it is yet necessary to treat of localities: the security of the new settlers is to be considered; and the more successful that consideration, the more happy the result of the entire plan.

"The contemplated measures, however, being within reach of local management, may be summed up in a few words. They would consist chiefly in the manner of constructing the houses, the planting of trees of rapid growth (paupa's are of this description) immediately behind the habitations of the people facing the interior, local draining, the burning

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the bush in every direction, at proper seasons, and the building and burning of a range of clay kilns at a little distance (in the rear) from the range of houses on the beach. These kilns might be so constructed as to be made to burn many days, even under light rains, and would, therefore, be highly appropriate at the commencement of the wet season; whilst their ashes would, at all times, contribute to afford richness, dryness, and productiveness to the soil."

Should this measure be adopted, and prove successful in its first object, it is hardly necessary to allude to what would be the natural collateral consequences. It may not be out of place, however, to observe that, if comparative health were established in the capital of this colony, its character and its wealth would rapidly improve. A stronger spirit of business-like zeal and confidence would animate its merchants, and the chiefs in the interior would be naturally induced, under such clearly advantageous circumstances, to open their roads and carry thither their native productions, as ivory, wax, gold-dust, &c., in order to barter them for articles of British manufacture.

The Banana Islands.

Similar reasons to those which were considered to attach importance to the Isles de Los, and to entitle them to a particular description will be found to operate with respect to the Bananas. In dimensions, these islands are insignificant, but their vicinity to Freetown and other circumstances call for their consideration.

The Banana Islands are situated due south of Cape Sierra Leone, in lat. 8° 30′ N., and are distant from Freetown, in a direct course over land, about eight leagues, and by water, nine leagues. These islands are generally considered to be of sub-marine volcanic production. They are two in number, but have generally been supposed to be three, owing to the larger one being apparently divided into two by the sea.

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The intersection is of considerable width, and even at low ebb there is some water over the connecting medium. The largest of the two islands was named in the Sherbro Bullom tongue, *Yel-ab-Bana* (Great Island), in contra-distinction to the Plantain Islands, which, in the same language, are called the Bananas. It lies the nearest to the main land, running nearly east and west, and is about three miles and three-quarters long, with a breadth not exceeding one mile. Of the eastern portion of this island, the part which faces the main, is called Dublin, and consists of an extremely gradual ascent of unbroken table-land, but little varying in its breadth to an extent of about two miles; a hill or mount 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 Leven. The quality of the soil on the table-land is good, it being a deep, rich, dark loam, with occasional patches of red clay. Every part of the plain is under cultivation, and is intersected by block lines, and surrounded by pathways, the latter reaching to the intersection before noticed. The western extremity of this island consists of a moderate elevation, which is much less considerable, both in height and extent, than that on the eastern portion, and is entirely uncultivated with an irregular surface. The views from either of the elevations are particularly beautiful. At the points of intersection there are two harbours; the one on the north of the island, and the other on the south. The southern of these harbours is of considerable extent, it is also convenient, and safe; and the two are separated from each other only by the narrow neck of land already noticed. In appearance they are one, especially at high water. The centre of the island, on either side of the intersection, consists of low land, of excellent quality, which runs from the water to the bases of the mountains, and may comprise altogether about one hundred acres, which are pretty equally divided.

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The fifty acres on the western side are called Palm Grove, and they are in a state of cultivation highly creditable to the manager, and fully demonstrative of the fertility of the soil.

The north-western aspect of Mount Leven presents a most desirable situation for a town, it being thoroughly open to the sea-breeze, and entirely free from all marshy dampness. There is no immediate local ground for apprehension of suffering from malaria, and all fear of that dreadful visitant making its way to this spot, from the Bullom shore, or the swamps in the neighbourhood of Freetown, is done away with, by the lofty ridges of mainland mountains which run from the village of Kent to Cape Sierra Leone. Indeed, it is as important as applicable here, to notice the fact, that not one case of fever, during the prevalence of the epidemic of 1829 at Freetown, can be traced to the villages of York and Kent, situated on the sea-side of, what may be fairly named, as regards health, the protecting mountain: nor is local testimony wanting to show that those towns have always been infinitely more healthy, whether for Europeans or Africans, than any others in the peninsula of Sierra Leone. The causes are manifest, and have been before particularly noticed.

The western of the Bananas is much smaller than the eastern, and is entirely in a state of nature, a particular account of it, therefore, is unnessary; and, as the soil and capabilities of the two islands appear similar, their natural productions may be noticed in one description.* Those that are indigenous first claim notice, and are, commencing with fruits, bananas, grapes, plantains, tamarinds, oranges, limes, guavas, cocoa-nuts, and two or three different kinds of plums.

* The passage between these two islands, it is evident, was not seen by the Commissioners of Enquiry, as it is about two hundred yards wide, judging by the eye from its centre, and is sufficiently deep to allow large vessels to pass; a circumstance which might prove highly advantageous in case of a heavy gale blowing upon either side of the islands.

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Peppers are found in abundance. No lofty trees grow on the islands, except the pullom, the palm, and the cocoa-nut, before-mentioned. Of esculents, the yam, cucumber, and edoes, are natives, in addition to which there are now under profitable cultivation, cassada, rice,* Guinea corn, arrow root, ginger, Indian corn, and sugar-cane. The pomegranate has been introduced, and almost every species of European esculents are now raised on the eastern island. Buffaloes were found at first on the great island, and are still in great numbers on the small one. They are occasionally shot, and afford extremely tender meat of the finest flavour: on the same island there are also wild goats and sheep, monkeys, and snakes of different kinds. Upon both, and in all parts of the islands, cultivated and uncultivated, a vast number of wood-pigeons, and a variety of other species of the feathered creation are to be seen. Springs of excellent water are easily procured in any situation. There are loose rocks of granite well calculated for building, and clay-stone in great plenty. A great variety of fish is constantly procurable, and turtle and whale are very frequently seen.

The maximum temperature (Fahrenheit's) of the atmosphere in an open verandah, at the hottest time of the day, is 84°; the thermometer in the shade, in the morning, is about 77°; 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. This narrow limitation of thermometrical range is highly important, as it regards health, and is only to be observed on small islands, or a very pointed extremity of mainland, such as that of the West of England. Well weighing all these facts and circumstances, a person would

* The country rice is said to produce, on an average, about thirteen fold in this island; whilst it is positively stated by the manager that the Carolina rice produces, on an average, full twenty-five fold. The natives, however, prefer a pint of the country rice to a quart of the Carolina rice, which accounts for the country rice being most cultivated

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naturally conclude that the Bananas must be healthy; and, certainly, looking at the result of the only experiments which have been made, there is no reason to believe that such a conclusion would be unjust. On the contrary, the names of all the individuals (Europeans) who have resided there during periods of from three to ten years are known, and not one of those persons appears to have died on these islands.* This is a remarkable fact, and in order to substantiate it beyond doubt or question, we give the names of the persons who resided on the Great Island for any considerable period during the last ten years, together with a note of what became of them on their leaving the Bananas.

Nellam, went to Sierra Leone; Halgrin, went to Europe; Cox, living to leeward; Stevens, Richards, and Grant, went to Europe; Smith, went to leeward, where he afterwards died; Mieux, went to Sierra Leone; Mr. Cambell, still residing in the Great Island, being manager, and one of those of ten years residence there.

Of the above number of persons, six would have been a fair average mortality within two years at Sierra Leone.

The harbour on the northern side of the great or eastern island is the smallest of the two, and not very regular in its soundings, which suddenly vary from three to five fathoms. It also contains several loose rocks; but, as the holding ground is good, being of blue clay with broken shell, the rocks do not, perhaps, shift, and might not, therefore, be found dangerous when the navigation of the harbour became thoroughly known. The southern harbour promises every thing that is desirable in a place of anchorage. It has been regularly and carefully sounded, and there appears to be every reason to believe, that a large fleet of vessels of all classes, from the largest ships of war to the smallest trading

* It is right to mention, that a Mrs. G———, the wife of one of the missionaries, who had visited the Bananas on her approaching accouchement, died there in labour without medical assistance.

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sloop, would find safe and well-protected anchorage within its limits, with the best possible holding-ground, and a bottom entirely free from rocks, except towards its boundaries. Vessels, taking up a position in the western side of the harbour, are defended from the south-west winds, which prevail from June to October, and are the only powerful winds of any continuance experienced on the islands,* by a point called Aligator Point. With respect to the effect of the tornadoes on shipping in the harbour it is to be remarked, that they reach the Bananas directly from the east, and their violence is effectually spent upon Mount Leven. The only other wind to be apprehended is the S. E. which blows from the main, and is occasionally violent, but rendered harmless in the harbour by Pullom Point.

In this harbour the merchant ships might moor to the shore if desirable; and a seventy-four might anchor within sixty or seventy yards of a jetty nearly completed by nature. This jetty is composed of huge rocks, and the repeated action of the tide has almost cut a small canal on either side of it. The jetty ought to have a little more elevation, but that, and all alteration necessary to perfecting the structure, might be made with facility; and the canal might also be easily completed to a sufficient depth to afford an accommodation for the passage of boats from either harbour to the other at low water. If these improvements were made it would be desirable that a drawbridge should be thrown from either side of the jetty across the canal, for that would render the airy and healthful promenade, which the jetty would of course present, perfectly available. On the jetty a convenient residence for a wharfinger might be erected.

With the advantages already enumerated it must appear

* The Bananas were visited in the beginning of October, and the harbour in question was examined, when the wind was strong from the S. W. but there was not roughness sufficient to prevent even a boat from riding safely at anchor in any part of it.

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extraordinary, that the Banana Islands were never brought under the consideration of his Majesty's Government. Had the contrary been the case, in all human probability they would have been selected as the seat of the local Government instead of Freetown, and have prevented an incalculable waste of life and money.

As regards the suppression of the slave trade, the facility of "making" the Bananas, and that of "putting to sea," the nearly central situation of the islands, with respect to the whole tract of the slaving coast from the Gambia to Cape Lopez, and their immediate vicinity to two of the principal notorious slave marts, Sherbro and Galinas, all unite to show the important and powerful position which they occupy, and how admirably adapted by nature they are for the seat of the local Government on the coast. It may be objected that the Bananas are too small for the seat of the local Government, but, in fact, their smallness in size, situated as they are in respect to Sierra Leone, is one of their greatest recommendations; for they would be completely cleared and cultivated in a very short time, and would be found amply extensive to meet the wants of all the European Government authorities connected with the immediate liberation of enslaved Africans. The slaves, as adjudicated, could be quickly conveyed to the nearest point of the peninsula on which the village of Kent is situated, and thence passed to any of the less populated parts of the settlement.

After the immense outlay there has been both of life and treasure, it is hardly to be expected that any proposition for new experiments on this part of the Coast of Africa will be favourably received, either by the British public or his Majesty's Government; but both the Bananas and the Isles de Los seem so completely to court investigation and to reward it when instituted, that it would have been inexcusable in a work like the present to pass them over in silence.

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FEVERS

PREVALENT ON THE

WESTERN COAST OF AFRICA.

THE theory of fever, as a distinct disease, has been so frequently and fruitlessly discussed by ancient as well as modern physiologists, that any lengthened apology is not necessary for avoiding the speculations to which such discussions would inevitably lead; and that, too, to the probable injury of the practical facts which may be brought forward in illustration of the nature of the specific fevers about to be delineated. Nor is it desirable to attempt a stiff arrangement of causes, in imitation of some of the systematic writers on fever; as, in one case, it may be that the power of the sun alone will prove to be the immediate or exciting cause; whereas, in another case, from some hidden peculiarity of constitution, or some particular state of the constitution at the time, the solar influence must be considered as a distant or remote cause.

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The object, in fact, of this part of the work, is not to indulge in abstract reasoning or theory, but to treat of the fevers noticed as they are actually known; to describe, as clearly as possible, all the causes which are tangible and susceptible of a precise definition; to state those symptoms which are attendant on them; and to furnish data in justification of that treatment, which, from experience, contrast, and analogy, seems to be the most expedient, and is, therefore, recommended.

All the usual terms with respect to causes will be employed according to their ordinary definition, with the exception of the term *proximate*, which will be purposely avoided from its precise qualities not being established, and its meaning consequently always ambiguous.

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CHAPTER II.

THE CLIMATORIAL BILIOUS REMITTENT FEVER; ITS CAUSES; ORDINARY SYMPTOMS, PROGRESS, AND TREATMENT, ILLUSTRATED BY CASES;* TOGETHER WITH GENERAL REMARKS RESPECTING IT.

OF the fevers common to the western coast of Africa, within the tropics, the climatorial bilious remittent fever may, with propriety, be the first considered, and that from the circumstances of its being less complex in its causes, more simple in its nature, and less disastrous in its results and consequences, than are the others which prevail within that region.

Ordinary Causes.

Agreeably to the arrangement proposed in the introduction, respecting what is conceived to be a very necessary and even a vital distinction, that is, the difference between similarity of symtoms and actual consequences, the question entitled to primary consideration is, an inquiry into the causes of climatorial bilious remittent fever, as it ordinarily occurs to the crews of ships of war, or to those of other ships, which have not been at all, or but very little exposed to local influence.

In this inquiry much candour is called for, and it is right at the outset to explain, that it is not by the symptoms alone that the novitiate practitioner upon the coast, or even

* A few of the cases given are of a mixed character, having had local exposure in their production, in addition to common climatorial causes. These cases have been brought forward with a view of affording ready contrast in respect to causes and effects.

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the experienced local practitioner there, is to judge of the distinctions in this fever, which are held to be so important. It is circumstances, and circumstances alone, that should determine as to the original causes, and upon which, as it will hereafter be endeavoured to be shewn, the treatment should be made most materially to depend. This, at first sight, may appear to be a somewhat unnecessarily minute view, but it proceeds from a positive conviction, founded upon experience, that it is both proper and advantageous to institute the closest distinction possible with respect to the causes of this fever. Before proceeding further, however, it is incumbent to express the fact, that when the patient has been exposed to the influence of the land, the causes of his fever may be of so mixed a character, between climatorial and local excitants combined, as to put it beyond the power of the practitioner to draw a distinct line of demarcation. This observation, of course, refers only to a difficulty of occasional occurrence, and one which forms the exception to a rule that appears to be at once just and general, and, therefore, worthy of serious attention. This difficulty, or mixture of causes, having thus been noticed, a particular inquiry into it may with propriety be deferred until the nature of the simple climatorial fever has been investigated. That investigation may be at once entered upon.

Great caution is necessary to enable the practitioner to distinguish between the climatorial bilious remittent fever and the simplest form of the African local bilious remittent fever, which might be otherwise easily confounded; for, as the cruizing ships of war upon the coast, though not to the same extent as merchant ships trading there, are exposed to more or less local influence at uncertain periods, varying from circumstances, after their arrival upon the station, it may sometimes be very difficult to say, whether the fever occurring depend on climatorial or local causes, or upon both combined.

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When it is taken into consideration, that the ordinary or medium range of the thermometer, on the western coast of Africa, is from 76° to 86° in the shade, and that its maximum greatly exceeds the last degree under the direct influence of the sun, which is there nearly vertical, and to this consideration is added a remembrance of the arduous duties to which British seamen are exposed, whether in his Majesty's ships or those employed in trade, it will readily be conceived, that fever is a very probable occurrence amongst the crews, independent of local exposure and local causes, from which, however, they are seldom long exempt after their arrival on the coast. To the general excitants to fever in the crews of ships, just noticed, are to be added several specific internal causes on board, which vary very much in different ships; although, as regards those of the public service in particular, a similarity of discipline is generally aimed at.

The causes of fever amongst merchant seamen lose their mere climatorial character immediately the people commence their local labours in any of the rivers. This change may take place immediately upon the arrival of a ship in a river harbour, even before a landing is made or communication had with the shore; and it depends upon the prevailing season and its peculiarities, but, above all, upon the direction of the winds, and whether they blow over a swamp or otherwise. These observations apply also to such of the crews of ships of war, as may be similarly exposed, when employed in boats in quest of slavers up any of the rivers. If fever set in under such circumstances, that fever will assuredly assume a malignant type.

Sol-lunar influence is powerful in the production of fever on the western coast of Africa, and indeed in all parts between the tropics. Many instances have been known of men, whilst at work under the rays of the sun, dropping down, as if shot; and that, without any previous threatening symptom or habit of indiscretion; and also men, who, to

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avoid the closeness sometimes experienced in sleeping between decks, have slept on the upper deck, without the knowledge of the officer on watch, thus, exposing themselves to the apparently harmless beams of a brilliant moon, have often been known to be suddenly affected with fever. The rapidity of the latter attacks precludes the thought that they were attributable to damps or dews that might be falling in the night, and which, indeed, are also common causes of fever, but not so immediate in their consequences.

The sea-faring character, as is well-known, is too frequently prone to an excessive indulgence in the use of ardent spirits, and will often elude the strictest watchfulness, and obtain that very pernicious cause of fever. It is astonishing however, to see how long the habit of inebriation may sometimes be practised with apparent immunity; but a subject addicted to that habit once attacked, his case generally defies all human means, and proves fatal.

The converse of the above character is not at all exempt from fever in its most malignant type, if his observance of abstemiousness has been adopted through apprehension. However much the assertion may be at variance with the conclusion arrived at by some other writers and observers, it may be confidently stated that the absolute "water-drinker" is in as dangerous a predicament when once seized with fever as is the absolute "drunkard."

It is the person who lives as nearly when abroad as circumstances will allow, up to his general habits when at home, that is acting without fear; and of the three characters alluded to has infinitely the best chance of recovery when attacked by fever. To this position exceptions will, of course, be found to occur; but it is upon general results that general principles are to be established, and, so tried, the rule now recommended will not be found to be erroneous.

A want of strict attention to ventilation and to cleanliness are sometimes the fore-runners, or remote causes, of fever on

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board of ships, and when fever is at all induced by such circumstances, it will be complicated in its character, difficult of cure, and will not ordinarily cease its ravages in a short time. Indeed it will, in all probability, eventually assume a contagious nature, especially if the ship be lined, for that circumstance permits a lodgment of deleterious matter where it is not easily assailable, and which is deposited from the filthy water oozing through the seams of the lining, and passing between that material and the ship's bottom. When these circumstances are prevalent, contagion in case of the occurrence of fever, is almost a certain consequence. Attention then to the manner of fitting vessels up in this respect, should be a greater desideratum than it has hitherto been. Most of the vessels that have had a contagious fever on board, as far as inquiry has gone, whether in the West Indies or on the coast of Africa, were fitted up with lining or limber boards, as above alluded to; and, until this serious cause of the malady was altogether removed, there was no certainty of a final cessation of its destructive effects, for even a temporary suspension of its ravages was no security against its return.

It is unnecessary, however, to remark further respecting the complex character of this fever, which is here to be considered in its more simple form, and not as a contagious disease; a character it only assumes under particular circumstances. The ordinary symptoms may, therefore, now be adverted to, together with the progress of the disease, and the manner of its treatment.

Ordinary Symptoms, Progress and Treatment.

This fever is *ordinarily* characterized by severe head-ache, pain at the pit of the stomach, retching or vomiting, with a costive state of the bowels; sometimes vomiting of green

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bile, great heat of skin, suffused eyes, and thirst; the tongue being generally more or less furred; usually, also, pains in all the joints, and tottering of the limbs. The pulse varies from 90 strokes in a minute to 120 or 140. On minute inquiry it will generally be found that the patient is suffering from severe pain in the back or loins; and if the face do not happen to be flushed at the time, it will have a livid hue, its features having a downcast appearance, and there being, in all probability, a dark areola around the eyes. Under these latter circumstances the pulse will be less developed; nor will the skin attain to so high a temperature. Most attacks will be preceded by a sense of chilliness, and attended with loss of appetite; and, in all, the greater part of the symptoms described will soon set in, and establish the true character of the disorder.

These remarks might be greatly extended; and, indeed, on the symptomatology of the disease throughout its course, much might be written, but cases selected from authentic journals of officers employed on the coast of Africa will best exhibit the disease in all its various forms as it occurs on board of ship, and appear not only to supersede the necessity for further observations but to render brevity desirable.

Cases of Fever taken from the Journals of Medical Officers serving on the Western Coast of Africa.

Case I.

From my own Journal, when Surgeon of His Majesty's ship Cyrene in 1822 *and* 1823.

At sea, 10th August, 1822, James Jones, seaman, ætat 35. Had been on shore about fourteen days ago at Sierra Leone, where he slept and lived freely; soon after his return on board he complained of dysenteric symptoms, of which he was speedily cured. This morning he complains of head-

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ache, pains in his joints and lassitude, with nausea and thirst; pulse full, frequent, and hard; considerable feverish heat and nervous derangement; furred tongue, bowels, as he says, natural. V. S. ad ℥xxx. Subm. hyd., Ext. Colocynth, c., āā gr. vj. et postea Mistura jalap, c. doses. At six p. m. still continues feverish, but expresses himself much better: medicine operated several times.—Subm. hyd. et Pulvis antim. āā gr. ij. quaque tertia hora. To dilute with barley-water acidulated with lime-juice.

11th. Headache less severe, pulse less frequent, yet there is still thirst and heat of skin.—Cont. medicinæ.

12th. Had a restless night, owing, in some measure, perhaps, to great rolling motion of the ship. Complains of headache and thirst; pulse and skin still rather feverish, bowels free, tongue furred.—Repet. Subm. hyd. et Pulvis antim. quaque secunda hora.

13th. Complains of an increase of headache; bowels open; skin moist, and not very hot; pulse about 90 and soft; thirst. Cont. Calomel cum Pulvis antimonialis; blisters to the temples. At six p. m. blisters rose well, pulse soft and regular, skin cool and covered with perspiration—expresses himself much easier.

14th. An unaccountably unfavourable change took place in the night; he was delirious; and this morning he is in a state of extreme stupor; the pulse is soft but languid; the skin is moderately warm over the whole surface, yet there is a vacancy in the eye and countenance, demonstrative of great danger.—The head to be completely shaved, its anterior part to be kept moist and cool by means of saturnine lotions; a blister to be applied to the nape of the neck; his calomel and antimony, in the quantity previously ordered, to be repeated every hour, a warm bath as soon as possible, and a drachm of mercurial ointment to be rubbed on each thigh every hour till some appearance of salivation shall have taken place.

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15th. Had a good night; was twice purged by salts and senna; expresses himself free from headache or other pain. The pulse is soft, slow, and regular in its action; skin moist and cool; no appearance of salivation.—Continue the mercury internally and externally, as yesterday.

16th. But little alteration in the symptoms; bowels free; great thirst. Complains of sore mouth, yet there is no salivation.—To continue the medicine.

17th. Occasionally incoherent in the night; still, however, the pulse is tolerably full and soft, and there is a tolerably uniform perspiration—no ptyalism; no alvine evacuation for some hours. Complains of headache.—Infus. sennæ cum Sulphas magnesiæ doses statim sumend.

18th. Medicine operated freely; no thirst; pulse rather small but soft; skin cool.—Cont. medicinæ. At 6 p. m. perfectly rational, expresses himself easier; pulse pretty full, soft, and natural; skin moist.—His diet limited to tea or gruel, and arrow root or sago.

19th. Was incoherent in the night, and is now very much confused; pulse small and irregular; frequent nervous twitchings and picking at the bed-clothes. The extremities cold.—Balneo calid. statim. Decoct. cinch. ℔ss. Ammon. carbonat. et Confect. aromat. āā. ℈ ij. M. et habeat cochlearum unam magnum quaque hora. The re-application of blisters to the temples and bottles of hot water to the feet; omitting the pill and continuing the mercurial friction. The re-action which followed the use of these excitants was rapid and astonishing.

20th. Expresses himself much better; circulation full and regular; skin moist and cool.—Ammonia to be withdrawn, continuing the other medical measures.

21st. Was very delirious in the night, and is so, in a certain degree, now. Pulse irregular and small, with a dry skin and parched tongue: no alvine evacuation for some

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hours.—Infus. sennæ cum Magnesia sulphatis doses; mustard cataplasms to the feet.

22nd. Had a tolerable night; took some refreshment yesterday, and one large glass of sherry with his medicine: there is still considerable confusion of ideas, yet the pulse, this morning, is tolerably full and soft.—The mercury not producing any effect symtomatic of ptyalism, to be altogether discontinued. At 4 p. m. pulse sinking rapidly; nervous tremor; convulsive action in the larynx; eyes fixed and glassy; countenance shrunk and death-like; the pulse varying from 100 to 135, and sometimes 140 in a minute. Still there is general heat, and the pulse has firmness in its action; an enema was administered, but the fatal symptoms continued to increase in intensity until 9 at night, when the pupils becoming insensible to light, short breathing, and a gradual cessation of the heart's action, closed the case.

Post-mortem examination.—The brain. On removing the cranium and dura mater, there was not the slightest unnatural distention in the blood-vessels—every thing, thus far, on the contrary, had a perfectly healthy appearance. On withdrawing the tentorium and separating the hemispheres of the brain, it was seen, that adhesion to the extent of an inch had taken place between that membrane and the inner side of the left lobe of the cerebrum about its middle. The lateral ventricles contained a considerable quantity of water; and the third and fourth ventricles were filled with a pale, yellowish fluid. These were the only morbid appearances in the brain—it was not deemed necessary to examine the thoracic or abdominal viscera; no symptoms of disease having existed in those organs previously to death.

Case II.

From the same Journal.

John Atherton, seaman, of slight frame, ætatis 28.—At

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ses, 13th of August, 1822. Complained this evening of excruciating pain of head, accompanied by thirst and debility; pulse frequent and hard, the skin being hot and dry. V. S. —on losing one pound of blood syncope took place.—Subm. hyd., Ext. colocynth. c. āā gr. iv. Postea mistura Pulvis jalap. c. doses. Hora somni, Subm. hyd., Pulvis antim. āā gr. iv.

14th. Still complains of his head, and of pains in different joints; there is less fever; but he has not been freely purged.—Infus. sennæ cum Magnesia sulph. doses, et postea pilulæ Subm. hyd. cum Pulvis antim. āā gr. ij. quaque hora. At 6 p. m. still complains of severe headache; has been purged, and perspires freely; pulse less frequent and not so hard.—Blisters to the temples.

15th. Blisters rose well; head less painful; bowels open; pulse rather frequent, but soft; skin hot, but moist: complains of difficulty of breathing and restlessness.—Applicat. emplast. lyttæ ad partes affect. The pills to be continued.

16th. No pain of head or chest; bowels open: complains of sickness of stomach, thirst, and great heat of skin.—The surface of the body to be sponged with vinegar and water; the medicine to be continued.

17th. Slight flow of saliva; bowels open from a cathartic given in the night; skin dry; pulse small; sickness of stomach.—The pills to be continued, and an effervescent draught to be given occasionally.

18th. Mouth more affected; no headache or fever.—To continue the effervescent draughts only.

19th. Mouth very sore; great restlessness—no other complaint.

20th. Still slight dryness and heat of skin, with thirst; no sickness of stomach—the patient was now ordered a mixture, composed of tartarized antimony and nitrate of potash. After this no change in the case worthy of notice took place.

28th. A bitter infusion was ordered with wine, and a more

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nutritive diet; and on the 10th of September following the patient was discharged to duty.

Case III.

From the same Journal.

Samuel Simmonds, seaman, ætatis 30.—At sea, 9th December, 1822. Complained this evening of severe pains in the head, back, and loins, with thirst, griping and purging, and a feeling of weakness in all his joints. V. S. statim—syncope prevented more than thirty ounces being taken away. —Pulvis jalap. c. doses.

10th. Headache relieved, but the pulse is still small and irritable, with heat of skin, thirst, and pains in the back and loins.—Subm. hyd. et Pulvis antim. āā gr. ij. quaque tertia hora.

11th. Mouth touched by the mercury; bowels open; pulse much reduced in strength and frequency; skin hot, but moist; thirst: had an irritable night.—To have a mixture, composed of tartarized antimony and nitrate of potash, and to omit the pill.

12th. Very much better; pulse nearly natural, but very little heat of skin or thirst.—The same treatment was continued, an occasional purgative having been given, until the 15th, when a more generous diet was allowed, and he was discharged cured on the 22nd of the month.

Case IV.

From the same Journal.

At Sierra Leone, 20th February, 1823.—Mr. William Hunter, second master, ætatis 23, and not powerfully made, on board a prize schooner—was taken ill, as he says, yesterday evening. He has now, at 9 p. m., most excruciating pain in the head, back, and loins; great heat of skin, with furred tongue and thirst. Pulse about 130 in a minute.—V.S. ad ℥xxv. Subm. hyd. et Pulv. antim. āā gr. iv. At 1 nocte, Sulphas magnesia, ℥ss.

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21st. Medicine caused great sickness of stomach, and but one scanty alvine evacuation. Expresses himself, however, a little better. There is still great heat of skin, thirst, and a loaded tongue.—The calomel and antimony to be repeated. At 7 p. m., has been very much purged; still great head-ache, heat of skin, and thirst; with considerable frequency and fulness of pulse.—Repet. V. S. ad ℥xviij. Subm. hyd., Pulv. antim. āā gr. ij. quaque secunda hora.

22d. Bowels open, the skin is above the natural standard and dry, but no head-ache or other pain, except in the back; pulse about 90, well developed and not hard. The pills to be continued, and the patient to be freely supplied with cool acidulated drinks.—At 7 p. m., very little headache, but there is thirst and heat of skin, and the tongue is very much furred.—*Pediluvium*, et continuæ medicinæ.

23d. No heat of skin, and but little thirst; bowels very open; pulse soft, full, and regular in its action. Complains of slight head-ache; medicine to be continued. Fowl broth, or other such simple, but nutritious diluents to be allowed. —At ½-past 7 a. m., was suddenly seized with violent purging, sickness of stomach, and head-ache. The face and eyes now depicted a most death-like aspect. The extremities suddenly became cold, and the pulse at the wrist was scarcely perceptible. He now, for the first time, complained of pain in the epigastric region when pressed on.

Kali prep. ℥jss.
Aq. puræ, ℔ss.
Succi limoni, q. s. ut ft. saturat.
Saccharum album, q. s.
Spt. ether. sulphuric,
T. opii, āā gt. xl.

M. et habeat cochlearum unam magnum quaque semi hora.

This medicine soon stopped the vomiting and purging, except when any other fluid was taken into the stomach; at

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which time it appeared to be thrown up, as if by an immediate spasmodic contraction of that viscus.—Applicet. emplast. lyttæ ad regio epigast. to be preceded by warm-bath, followed by the application of bottles of hot water to the feet. After the bath there was a partial flow of perspiration; but neither were the temperature of the surface nor the velocity of the pulse heightened by the remedy.

24th. Great confusion of ideas; pulse and temperature still more reduced. Carbonate of ammonia to be substituted for kali; blisters to be applied to the temples and calves of the legs: Madeira wine in addition to his medicine. In this low state, with only occasional incoherency, he remained until 8 o'clock on the following morning, when he sunk.

This young man had unfortunately indulged on shore in great constitutional abuse for some time previously to his attack; nor was it till some time after the commencement of his indisposition that I learned he was ill. On examining the body after death, not the slightest trace of disease was observable, except in the stomach, which, in the direction of the superior part of the pyloric orifice, exhibited a high degree of inflamation, to the extent of between three and four inches square.

Remarks.—The four foregoing cases have been selected from the journal of cases occurring on board His Majesty's ship Cyrene, in 1823, for the purpose of affording a contrast between such cases as may be termed climatorial endemic, and such as, in contradistinction, have been designated local endemic. The first and last are what may be denominated local bilious remittent fever; and the second and third are simple climatorial fever, as may be seen upon a reference to the causes. Though not perceptible to the eye at the commencement of the cases, the difference in the real nature of them existed at their outset, and the treatment, in all of them, as far as regards blood-letting, being the same, the result,

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consequently, unhappily varied in proportion to that difference.

Whilst in the harbour of Sierra Leone, the Cyrene had fifteen cases of climatorial and local fever on board, all of which were treated by blood-letting, and the above cases, No. 1 and No. 4, recorded as having had local in addition to climatorial causes to contend with, were the only two that proved fatal.

Such is the fact with respect to general bleeding, that, if the author, with the additional experience he has acquired since he was surgeon of the Cyrene, was called upon now to treat patients so circumstanced as were Mr. Hunter and Jones, he would not think of bleeding them from the arm. Hereafter strong practical grounds will be advanced in justification of this difference of practice in cases of apparently the same disease, occuring on board the same ship, and at or about the same time; but with the all-important difference of their having been excited under different circumstances.

Soon after his arrival on the coast, the author was impressed with the conviction that bleeding in fever cases, even under the most favourable circumstances, was not attended with the same effects as result from the use of the same remedy in other tropical countries; and, in proof of the soundness of this position, the following extract from the general remarks contained in his public journal of 1823 is inserted:—

"In its character (speaking of the fever) it much resembles that of the bilious remittent of the East and West Indies, which I have been accustomed to see; but, in the treatment, the following contrary results are observed: namely,—first, that on the coast of Africa patients do not bear the loss of that quantity of blood which, by proper after-management, acts almost as a specific in the former countries.

"Secondly, that the early appearance of convalescence is an infinitely less favourable criterion on the coast of Africa

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than it is elsewhere; and, thirdly and lastly, that the degree of debility attendant on patients recovering from this fever, is decidedly greater than it is in other tropical countries.

"The opinions of medical men on the coast of Africa are much divided with respect to the use of the lancet in the treatment of fever; the practitioners on shore, for the most part, condemning it, and *vice versa*. This difference of opinion, as has been remarked, no doubt, arises from the great difference existing in the constitutions of the patients to be met with on board of ship, and such as are met with on shore; the latter being ordinarily Europeans of long-standing, or natives, whilst the former are, for the most part, unimpaired athletic men, fresh from the mother country."

Such was the manner in which it was attempted to account for the anomaly in the treatment of apparently the same disease, when the actual practical experience, upon which the reasoning was founded, was chiefly confined to cases which occurred on board of ship. Subsequent more extensive and varied practice have not shaken the confidence in this conclusion; and reasons will be advanced for adhering to it, when fevers having a local, added to a climatorial cause, are treated of, and when this subject will be more extensively discussed.

It sometimes happens that, when patients, who have suffered from the endemic fever on board of ships, appear to be perfectly convalescent, they are suddenly attacked by another species of febrile derangement, which proves extremely embarrassing, as well to the practitioner as to the patient. Mr. Steret, who, in the year 1823, was appointed surgeon to His Majesty's ship Cyrene, and who had many primary and secondary cases to treat, makes the following remarks in his official quarterly nosological return to the Medical Commissioners for the Navy.

"Every one of the patients on board have had secondary attacks, which came on in the following manner:—When the

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patient has been free from fever for some time, and the strength has improved, without his being able to account for it, headache, heat of skin, and thirst come on, and increase during five or ten hours, and then gradually decrease. On some occasions, the patient will be ill one day only, whereas on others, the attack will last ten days or a fortnight. Sometimes these attacks observe regular quotidian or tertian periods; are ushered in with shivering or rigors, and observe the usual stages of intermittent. These fevers will occasionally set in without shivering, and a sweating stage is wanting, at least, it does not immediately succeed the hot stage; but a profuse perspiration usually takes place at night. At other times the attack is altogether irregular. A diarrhœa is a frequent accompanying symptom of these attacks; commencing and diminishing with the exacerbations.

"Any irregularity in eating or drinking, over-exercise, exposure to wet or cold, appeared to excite attacks—frequently no cause could be assigned.

"The observations that occurred to me in the treatment (of the primary attacks) were, that blood-letting is *generally necessary on board of ship*, seamen being mostly of a full habit; but the practice must be performed *with caution, in consequence of the succeeding debility*. I have not found mercurials, given merely to affect the mouth, of any service. In all the cases the mouth was made sore, but ptyalism could only be produced in one. He appeared to do well for two days, when, without any evident cause, a relapse took place, the ptyalism ceased, and he died four days after. Antimonials seem to do harm by increasing the irritability of stomach.

"I have," Mr. Steret says, "most confidence in bleeding with *caution*, in purgatives, sponging the body, cool air, and cool drinks; and, when the violence of the symptoms has ceased and debility commencing, cinchona in substance.

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"For the secondary attacks arsenical solution was tried in two cases, as recommended by Dr. Fowler, for five days. In one of these cases, swelling of the integuments of the head and face, severe gripings and purging, took place, without reducing the fever; the latter symptoms were relieved by castor oil. In the other case, the solution produced no effect whatever.

"Nitric acid, as an adjuvant to the cinchona, appeared to do good."

Mr. Steret, in his remarks, expresses regret that, from the smallness of the ship, the number of sick on board, and the prejudices of the seamen, he had not the opportunity of examining the bodies of those who died. He adds:—

"I had the opportunity of seeing the *post-mortem* appearances of one case at Cape Coast. The subject, an English soldier, of full habit, who had only arrived three weeks previously, and died about the tenth day of the disease. Nothing of much consequence was elicited. We observed a greater turgidity of the vessels, more fluid in the cavities, and increased cohesion in the substance of the brain. The thoracic viscera healthy. On proceeding to the abdomen, the liver was found to be dark-coloured, having a swollen appearance, similar to what takes place when the vessels are injected for anatomical purposes. The blood-vessels were full, and the hepatic ducts and the gall-bladder were filled with dark-coloured viscous bile. The spleen was very dark-coloured, and had the same swollen appearance as the liver; its substance breaking down under the slightest pressure. In the other viscera there was no morbid change."

Besides the preceding cases of climatorial or local endemic fever on board of the Cyrene, there was a case of yellow fever which proved fatal, and which may, with propriety, be briefly noticed before the cases occurring on board of other ships are adverted to.

Whilst myself dangerously ill, my assistant, when in the

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act of dressing a blister on the nape of my neck, suddenly fell down without previous complaint. He was affected by black vomit and yellowness of skin; was conveyed on shore, and there he died in thirty-six hours. This, which occurred in March, 1823, might be said to be a sporadic case of that epidemical yellow fever which soon after caused such devastation at Sierra Leone; also on board the Bann sloop-of-war; and, finally, through that vessel, amongst the royal marines garrisoned at Ascension.

CASE V.

From the Journal of Mr. Whitelaw, Surgeon of His Majesty's Ship, Owen Glendower.

"January 9th, 1824, off St. Ann's Shoal, near Sierra Leone.—Richard Goald complained of severe headache, particularly above the orbits, pain of back and lower extremities, rigors, and sickness at stomach; the tongue was white, pulse hard and full, skin very hot, and he was rather costive; had been employed, with the watering-party, some days on shore, at Krootown. V. S. ad ℥ xxx. Syncope ensued.—℞. Submur. hyd. gr. xv., Sulph. magnes. ℥iss., solve in Infus. quassiæ, ℥ ij., sumat ℥ i. secunda quaque hora. A blister over the region of the stomach. Vespere. After the blister began to act, vomiting ceased; medicine operated freely; headache still severe; skin, hot and dry; pulse, nearly as in the morning; thirst; pain of epigastrium.—℞. Submur. hyd. gr. x. Pulv. ant. gr. iij., M. ft. pil. No. ij., statim sumend.

"10th. A marked remission of all the symptoms: complains of a sensation of wind.—℞. Rhei. pulv. gr. x., Pulvis zingib. gr. vj., M. ft. pulvis, st. sumend. Pil. Submur. hyd. gr. iij. ter in die. Vespere. The remission continues; belly free; considerable thirst and general uneasiness. Habt. Submur. hyd. gr. v.

"11th. No complaint; free from headache; has some stiffness about the calves of the legs; thirst; tongue white.

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Rept. Submur. hyd. gr. v., ter in die. Vespere. About 1 p. m., headache returned, preceded by a slight shivering, when severe vomiting ensued, with burning pain of the epigastrium; fluid discharged of a greenish hue; skin moderately warm; clammy perspiration; thirst urgent; tongue looks as if macerated in hot water, and the eyes are suffused; says he has very little pain of head.—Appl. emp. lyttæ, epigastrium. R. Submur. hyd. gr. v., Ext. cathart. gr. xij., M. ft. pil. No. ii., statim sumend.

"12th. Less irritability of stomach; skin clammy, and the pulse is slow: says he had no headache or pain of loins; some uneasiness in the right hypochondrium; there is strangury and tendency to delirium. He has had two evacuations of bilious matter.—Rept. pil. Submur. hyd. Vespere. Furious delirium; great depression of the nervous system; tongue brown and dry, and tremulous; belly free; pulse moderately full, but slow; skin loaded with clammy perspiration; yellow suffusion.—Cont. Pil. submur. hyd. et appl. emp. lyttæ, nuchæ. R. Carbon. ammon. gr. v., Emul. camphorat. ℥i., M. ft. haust. tertia q. q. hora sumend.

"13th. Less delirium, and when spoken to, says he has no pain, but is quite well; nervous depression still great; clammy perspiration continues; pulse not so strong; yellow suffusion, assuming a dark hue.—Rept. Haust. ammon.; omit calomel; wine and water ad libit. But little perceptible alteration.—Cont. med. &c. &c.

"14th. Becoming very low; clammy perspiration continues. About 11 a. m. an exacerbation, with an increase of delirium, took place. About three he asked for drink, and on attempting to swallow it a convulsive spasm took place, and he instantly expired.

"*Dissection.*—Thoracic viscera in a healthy state. Abdominal viscera: liver large and soft, tinged with venous blood; gall-bladder filled with deep green bile; stomach empty;

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veins turgid; mesenteric veins also full. On opening the small intestines found the villous coat covered, having a dark fur, which had some appearance of the matter of black vomit; large intestines empty.—Sinuses of the brain filled with dark blood; vessels of the meninges minutely injected with very dark blood.—Ventricles contained a considerable quantity of colourless fluid."

Remarks.—This also was a case which had mixed causes in its production, and is introduced here for the purpose of shewing what may take place on board of ship, under the circumstance of local exposure. This was a sporadic case of yellow fever.

Case VI.

From the Journal of Mr. Robertson, Surgeon, of His Majesty's Ship, Medina.

"At sea, 15th of April, 1831. Mr. Thos. Collins, master. Is affected with annorexia and lassitude; skin hot and dry; tongue white; some thirst; pulse small, and 90; is exceedingly restless and uneasy, *but complains of no pain;* bowels open.—℞. Subm. hyd. gr. vj., Colocynth. c. gr. x., M. h. s. s.

"16th. Passed a restless night; two motions; seems in the same state as yesterday; no pain in any part; skin rather hot; very thirsty; tongue covered with a white crust; speaks apparently faultering; eyes slightly suffused.—Habeat Calomel, gr. x. ter in die. Vespere. Felt easier until 3 p. m. when an exacerbation took place, which was succeeded by occasional periods of slight incoherence: skin rather hot; pulse 90; thirst urgent; bowels once opened during the day; has slight pain in the loins.—℞. Subm. hyd. gr. xx., Pulvis antim. gr. xij. Confect. aromat. q. s., ft. pil. No. iv. quorum sumat unam quaque tertia hora.

"17th. Passed a very restless night; sleep interrupted by dreaming; skin rather hot and dry; tongue coated with a

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brownish fur; has had a considerable degree of tenesmus, but no abdominal pain; pulse 100, and small; talking incoherently during the night: had a warm bath.—R. Calomel, gr. v., Pulv. Doveri, gr. v., ft. pil., tertia quaque hora sumend. Vespere. Has had two copious evacuations, after which he felt himself easier; but towards evening the heat of skin became intense, accompanied with pain in the loins, faultering in his speech, with a furred tongue, thirst and incoherence; pulse 104, small and soft.—Cont. pil. ut ante.

"18th. Has had a restless night; pulse 100, and soft; tongue furred; talking incoherently: pain in the loins mitigated; heat of skin considerable; feels very weak; bowels freely opened.—Cont. pil. ut ante. Vespere. Has been in a state of great despondency throughout the day: speaks in a faultering tone; pulse 100, and weak; thirst; great incoherence; appearances altogether unfavourable.—Cont. pil., with frequent friction of mercurial ointment till about 7 p. m., when all the symptoms became aggravated—there was complete aberration of mind—no pain was complained of; the pulse became very small, and at 10 in the night, convulsions supervened and carried him off.

"On dissection the brain was found to be healthy—there were about three ounces of water in the pericardium; lungs natural; and all the abdominal viscera healthy."

Mr. Robertson remarks, "that the disease came on in that insidious manner which marks the attack and result of the most fatal form of fever on the coast. He complained of no pain except in the loins, and the sectio cadaveris showed not the slightest deviation from health in any of the viscera, with the exception of the three ounces of serous fluid in the pericardium."

Remarks.—Many similar cases to the preceding occur on the coast of Africa; and in all such cases it would be well to apply leeches and blisters to the head; and in addition to

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the mercurials, to give camphor julep, with liquor ammonia acetatis, in the hope of determining to the surface, which this medicine seldom fails to do, under the circumstances which prevail on these occasions.

The late Mr. David Patton, when surgeon of his Majesty's ship, Medina, and soon after the arrival of that ship on the Coast, in 1828, had the opportunity of treating ten cases of bilious remittent fever, upon which he offers the following summary remarks, prefacing them by the names of the patients.

"Mr. Henry Griffith, mate; Thomas Star, aged 18, boy; Richard Guse, 19, marine; Henry Rogers, 18, boy; John Marsh, 17, boy; William Gillard, 28, seaman; William Baxter, 22, seaman; John Maltham, 21, marine; John Murray, 40, seaman.

"Between the 1st day of September and 24th of October, ten cases of bilious fever were put on the sick list. The whole of the men had been much exposed to wet for some time past, more particularly the boats' crews, who were employed victualling and wooding the ship while at Sierra Leone, where it rained incessantly during our stay. The first person taken ill, and whose case terminated fatally, was Mr. Griffith. The second case of death occurred in Thomas Star, a boy.* The other men had been exposed to great vicissitudes of weather and fatiguing boat duty, not only at Sierra Leone, but at Fernando Po. The disease was ushered in by a chill or sense of cold across the loins, followed by a sense of pain all over the body, more particularly of the forehead, temples, and orbits; eyes red; light very offensive; præcordia much oppressed and very painful, on even moderate pressure; tongue red and moist; heat of skin. The heat of skin was increased in most cases, but in some it was below the natural standard; pulse generally oppressed; bowels very obstinately constipated.

* The full account of these two cases did not accompany the document respecting them.

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"Gastric irritability I have often found a troublesome symptom to contend against. The treatment consisted in one decisive bleeding (blood always drawn from a large opening, that a sudden shock might be given to the system by as small a loss as possible); full and copious purging by Hyd. submur. et Ext. col. comp. and Castor oil, in doses of ʒij.—Confinement to bed, and diaphoresis kept up by calomel, in x. gr. doses, assisted by decoct. hordei, rice-water, or lemonade. Gastric irritability removed by the application of a blister to the epigastrium, and uneasiness of forehead by a similar application to the nape of the neck; the daily use of purgatives was found a most essential means of cure. Indeed, in several cases, where excitement did not run high, I have found perseverance in the use of active purgatives, a blister to the nape of the neck or epigastrium, and quiet, with diluents, effect a cure in a much shorter time than when the lancet had been used in the most experienced hands. I have at present two cases under such treatment, who are doing remarkably well. Both are young plethoric habits, and had been much exposed to the climate and intemperance on shore at Sierra Leone; they, in addition to the above, however, use the quininæ sulphatis in large doses so soon as a remission is procured, which is generally on the third or fourth day. In the case of Murray, on the other side, inflammatory symptoms were very high indeed, requiring very extensive depletion, both local and general, and a constant intestinal action was kept up by calomel, so administered as to affect the system. As soon as ptyalism appeared the patients were considered safe; but always, under these circumstances, they were a very long time convalescing, and remained in some instances a considerable time on the list: the man last alluded to was not in a state of health (owing principally to the excess of the ptyalism) to return to duty for upwards of two months. The average confinement to bed of the others was eight days."

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Case VII.

From the Journal of Mr. A. Neil, Surgeon, R. N., when acting Surgeon of His Majesty's sloop, Primrose.

"Mr. George Morris, aged 24, master's assistant, was in a prize at Sierra Leone for some time, and came on board of this ship on the 14th of February, 1829, saying he had not felt well for two days before. He complained of sickness at stomach and slight pain in the loins. Skin hot and moist, pulse soft, 76, no head-ache, bowels open.—Vespere. Capiat. Hyd. subm. ℈j.

"15th. Has been sick at stomach during the night; bowels once opened; skin moist; pulse natural; no head-ache.—Capiat. Sulph. magnes. ℥vj. diluentia. Vesp. Was sick after taking his salts, and had several stools. Skin moist; complains only of a severe pain in the loins.—Nil.

"16th. Feels much better. Skin moist and cool; pulse natural; tongue a little furred; no head-ache; bowels open; a good deal of langour.—Nil. Vesp. Has no complaint.—Nil.

"17th. Passed an uneasy night, occasionally sick at stomach, and his sleep disturbed by frightful dreams; is rather incoherent in his answers; skin moist, with very little increased heat; pulse soft and small; bowels open; tongue covered with a brown fur.—Capiat statim Subm. hyd. ℈j. His head to be shaved, and a cloth wetted with vinegar and water to be constantly applied.—Decoct. hordei. Vesp. Has had four stools during the day, watery and highly tinged with bile; was sick at stomach once; says he feels no particular pain; he is more sensible, and only complains of weakness.—Capiat Calomel. gr. x., Opii, gr. i., M. ft. pil. No. ii. Decoct hordei.

"18th. Has passed rather a good night, having slept from 9 till 12; had three watery stools; no head-ache; skin cool; pulse soft; is more coherent; mouth not at all affected; tongue foul.—Calomel, ℈j. Vesp. Three watery stools, with

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slight griping; skin hot and dry, with thirst; patient more incoherent; gums not at all affected.—Capt. Calom. gr. x., Opii, gr. i. A blister to be applied to the back of the neck. —Ung. hyd. fort. ʒi. to be rubbed in, on the inside of the thighs, during the day.

"19th. Passed an uneasy night; had seven stools; gums very slightly affected; skin hot and dry; pulse small and only 70; blister has risen well; the patient suffering from strangury.—Capt. Spt. æth. nit. ʒi., Aq. menthæ, ʒi. ft. haustus: diluentia post duas horas: Calomel, ℈j.—Ung. hyd. ʒi. to be used as before. A profuse perspiration took place, which relieved him much; he remained sensible during the day, and had four watery stools, of a brown colour, and very fetid; gave him some chicken broth, and a little weak wine and water; pulse being very small. Vesp. Repet. Calom. ℈i.

"20th. Slept well during the first part of the night; was rather restless in the middle of the night; had two watery stools; is very weak; complains only of his blister; skin moist and cool; gums not much affected; has great desire for wine and water, with which he is indulged in small quantities; blister discharges freely.—Cont. Ung. hyd. et diluentia. 1 p. m. Was sick at stomach, and had a very fetid dark stool. 4 p.m. Became very incoherent; cold perspiration; pulse 120, small and fluttering; felt unnaturally hot, though actually cold; gave him a little hot wine and water, which seemed to strengthen him. 5 p. m. Skin hot and dry; great uneasiness; muttering delirium; pulse quick, small, and intermittent.—Capiat. Mist. camph., tria cochlearia quaque tertia hora. 9 p.m. Profuse perspiration; pulse soft and regular; head more composed; disposition to sleep.

"21st. Slept little, but has been very quiet in the night; had four dark stools; mouth not more affected; pulse 82 and soft; blister discharges profusely; tongue covered with a white fur; feels very low.—Cont. Ung. hyd., and the weak wine and water. 1 p.m. Bowels twice open; pulse small

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and intermittent.—Capt. Mist. camph., ut ante. 4 p. m. Skin becoming hot and dry; pulse increases in frequency; delirium; great thirst; pulled off his dressing from the blistered part, and wanted to get out of bed; extremities of natural warmth. 7 p. m. Perspiration continued all night, with low muttering delirium.

"22d. Slept about an hour and half this morning; is very low; pulse small and intermittent; bowels once moved in the middle watch; has taken a little arrow-root; is incoherent. 10 a. m. Passed a watery stool involuntarily; is becoming quite outrageous. Vesp. Is now quite exhausted; profuse perspiration; pulse 120, and intermittent; gave him a little hot wine and water; applied bottles of hot water to the feet. ¼-past 7. Breathing stertorous; pulse scarcely perceptible. 8 p. m. Sinking; and at 20 minutes past 8 he expired."

Case VIII.

From the same Journal.

"At sea: Richard Gloyne, aged 35, gun-room cook. A man of the most irregular and intemperate habits, and who had of late been much exposed to frequent sudden changes of temperature, inseparable from the duties of his station as cook, was brought to the sick-birth, about 4 o'clock p. m. in such a state of insensibility that no information could be gained from him; nor could any of the crew afford further explanation than his having been in apparent good health previous to this attack. Breathing much affected; burning heat of skin; full and very strong pulse; pupils in a natural state; a vein was opened in the arm, and blood allowed to flow until about ℥xxx. were removed without any change, except reduction of pulse. He was placed in bed, in an airy part of the ship.—Hyd. subm. gr. x. made into paste with Conf. aromat. was placed on the tongue, part of which only, it is believed, was swallowed, which was soon after ejected, with a small quantity of dark green matter; still continuing

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insensible and breathing very laboriously; pulse soft, and not more than 50 in a minute; a strong solution of Ant. tart. in Spt. vin. rectificat., was rubbed over the thorax and epigastrium; camphor mixture, with æther, given occasionally, and the calomel, with aromatic confection, repeated; these means were persevered in, but the pulse sunk rapidly, the extremities became cold, and he suddenly expired, at 8 o'clock p.m.

"The body was examined the next morning, at 5 o'clock, when the following appearances presented themselves.

"*Dissection.*—On the abdominal viscera being exposed and minutely examined, they were found perfectly healthy, with the exception of the stomach, which was carefully removed: it contained about a gill of dark-coloured liquid (resembling coffee) similar to that ejected before death; the whole inner coat beautifully injected, and near the cardiac orifice several patches of incipient ulcerations: pyloric orifice much indurated, having layers of coagulable lymph over parts of the inner surface. On laying open the thorax, lungs and pleura perfectly healthy, not the slightest adhesion existed; but, on opening the pericardium and examining the heart, several patches, from the size of a sixpence to that of a shilling, of recent inflammation were evident; that viscus much enlarged: the inner coat of the aorta at its origin, and as high as its arch, finely injected with red vessels: the pericardium contained about an ounce of fluid."

Remarks.—Neither of these cases, it must be admitted, were of pure climatorial fever. The habits of the officer on shore, previously to his indisposition, were extremely irregular and imprudent; and the cook, it is shewn, was a man of the most intemperate conduct.

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Cases IX., X., and XI.

These Cases are taken from the same Journal as Cases VII. *and* VIII., *and may be considered as genuine Cases of Climatorial Fever.*

"Sierra Leone, 28th August.—John Ford, 25; Horatio Lakeman, 21; Thomas Palmer, 28; the two former seamen, the latter a marine,—complained to me at an early hour this morning of having been seized last night, soon after turning into bed, with shiverings, sense of soreness over the body, and sickness of stomach, with some vomiting; followed by intense pain of the forehead and eyes; intolerance of light; pain and oppression of præcordia, increased by the slightest pressure with the hands; tongue clean and moist; temperature of the skin much above the natural standard; bowels previously constipated; the pulse being hard and frequent. These men had been exposed, for several days previously, to the heavy rains which prevail in this country at this season, and were often unavoidably obliged to wear wet clothes for some hours after. The treatment consisted in one large bleeding, which always removed the urgent symptoms.—A scruple dose of calomel, followed four or five hours afterwards by Ol. ricini, ℥iss.—the calomel allaying any gastric irritability which remained after the bleeding, and, with the assistance of the Ol. ricini, emptying the intestines of an immense quantity of hardened fæces, leaving the patients convalescent, but, of course, somewhat debilitated; the latter complaint soon yielding, however, to small doses of Infus. quassia, cum Magnesia sulphat. thrice daily, and an occasional purgative draught.

"*Palmer* suffered a slight return of gastric irritability on the 1st of September, which was effectually removed by keeping up a brisk intestinal action for two days."

From the Journal of Doctor Burn, Surgeon of His Majesty's Ship, Eden, in the latter end of 1827 *and* 1828.

"We arrived at Sierra Leone in the beginning of Septem-

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ber in the violence of the rains, and continued there about five weeks, embarking stores and provisions for the intended colony of Fernando Po, during which operation, the boats' crews were necessarily much exposed to the climate. One case of fever only occurred on board there, which was sent to the military hospital on the fifth day, and terminated fatally on the ninth. The treatment was bleeding, purging, and a free use of calomel, shaving the head and bathing with vinegar and water. There was a considerable remission on the second and fourth days of the fever, but none after that. The master of the transport was attacked with a similar fever. He was treated in the same manner, and recovered after a tedious convalescence. Another case of remittent fever occurred on the 14th of October, ten days after leaving Sierra Leone. This was a case of a less violent nature. After bleeding, purging, administering the calomel and antimonial pill, as a diaphoretic, the quinine was had recourse to, and he recovered, in about three weeks, without much debility or emaciation.

"Four cases of fever have occurred amongst the ship's company since our arrival at this island, Fernando Po, of whom three have died. The first case occurred in a lad of nineteen, who was sent to live amongst the natives, for the purpose of learning their language and customs: he was absent about a fortnight, and was attacked with the fever of the country about a week after he returned. He was convalescent about the fourteenth day, but relapsed and died on the twenty-sixth day from the original attack. On the 8th and 9th of January, three more of the ship's company were attacked with fever of the same kind, all of them men of intemperate habits, and one of them much debilitated from previous attacks of fever in Rangoon River. This case was not bled, but was treated with purgatives and calomel, and died on the eighth or ninth day. The fever generally comes on with headache, cold shiverings, and some pain of the back and limbs; nausea, and whitish tongue; bowels either costive or

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watery purging, and griping. The pulse is seldom much accelerated, nor is heat of skin much above the natural standard; but the spirits are unusually depressed. After bleeding and purging, there is generally a considerable remission; but the fever, when it returns, is generally attended with a pulse quicker, or more full; and about the fifth or seventh day, with some delirium, or yellowness of skin and eyes. No new cases have occurred on board for five weeks. One still remains on the list convalescent."

Remarks.—Thus, of three cases of fever, arising out of exposure at Sierra Leone, one died; and of four that occurred at Fernando Po, three died and one was still in the sick-list. Both of these returns are unfavourable, but the balance is greatly against Fernando Po.

Case XII.

From the Journal of Mr. Mackey, when Surgeon of His Majesty's Ship, Esk, in 1826 *and* 1827.

"Bight of Benin, 3d January, 1827.—John Doyle, seaman, æt. 25. Complained at two o'clock a. m., of acute headache; pain in his back and lower extremities, accompanied by languor and great debility: pulse about 90, hard and small; skin rather hot; tongue rather brownish and furred; belly very loose, accompanied with griping.—V. S. ad ℥xxx. ℞. Submr. hyd. gr. vj., Ext. colocynth. c. gr. xij., M. ft. pil. No. iii., stat. sumend.

"4th. Pulse 90, hard and small; skin hot and dry; tongue the same as yesterday; had two stools; headache somewhat relieved. Other symptoms continue the same. Blood natural in appearance.—Repet. V. S. ad ℥xx. Capiat. solut. Sulphat mag. ℥ij.

"5th. Pulse about 80, and small; skin hot and moist; tongue covered with a brownish fur. Complains of pains in every part of the body; countenance much dejected, accom-

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panied by great general debility; belly loose.—℞. Subm. hyd. gr. j., Pulvis antim. gr. iij., M. ft. pil. unam ter in die.

" 6th. Pulse 90, hard and small; skin hot and moist; tongue as before; debility greatly increased; general pains continue, and the ideas are wandering. Two loose stools since yesterday.—Cont. medicinæ.

" 7th. Pulse about 96, hard and small; skin hot and dry; tongue black; teeth incrusted with a black matter; approaching fast to coma; countenance much dejected; great debility; one stool.—Capiat Submur. hyd. ℈i. The body to be sponged with cold water frequently during the day.

" 8th. Pulse 90, small and hard; skin hot and moist; tongue covered with a black fur; teeth still incrusted with the same black matter; great general debility; one stool.—Omit the cold affusion, and continue the calomel and antimonial pill.

" 9th. Symptoms unaltered.—Cont. medicinæ.

" 10th. Pulse about 80, and small; skin moist; tongue as described above; one stool; great tendency to sleep; ideas wandering, but answers questions distinctly when roused; gums slightly inflamed by the mercury.—Omit pil. Capiat Mistura salinæ, et applicet. emplast. lyttæ, nuchæ.

" 11th. Pulse 90, full and soft; skin hot and moist; tongue as above; belly loose; appears more lively this morning, and says he has no particular pain.—Cont. medicament.

" 12th. Pulse 90, hard and small; skin cool and moist; tongue as above; ideas still wandering; one stool. To have a little sago and wine.—Cont. Mistura salinæ.

" 13th. Pulse about 80 and small; skin hot and moist; other symptoms the same; no stool.—Capiat solut. Sulphas. mag. ℥ij. Enema emollient.

" 14th. Two dark-coloured fetid stools; other symptoms remain the same.—Repet. enema. Omit Mistura salinæ et capiat Mistura camphoræ.

" 15th. Pulse about 80 and small; skin rather hot; all the

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other symptoms increased in intensity; cannot articulate; breathing laborious; great prostration of strength; eyes fixed; one fetid stool.—Cont. Mistura camphoræ. Repet. enema emollient. et empl. lyttæ, nuchæ.

"16th. Pulse about 76 and small; skin moist; coma and laborious breathing; eyes still fixed; one fetid stool.—Cont. Mistura camphoræ—mercurial frictions.

"17th. At 8 a. m., died."

Case XIII.

From the same Journal.

"At the Island of Fernando Po, on the 1st of January, 1827.—John Guernez, aged 39, marine. Complained of acute headache, pain of back and lower extremities; which symptoms were preceded by rigors. Pulse 90, hard and small; skin rather hot; tongue covered with a brownish fur; belly costive.—V. S. ad ℥xxx. ℞. Calomel, gr. vj., Ext. colocynth co. gr. xij., M. fiat pilul. No. iii., statim sumend.

"2d. Blood natural; pulse about 96 and full; skin rather hot; tongue as above; headache and pain of back. Contin. medicament. Two loose stools.—Rept. V. S. ad ℥xx. Capiat solut. Sulpha. magn. ℥ij.

"3rd. Blood natural; pulse 90, hard and small; skin hot and moist; tongue as above; several loose and copious stools; yellow suffusion of eyes; headache and pain of back somewhat relieved.—℞. Calomel, gr. v., Pulv. antimon. gr. iij., M. ft. pil. capiat unam ter in die.

"4th. Pulse about 96, full and soft; skin temperate; tongue brownish and covered with fur; headache and pain of back continue, accompanied with languor and great debility; belly loose.—Capiat Calomel, ℈i.; cont. pilulæ.

"5th. Pulse 94, hard and small; skin hot and dry; tongue as above; headache and pain of back continue; eyes still suffused.—Capiat solut. Sulph. magn. ℥ij. et habeat enema

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purgans. The body to be sponged with cold water several times a day. Cont. pilulæ Submur. hyd.

" 6th. Pulse about 90, full and soft; skin hot and moist; tongue as above; headache and pain of back somewhat relieved; yellow suffusion of the whole body; two loose and copious stools.—Omit the cold lotion.—Cont. pilulæ Submur. hyd.

" 7th. Symptoms as above.—Cont. medicament.

" 8th. Pulse about 96, and small; skin rather hot and moist; tongue still loaded with a brownish fur; headache and pain of back, accompanied with great debility.—Cont. medicament.

" 9th. Symptoms as above.—To continue the treatment.

" 10th. Pulse about 90, hard and small; skin hot and moist; tongue still loaded with a brownish fur; complains of acute headache, pain of back and loins, accompanied with great debility; no stool.—Capiat solut. Sulph. magnes. ℥ij. et habeat enema emollient. Empl. lyttæ, nuchæ.

" 11th. Blister rose well; pulse about 96, full and soft; skin hot and moist; tongue as above; headache; pain of back and loins relieved; two loose stools.—Cont. pil. Subm. hyd.

" 12th. Symptoms as above.—Cont. med.

" 13th. Pulse 90, hard and small; skin rather hot and dry; tongue covered with a black fur; teeth encrusted with a similar matter; yellow suffusion of the whole body continues; had one stool—Capiat Subm. hyd. ℈j.; to continue the pills.

" 14th. Pulse about 90, full and soft; skin rather hot and moist; tongue still covered with a black fur; complains of pain in the right hypochondriac region; yellow suffusion of the body continues; one stool; gums slightly inflamed with mercury.—Omit pil. hyd.

" 15th. Pulse about 96, full and soft; heat of skin temperate; tongue cleaner; yellow suffusion continues; pain of the right hypochondriac region somewhat relieved; inflam-

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mation of gums considerably increased.—Capiat solut. Sulphas. mag. ℥ij. R. Alumen. purificat. ℈j., Aq. Font. ℔ss. Sacchar. album, gr. v. M. fiat gargarism.

"16th. Pulse about 90, full and soft; skin temperate; tongue cleaner; pain of the right hypochondriac region completely gone: says he has no complaint but weakness and sore mouth.—To have a little sago and wine.

"17th. Symptoms as above.

"18th. Continued to improve slowly. On the 15th of March was discharged to do duty."

Case XIV.

From the Journal of Mr. J. Daly, acting Surgeon of His Majesty's ship Athol, in 1825.

"October 2nd. John Elbour, marine, ætatis 35. Felt pain and soreness for some weeks past in the epigastrium, increased by pressure; limbs generally free; fæces of a yellowish hue; urine high-coloured and scalding; much thirst; the tongue and teeth are covered with a brownish fur; eyes heavy and inexpressive, with pains all over the body: there is also a peculiar sensation of cold on the top of the head. Skin dry, and rather of a darkish cast on the face; pulse 78, and moderately full and soft.—Calomel, gr. iv., Pulv. jalap. ℈ij. stat. sumend. Vespere. Purgative had a powerful effect.—Subm. hyd. gr. iij., Pulvis antim. gr. iv.

"3rd. Perspired much during the night; a good refreshing sleep; pain in the epigastrium not so severe on pressure, nor is there any perceptible enlargement.—Subm. hyd. cum Pulvis antim. āā gr. iij., Opii, gr. ¼, ft. pil. ter in die sumend. et mistura Nit. potassæ, ℥ij. cum pil.

"4th. Pulse regular; skin rather moist, and moderately warm; pain in the epigastrium not constant, but occasionally sharp; unpleasant dreams.—Cont. pilulæ, &c.

"5th. Slept tolerably; slight pain of head; tongue furred; bowels constipated.—To have three cathartic pills,

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followed by half an ounce of the sulphate of magnesia; continuing afterwards the pills of calomel, antimony and opium, as well as the mixture of nitrate of potash.

"6th. Feels a little giddiness: there is slight mercurial odour from the breath; pulse hurried; bowels acted on with difficulty.—Pil. Cathart. No. ij. et postea, Sulphas. mag. ℥ ss. si opus sit.

"7th. Had much headache during the night; slept but indifferently; mercurial fetor not so strong; passed one stool in the night, having the appearance of thick clotted blood, followed by two more that were natural; tongue still furred; mouth not so sore. Headache relieved by cold applications. —Cont. medicinæ quaque secunda hora.

"8th. Vomited some dark-coloured fluid extremely bitter. —A cathartic draught. Vespere. Bowels opened by the medicine—fæces have a yellow appearance.

"9th. Pulse regular and full; tongue still loaded; no pain or tendeness in the epigastrium on pressure; brought up a similar kind of fluid this morning to that of yesterday.—Two cathartic pills, and the medicine to be continued as before.

"10th. Pulse regular; slight ptyalism; tongue greatly loaded; bowels frequently moved, but the fæces are scanty, and have a dark mucous appearance.—The pills quaque tertia hora.

"11th. Mouth very sore; some pain in the head; bowels confined. Other symptoms ut heri.—Pil. cathart. No. ii.

"12th. Symptoms, circumstances, and treatment the same.

"13th. Skin cool; pulse quick; headache relieved; bowels freely open; mouth still sore. On the 14th this patient was considered convalescent, but, after some time in this favourable state, pain of side returned, with violence, and he was in consequence invalided on the 2nd of January, 1826."

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Case XV.

From the same Journal.

"At sea: October 31, 1825. Joseph Flin, ætat. 30, eight days after leaving Sierra Leone (where he had been drunk on shore) was attacked with the usual symptoms of fever; coldness and shivering, succeeded by heat and perspiration. Complains now of great pain in the forehead and across the eyes, with a sense of fulness and giddiness in the head. Countenance flushed, with intense heat and dryness of skin; mouth parched; tongue white and slightly tremulous; pulse 100, full and vibrating; pain in the back and down the legs. No pain elsewhere.—V. S. ad ℥xxiv. Subm. hyd. gr. vj., Pulv. jalap. ℈ij. statim sumend. At 12, says the head is relieved by the bleeding; tongue more moist; skin more relaxed, and less intensely hot: one copious evacuation since the medicine; pulse 100, but not so full. The stomach has been irritable, and has discharged a great quantity of green bitter matter.—Calomel, gr. iij., Pulvis antim. gr., i., Opii, gr. ¼, ft. pil. quaque hora sumend.

"1st Nov.—Slept well last night; pulse 90 and soft; skin moist and not very hot; mouth less parched. Still there is slight pain in the head, and a desire to evacuate by stool, without the power of doing so. Respiration apparently laborious, but without pain being felt. Blood drawn yesterday exhibited a small spot of buff about the size of a sixpence.—Pil. cathart. No. ij. At 8 p. m. two stools from the pills, of a dark colour; symptoms ut mane.—Cont. Pil. calomel, &c.

"2nd. Slept tolerably during the night. The bowels frequently moved; pulse 100, and neither hard nor full; slight pain in the head.—Applicet. lotio frigid. caput.

"3rd. Disturbed sleep in the earlier part of the night; pulse 80 and soft; bowels open; but the stomach rejects every thing taken into it. Countenance of a dark yellowish cast; slight mercurial fetor from the breath, but no soreness of

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mouth.—Cont. pil. secunda quaque hora. At 8 p. m. pulse 80 and small; feels but little pain in the head. Stomach rejects every thing taken into it, as if by a kind of spasmodic jerk. The skin is cool; and when he is asked how he is, answers, 'perfectly easy.' 11 o'clock—pulse 100, small and weak; stomach still more irritable. Respiration continues frequent; says the head is free from pain. The countenance is now dark and downcast, and the eye is glassy and watchful, with some incoherency of ideas. Mouth not in the least affected by the calomel, which is to be continued.

"4th. At 3 mane, vomiting three or four times since last visit; his thirst is urgent, and cold water is the drink he calls for. No pain or tenderness is complained of, or evinced on pressure being made over the epigastrium. Pulse small and fluttering; respiration hurried; the tongue has a slight dark fur on the centre. From this time until half-past 9 the pulse became gradually imperceptible; the feet and hands cold; respiration very quick; eyes fixed; countenance sunk; low delirium. He got forcibly out of his hammoc, and had a slight convulsive fit, from which he recovered; but *subsultus tendinum* set in, and he died at half-past 9 a. m.

"*Post-mortem examination.*—Liver considerably larger than the ordinary size; the convex surface was darker than natural; and from this there was a large protuberance, which forced the diaphragm so high up into the right cavity of the thorax as to impede the action of the right lung, the left being extended upwards into the left cavity of the thorax, but not to the same extent. The internal structure of the liver seemed healthy, but the branches of the vena portæ were gorged with blood. Lungs sound, but contained more blood than natural. Heart rather smaller than usually met with, the right auricle and vena cavæ being distended with dark blood: about two table-spoonsful of fluid of a yellowish tinge, contained in the pericardium. The mesenteric, splenic, and portal veins, all

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distended with blood. The stomach presented no diseased appearance, but contained a quantity of dark-coloured fluid. The gall-bladder was distended with a dark-coloured fluid of rather thick consistence resembling coal tar: no appearance of this in the duodenum. Intestines healthy."

Remarks.—Both of these cases occurred in consequence, it was supposed, of the crew of the Athol having been allowed to go on shore at Sierra Leone. The latter may be presumed to have been a case of local endemic fever to which a diseased condition of the liver was superadded; it being brought into action, no doubt, by the former disease, which it rendered more complicated and dangerous.

Mr. Daly, in his public journal to the Medical Commissioners of the Navy, reports eleven cases of bilious remittent fever, of whom three died; and in these there was visceral disease, a circumstance which is very common amongst those who have lived freely, and have been for some time on the coast previously to an attack of fever. Mr. Daly makes the following observations in explanation of the causes of the fever which occurred amongst the crew of the Athol.

"In October, 1825, whilst lying at Sierra Leone for about three weeks, we had frequent rains; generally every second day the air was close and sultry; and, although the thermometer never rose higher than 79°, the heat was scarcely supportable in the absence of the sea-breeze. A few days previous to our leaving port, our men had been on shore, and, from the facility with which ardent spirits are procured, most of them returned the following day in a state of drunkenness, some of them having slept the whole night in the open air, under heavy dews. These, as might be expected, became the subjects of the ensuing fever.

"About eight or ten days after leaving Sierra Leone the fever first made its appearance, in the beginning, seldom attended with any very urgent symptoms. There was slight

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headache; foul tongue; dull pain in the epigastric region, and irregularity in the bowels: the pulse and skin were rarely materially altered from the natural state. Purgatives, diaphoretics, and saline medicines, were tried in those mild cases; but mercury was the only remedy that afforded ultimate benefit. In the latter cases the patients were generally attacked suddenly, with much stronger symptoms of fever, each of the three stages severer and more distinctly marked; the remission being, in some instances, nearly perfect. The irregularity of the bowels was generally the first marked deviation from health: sometimes costive, sometimes relaxed; the discharges being either of a dark-brown or greenish appearance; the tongue heavily loaded. In those cases, wherein the head was affected, with hot skin at the commencement, and pain on pressure over the epigastrium, bleeding generally afforded relief, by removing the headache and heat of skin; but, until the system became affected with mercury, the discharges from the bowels never became natural: no other active purge had the desired effect. In many other instances, after the first remission, the skin was not above the natural standard, and often below it; the pulse being full and throbbing, but not quick; sometimes small, weak, and wiry, and sometimes, on the contrary, but less frequently, hard. Bleeding, mercury, and purgatives, combined with diaphoretics, were the chief means made use of to effect recovery. During the four months to which these observations apply, the variation of the thermometer was trifling, never below 76°, nor above 79°, in the shade: the air generally heavy, attended with frequent rains and calms."

This very trifling variation in the thermometer noticed by Mr. Daly, is very unusual.

Mr. Aitkin, afterwards surgeon of the Athol, whilst that ship was on her passage from Sierra Leone, had some cases of fever under his care, which were treated by blood-letting: some proved fatal, and some terminated favourably. In re-

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ference to a case of the former character, (the subject of which had been, previously to his joining the Athol, employed loading a timber ship up the Sierra Leone river,) Mr. Aitkin offers the following opinions, as to the causes which induced the attack.

"We afterwards found out, from the confessions that Sloane, who died, had made, that he had been in the habit of drinking ardent spirits to great extent; that he and his messmates broke open a cask of spirits on board the merchant ship; that they were in a state of constant intoxication for several days previous to his quitting; and that several of those so concerned with him died. It was about three weeks after the above circumstance that he became affected with fever."

Mr. Aitkin then remarks:—

"That such causes should be so long dormant in the system without shewing their effects, might be occasioned by the hard exercise up the river in taking in timber; but the heat of the sun and the effluvia of the soil, with the stimulating and subsequent exhausting effects of the spirits and sudden detraction of stimuli from the body—one, or other, or all, were the remote causes of the fever."

The observations contained in this short extract are as just as they are brief, and call for particular attention; for there is reason to believe, that the tapping a cask on board of ship happens much more frequently than is supposed.

Case XVI.

From the Journal of Mr. Austin, when Surgeon of His Majesty's ship Esk, in 1822.

"Mark Brown, aged 27. Had been living some days on shore at Sierra Leone, and 7 days after he came on board the Esk was seized with chills, followed by severe pain in his forehead, giddiness and nausea. Pulse 90 and full; skin rather warm; tongue white; bowels bound. He was bled to the

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extent of thirty-eight ounces, which produced faintness, and lowered the pulse. His bowels were afterwards freely opened by purgatives of calomel, jalap, and salts.

"The headache abated by these means; calomel was now ordered in five-grain doses, ter in die. There was always a remission of febrile symptoms early in the morning, which continued till about mid-day, the exacerbation then began, and increased as the day closed: it was never (however violent) at its height. On the 10th, complained of a bad taste in his mouth, but his gums did not betray any mercurial affection. On the morning of the 12th, felt very easy; pulse 76; skin cool; very slight headache; tongue cleaning; and the bowels open. In the evening, however, he was observed to be a little incoherent, and there was rather an increase of pulse, and heat of skin: next day he lay in a soporose state, with a profuse clammy perspiration covering his body, and a quick and small pulse; the pupils, nevertheless, possessed their natural sensibility to light, and he could be roused to answer questions, and to take the cordials, which were given to him frequently.

"On the 13th, his stomach, at times, rejected his drinks, and he twice vomited a small quantity of dark-coloured fluid. His skin, also, this day, exhibited a yellowish tinge. He continued to sink, notwithstanding the application of blisters, and the assiduous administration of cordial mixtures, of carbonate of ammonia with æther, and brandy and water; and died on the evening of the 14th."

Remarks.—This last case is a good illustration of what follows local exposure, and is well calculated, in contra-distinction to the cases which result from simple causes only on board of ship, to prepare the mind for a consideration of the more serious forms of fever, as they ordinarily occur on shore.

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General Remarks.

From all the cases which have been given, and although pains have been taken to avoid unnecessarily swelling the number, still a sufficiency have been inserted to afford the means of arriving at a just conclusion, it will appear that such of them as had local, in addition to common climatorial causes, were more insidious in their nature, and generally much more fatal in their results, under the same treatment, than were those of more simple origin, but with apparently more violent symptoms; and, also, that when blood-letting was adopted, and the blood afterwards examined, even in cases that had a favourable termination, the buffy appearance so characteristic of the existence of inflammation in the bilious remittent fevers of other tropical countries, was here wanting; the blood, in fact, had generally a natural appearance.

From reflection upon these circumstances, then, added to the fact, that if the patients do not ordinarily bear the loss of blood to the same extent that they do, under apparently similar circumstances, in other countries, it must be evident that blood-letting, even on board of ship, and in the cases most favourable for such operation, must be practised with a cautious and sparing hand.

Still the result of considerable experience upon the coast, directly and indirectly, is, that blood-letting, with the above precautions, in such cases as appear to have a perfectly simple origin, that is, such as are altogether independent of local exposure, is, when the symptoms indicate increased arterial action, the first measure for adoption; the effect produced regulating the quantity to be taken away. Increased vascular action being reduced, the next object is to cause a slightly increased flow of saliva, by means of mercury. The ordinary, and, indeed, the better mode of administering this medicine, in the form of disease now under consideration, is to give large doses of calomel at the commencement,

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by which the bowels will be freely, but not very frequently moved; and by which, also, the system will be the more readily brought under the influence of that medicine. The bowels thus evacuated, two grains of calomel, with one-eighth of a grain of opium, may be given every two hours, until slight salivation and a remission of the febrile symptoms shall have taken place; when one grain of blue-pill, and two of quinine, in the form of pill, may be substituted, and repeated at the same intervals as that of the calomel and opium. After that, the blue-pill is to be gradually lessened, rather than suddenly withdrawn, as an abrupt cessation of salivation might be attended with fatal results.

A slight flow of saliva having once taken place, it should be kept up for a few days without cessation; and when a perfect remission of the febrile symptoms has been established, the blue-pill is to be altogether withdrawn, and equal quantities of rhubarb and quinine (say two grains of each) are to be given thrice daily until convalescence shall have fully taken place. The patient, during the period of convalescence, must be somewhat restricted in food and drink, and that rather in quantity than kind; for, strange as it may appear, it is a fact, that a moderate indulgence in the gratification of a desire, on recovering from this fever, is much less injurious than a total denial of the patient's wishes.

If the first abstraction of blood from the arm does not sufficiently subdue the febrile excitement, the local abstraction of blood, by means of cupping or leeches, from the seat of pain, may be adopted as the safest and most judicious practice; and if, after the use of that remedy, pain or mental aberration continue, or set in, the application of a blister to the neighbourhood of the affected part may, with propriety, be had recourse to. These measures are to be repeated according to the intensity of the disorder.

If there be great sickness of stomach, medicine by the mouth will have but little effect until leeching or blistering,

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or both, shall have been practised over the region of that organ; and, that effected, an occasional drachm dose of soda, dissolved in plain water, will, in all probability, have a powerful effect in restraining the gastric derangement. At such a time, mercurial frictions, instead of the administration of mercury by the mouth, will be proper; and small occasional doses of camphor mixture, with Tr. hyosciami, will contribute to quiet the stomach, to produce a diaphoresis, and to soothe the nervous system generally. If collapse take place, as occasionally happens in the advanced stages, ammonia should be added to the latter medicine; but, immediately re-action occurs from such combination, the ammonia is to be withdrawn, and quinine, in some form or other, to be administered. The camphor mixture, &c., may be continued, in order to keep up a certain action in the circulatory system. During the deranged state of the stomach alluded to, enemas will generally be found preferable to purgatives by the mouth; but when a purgative by the mouth is decided on, that should be calomel alone, followed by a magnesia draught. The quantity of calomel must, of course, depend on the object in view. If the intention be to purge and salivate, a large dose, (a scruple, for instance,) must be administered; but, if to purge with activity, without effecting salivation, be desired, then five or six grains, followed by a seidlitz powder, or two or three drachms of the phosphate of soda (tasteless salts, as they are commonly called,) will best answer the purpose.

As to bark, it is generally hurtful, if given in substance; indeed, it seems matter for surprise, how former writers and practitioners managed to get their patients to swallow some ounces of powdered bark in the course of the day. Modern stomachs would loathe or reject a few grains in such fever cases as have been under consideration.

The warm bath is an important remedy in the commencement of the fever; but, after that period, it is a remedy of

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questionable efficacy, owing to the debility attendant upon its repeated employment, and the danger of the patient's catching cold, when the mental powers are, in all probability, aberrated, and the physical faculties in a state of extreme exhaustion. After the first employment of the bath, and when the fever is at its height, and the patient has a hot, dry skin, the regular application of cold affusion of vinegar and water to the palms of the hands and soles of the feet, those parts being always the most affected with heat and tingling, will be found alike grateful and beneficial.

The use of antimonials of every description is to be deprecated, as they never fail to increase that irritability of stomach so commonly experienced, and so difficult of control, in this disorder.

When the mouth is decidedly under the influence of mercury, the febrile action positively subdued, and nothing but debility to contend with, wine, at first in small quantities, may, with propriety, be given. The period for this indulgence will generally shew itself on the seventh, eighth, or ninth day. This is to be looked upon as a general rule, rather than as one without an exception; for it will sometimes happen, that unexpected collapse, and sinking of the pulse, will take place, and call for the temporary use of wine. In such case, good old Madeira seems to answer the purpose best; but it is to be borne in mind that, when re-action takes place under the administration of wine, or any other powerful stimulant, the stimulant is to be withdrawn, unless the patient shall have progressed to the state alluded to above, when its use may be continued with propriety.

Preventive measures on board of ship are more practicable than on shore, and deserve the most serious attention. Ships not being bound to remain in any particular place, their crew enjoy a great advantage over persons settled on shore; for, from the power of moving from one part of the coast to another, fever may be warded off from the majority

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of the people, even during a series of years, unless under the circumstances of some extraordinary visitation arising out of local exposure. Not so with persons residing on shore; they are mostly stationary, and are of necessity exposed to local causes; and the almost inevitable consequence of which is the occurrence of this fever. It may also be remarked, that the sooner the colonist or resident is affected by it, in general, the better; for, if it does not occur until a late period, the patient's chance of recovery is always greatly diminished.

The prophylactic measures generally practised on board of ships of war are good, and worthy of notice. Drunkenness, for instance, is treated as a crime, whilst cleanliness and ventilation, the latter by means of ports, scuttles, and wind-sails, are generally strictly attended to; and it but rarely happens, that humidity of any kind is allowed to exist between decks, through the attention paid to ventilation just described, and the occasional employment of Brodie's swing-stoves. Each of the crew is provided with one or two suits of what are called blanket dresses, and consisting of a frock and trowsers made out of blankets, served out on board for that particular purpose; and in these the people are obliged to muster in the night-watch. In addition to these precautions, it is the general rule to prevent the people, as much as possible, from engaging in any unnecessary shore duties; and, to forward this view, a certain number of native Africans (Kroomen) are employed in each ship, the number being specific and in proportion to the vessel's rating. The duty generally assigned to these people, in harbour, is that of wooding and watering. In some ships more attention is paid to the enforement of these general regulations than in others; and the ship in which they are very slackly observed, or altogether neglected, will generally be found to be, what some are pleased to term, unaccountably sickly.

On all occasions of a general wash of decks, the drying

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process with stoves should be practised; but, it should be remembered that, even with that precaution, the daily system of washing and sprinkling is highly improper, and frequently gives rise to disease. Scrubbing with hot sand should, therefore, as much as possible, supersede the use of water.

Dr. Carmichael Smith's method of employing fumigation, by means of nitric acid, has been highly extolled as a preventive measure, but experience shews, that heat, however applied, is the best means of rarifying a vitiated atmosphere; and swing stoves are, after all, perhaps, the best mode of effecting this desirable object on board of ship.

There is no cause of disease so common among seamen as neglecting to change their clothes when wet, or that of going to bed without taking them off when in that state. Attention ought, also, to be paid, that the change from warm to cool clothing should not be immediate, but regulated in proportion to the existing temperature, and the effects of that temperature on particular constitutions.

As these observations apply to ships of war more particularly, where there are always surgeons of experience or acquired knowledge, any further prophylactic remarks may be reserved for the conclusion of a following chapter, when they may be considered as more appropriate and more required.

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CHAPTER III.

THE ENDEMIC, OR LOCAL BILIOUS REMITTENT FEVER; NATIONAL PREDISPOSITION TO IT; ITS CAUSES, SYMPTOMS, PROGRESS, AND TREATMENT, ILLUSTRATED BY CASES; THE STOMACH GENERALLY THE SEAT OF DISEASED ACTION; WITH GENERAL REMARKS CONCERNING THIS DISEASE.

As the endemic, or local bilious remittent fever, rarely fails to attack the British settler on the western coast of Africa, within the region bounded by the equator and the northern tropic, the consideration of its causes, its nature, and its treatment, is a matter of great importance; and may, with propriety, immediately succeed the inquiry into the climatorial fever.

The endemic is often wonderfully like the climatorial fever in its appearance; and, indeed, so much so, that a young practitioner might be induced to conclude, that the adoption of the different names was only the creation of a distinction without the actual existence of a difference. Such an error, however, as that, experience in treatment would soon detect, but rarely, with sufficient alacrity, to prevent the occurrence of fatal results.

The great distinction between these two forms of disease is simply this: that, although the same symptoms may appear in each form, yet the same treatment will not apply; but must depend upon the peculiar, or specific nature of the cause of the fever, which should be most scrupulously inquired into, and viewed as the only safe guide by which the treatment is to be regulated.

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National Predisposition to the African Endemic, or Local Bilious Remittent Fever.

The exclusive predisposition of the natives of the British Isles, and those of other cold countries, to the African endemic, or local bilious remittent fever, which is certainly as important as the facts connected with it are curious, has never hitherto been noticed by any previous practitioner, either in the colony of Sierra Leone or on the western coast of Africa. At least, if the subject has attracted attention or remark, not even the most distant hint respecting it is to be found in any of the extensive manuscript writings which have been examined of the medical officers in the public service, who have been employed on the western coast of Africa.

It is unquestionably a very important and desirable matter in an unhealthy situation, to ascertain, as accurately as may be, whether the natives of any particular country are especially prone to the bad influences of the climate, and the prevailing or fatal disorders of the place. For, although the higher situations in all colonies are, and with propriety, for the most part filled by natives of the countries to which the colonies belong, still it may be advisable, in respect of health, and, therefore, in a considerable degree politic, to fill up many of the minor, but more exposed situations, by qualified foreigners, who happen to be less likely to be affected with the disease of the place than are the natives of the parent country.

An almost daily experience during a period of four years in Freetown, afforded ample means for observation respecting the point under consideration; and, as is generally the case, the observance of particular facts naturally directed the mind to a consideration of the causes whence these originated. A conviction soon established itself on the mind, resulting from this inquiry, that all persons from cold countries are predisposed, or liable, one day or other, to the African local bilious remittent fever; whilst southern subjects, or those of a warm

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latitude are, almost to a man, exempt. Among the English, Irish, Scotch, North Americans, Dutch, and Swedes, there seems but little, if any difference, in the existence of predisposition; but it may be stated with confidence, that the ratio of mortality is greatest, in proportion to numbers, amongst the people of the two latter countries, than it is amongst those of the four preceding ones. It seems, indeed, and as if in pursuance of the fact, that the subjects of cold countries are almost exclusively prone to the local bilious remittent fever of Sierra Leone; that, consequently, and upon the same principle, the colder the country from which the subject comes, the more dangerous his case.

The French occupy a medium situation amongst the subjects enumerated, as to their liability of becoming affected with the disease; a circumstance which appears to be attributable to the moderate temperature of their climate, and also to the general character of their diet, happily vibrating between stimulation and low living.

Among the southern subjects, who are landed in Sierra Leone in considerable numbers every year, from captured slave vessels, and concerning whom there has been much experience, namely, Spanish, Portuguese, Italians, and Brasilians, it would be difficult to recal to recollection, or to discover one case of general endemic bilious remittent fever amongst them. It is true that those people have experienced fever, but it was totally different from that species of fever so frequently fatal to British Europeans, and to those of the other countries enumerated, who have been exposed to this climate. The southern subjects have suffered from aguish, sympathetic, or other irritative fever; they are also affected with other very serious diseases, which will be considered hereafter; but they are free from the local endemic fever. It may further be remarked, with regard to the subjects of the southern countries not being liable to the local endemic fever, that, as in all general rules, there may be, and no doubt are, exceptions; but these exceptions are exceedingly rare, since

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not one case ever occurred during four years, unless under the circumstance of such subject having long associated himself with British habits of living and British customs.

Ordinary Causes.

Although the endemic or local fever prevails along the whole of the western coast of Africa within the tropics, in describing its ordinary causes it will be at once proper and convenient to remark upon them with reference to the occurrence of the disease at Sierra Leone more especially, and to leave unnoticed any trifling peculiarities which may be known or supposed to attach themselves to other parts. This mode of proceeding will be proper, for all the important and defined causes of this form of fever operate throughout the whole of the coast, and any variety in these effects is occasioned by the individual qualities of the subject attacked, and not by any characteristic peculiarity which the causes assume in any particular place; and it will be convenient, for, at Sierra Leone, the opportunities of judging of this disorder have been infinitely greater than have occurred on all the other parts of the coast united. This latter statement will be evident upon a reference to the topographical account of Sierra Leone, and a comparison of its amount of population with that of any other British settlement upon the coast.

It is established at Sierra Leone, as well as in other tropical countries, that the commencement and termination of the rains are the periods at which the greatest number of fever cases is to be expected.

The commencement of the rainy season, as has been shown in the topographical account of Sierra Leone, is usually preceded by the occurrence of a few tornadoes, which are soon after followed by occasional showers, more or less heavy, succeeded by an ardent sun, the earth being at the time charged with heat, through the influence of a tropical sun in conjunction with previous drought for six or seven months.

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The effect of this change is speedily visible, for the whole face of nature is quickly altered; the ground, which had been parched and scorched, teems with vegetation, and the landscape, the Bullom shore included, becomes, as it were, magically adorned. The beauties, however, appear to be pestilential, and the inhabitant is of a sudden surrounded by a scenery that is alike alluring to the eye and propitious to the rapid spread of disease. As the showers are always light at the commencement of the rains, with a powerful intervening sun, added to a previously heated surface, the evaporation is then almost constant, and also very extensive. The longer this state of the season exists the more serious the consequences. The more rapid the growth and maturity of vegetation the more speedy its decay; and thus, at this period, the commencement of the wet season, heat and moisture act as powerful auxiliaries or excitants to the more deadly principles of malaria; for, after a few heavy tornadoes, the succeeding or attendant showers of rain mingle with a lifeless mass of matter, whether of weeds, leaves, or branches torn from trees, and the most deleterious miasmata is soon produced. In some parts these effects are more violent, of course, than in others; but, perhaps, there is no place at which they are more fearfully conspicuous than the Bullom shore. The character of that shore, with its countless stagnant pools and extensive tracts of marsh, loaded with vegetable matter, which is subject to rapid decomposition, have been noticed elsewhere, and therefore it is only necessary here to remark, that, at the period of the seasons under consideration, the wind generally blows from the northward and eastward, and consequently bears a large quantum of the noxious vapours generated on the Bullom shore into the heart of Freetown. While this continues to be the case, but little argument is required to produce a conviction that the capital of Sierra Leone must be subject to fatal fevers, should even improvements in its immediate neighbourhood be practised.

In Freetown, vegetable decomposition does not exist to any

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extent at all comparable with what it does on the Bullom shore; nor is Freetown in itself, by any means so bad, in that respect, as it was a few years back. The streets were then flat and unformed, with occasional hollows in their centre, and large pools of water were consequently to be seen, in the rainy season, in every direction, and rank weeds and grasses (and amongst these the indigo plant, which in its decay emits the most noxious effluvia,) were allowed to spring up, to luxuriate, to ripen and to die, and to undergo the process of decomposition just as Nature willed it. Some improvements in this respect have taken place within the last four years. Most of the leading streets are now formed and well elevated in the centre, having a channel on either side for the free escape of the water as it falls or flows from the mountains in the rear of the town. But still it is to be regretted that the immediate vicinity of Freetown is neither so clear nor so healthy as the mountain villages.

The greater portion, indeed, of the mountainous ridges around Freetown, that is, on the Freetown side, is still covered with bush, and the wreck occasioned by the violence of the tornadoes and the progress of nature, is washed by the deluging showers from the heights down to the bottom, close to the town, where it forms an immense mass of gradually decaying vegetable matter, which continues to disseminate its fatal odours until the setting in of the very heavy rains. When that period arrives, the sun being obscured, the inordinate heat of the surface of the earth is so generally reduced, that evaporation ceases; and the streams, resulting from the rains, sweep with so much power that they bear away the vegeto-animal matter, which had previously been collected, and was in a state of decomposition and putridity, or so lessen its quantity and dilute or destroy its pernicious qualities, that its baleful influence subsides, and no fresh fever cases then appear. This temporary immunity from disease and death is again broken in upon at the approach of the dry season,

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when, as at the commencement of the rains, the light showers of short duration are disproportionate to the rapidly increasing intensity of the sun; the earth in consequence becomes again heated, and evaporation once more attains its zenith. To the reflecting mind this is clearly but awfully illustrated at the break of day, when the sun begins to act upon such moisture as the earth may have acquired from the fall of dew or rain, or both, during the previous night; and when the mountains, from their greater attraction, and, therefore, more moist state, are enveloped in watery vapour, which is seen rapidly to escape and ascend like so much smoke or steam. Similar evaporations are frequently observed to take place from the very streets of Freetown at an early hour in the morning, and at that period of the day, therefore, great danger is to be apprehended, especially by the new comer, from exposure to the open air. It fortunately happens, however, that at the approach of this change of season the winds but rarely blow over the swampy Bullom, and from that circumstance it undoubtedly arises, that fever is less frequent in its occurrence, and decidedly less fatal in its consequences, when it does occur at the termination of the rains, than it is at their commencement.

It need hardly be stated, that intemperance, so common a cause of disease, is to be ranked as one of an exciting nature of this particular disorder, and that, when fever does occur under such excitement, the patient has less chance of recovery than if he had been a moderate liver, and his disease had originated solely from prevailing remote causes. This fact, however, to produce a salutary effect, should beget caution and not fear; for the extreme of abstemiousness does not answer the good purpose of preventing the occurrence of this fever, or that of preserving the individual practising it from the worst consequences when attacked.*

* The late Mr. O'Bierne, Assistant Surgeon, in his half yearly report of 1820, says: "Sierra Leone is certainly rather unhealthy for a few months

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Anxiety of mind, or fear, over-indulgence in the gratification of the animal passions, exposure to sudden transitions in the weather, and extreme changes in habits and exercise, such as from an active to a sedentary life and *vice versa*, may all be noticed as exciting causes of the endemic or local bilious remittent fever.

Symptoms, Progress and Treatment.

The symptoms of this fever, it is to be regretted, are so various and irregular, in different cases and under different circumstances, that a mere nosological definition of them would afford no precise information, and might mislead those it was intended to instruct. The first attack of fever, as it is ordinarily observed to occur in the persons of strangers, such generally as are but a short time resident in the colony, although it does not always happen within the first few months, or even the first few years, of residence, is characterized by a general decline of natural activity and mental energy; and these symptoms may continue their progress during three, four, or more days, according to the peculiarities of the constitution of the subject attacked, state of the body at the time, and the degree of exposure endured. The disease then begins to unmask itself, either by pains in the limbs, loins, or head, which are not unfrequently accompanied by bilious vomiting; and very soon after, if not at the same time, heat of skin, with a frequent pulse, and a tongue more or less

in the year, but it is very possible that the average mortality of its European inhabitants is not so great as that of the West Indies—it certainly does not exceed it. A man, that is not too prudent and cautious, may enjoy himself here, and pass a few years pleasantly enough."

Poor O'Bierne was a fine adventurous fellow, and no doubt spent a few years pleasantly enough; but they were but a few; for, not long after he made the report from which the above is an extract, he returned to England in ill health, and soon sunk from the effects of his past services on the coast and at Sierra Leone.

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furred, complete the development of the more common symptoms, and remove all doubt as to the existence of the alarming malady. The condition of the bowels forms no criterion by which to judge of the presence or absence of this fever; for they are described by patients, at the onset of the disease, to be in a state that is natural nearly as often as in that of the opposite extremes of costiveness or relaxation. Nor is the skin, except as to its temperature, always to be depended upon as a decisive circumstance on which to determine with respect to the existence of this fever, as the surface of the body is as frequently found to be in a state of copious perspiration as in that of the unpromising converse of dryness and constriction. The pulse, too, though generally more or less above the natural range, is, in other respects, as variable as the winds; it being, in different cases, sometimes hard, yet small, and as it were contracted; at other times, soft, fluttering, or stridulously undulating; and as often regular as irregular, in respect to the intervals between the sensations of its action, as communicated to the fingers and thence to the mind that examines and judges of its state. In some rare cases the pulse is full and bounding. In the latter case a suffused and inflamed appearance of the eyes is generally seen, and the eye-balls, or the lower portion of the forehead, immediately over the orbits, will be complained of as painful; or, if not, minute interrogation will almost always lead to the detection of some fixed or general pain in the head, or to some sensation of weight or confusion in that organ; and, under such circumstances, a strong disposition to sleep will not unfrequently be superadded, attended with sudden starting and an unconquerable degree of restlessness, which effectually prevent indulgence or gratification in the desire. When the pulse, on the contrary, is less developed, the symptoms just described will be either less marked or altogether wanting. In that case pain will be more likely to be referred to the larger joints of the extremities, or to the lumbar portion of

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the spine, and perhaps to both of these. Occasionally patients are met with, who, though apparently in full possession of all their perceptive faculties, declare they have no pain whatever, expressing themselves as being merely inconvenienced by an indescribable sensation of general *malaise*.

The febrile symptoms are very frequently ushered in by a slight paroxysm, or shivering fit, similar to that of intermittent fever; but which rarely returns during the future progress of the disorder.

Accompanying the premonitory symptoms detailed, yellowness of the skin and eyes, sometimes, also appear; and this state, when it does appear, is almost always attended with vomiting of green bile, which seldom varies its colour, except as to tint, that being at one time a light, at others, a dark, or bottle green: and in such particular case the early alvine evacuations, at least the evacuations which are procured from the lower bowels, will scarcely ever fail to exhibit a very dark tar-like appearance, and to emit a most offensive odour.

The disease once in march, gradually increases in intensity till it arrives at its critical acmé, which it seldom attains before the eighth, ninth, or tenth day of its duration. In its course many changes are wont to take place; and two attendant circumstances may be especially noticed as being tolerably uniform in their occurrence, namely, a better and a worse day, alternately; and a daily exacerbation, which usually commences at about three or four o'clock in the afternoon, and continuing more or less severe all night, ordinarily effects a slow and partial retreat towards the following morning. At this period of the disease the patient will most probably express himself free from pain or suffering, but be greatly fatigued by delirious, or, it may be said, waking dreams, during the previous ten or twelve hours of nervous excitement and mental disturbance. When the pa-

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tient enjoys this partial respite, he will often recount his fancied adventures, which are never agreeable, but full of apprehension and alarm, and frequently such as, having been attacked by some infuriated animal; exposure to the fire of a whole army; tumbling down the most dreadful precipices; being in the act of drowning; or about to be tried for his life. In this hallucinated state of the mind, great restlessness is to be observed; the patient constantly shifting his position in bed, whilst, with his visions still before him, he is complaining, perhaps, of being so firmly bound down that he is unable to move. At times resistance is offered to supposed restraint, and, if not promptly opposed, the patient, maddening under his delusion, will certainly escape from his bed, and, in all probability, dash his way through a window into the streets, or on to a house-top, or into a back-yard, from either of which situations he will frequently extricate himself in a most extraordinary and dexterous manner. This is an extremely dangerous symptom; it may be said to be almost indicative of certain death. When such an escape has been once effected, or attempted, a repetition of the effort is to be apprehended, and should be well guarded against. The cunning of the patient is remarkable; for, in the midst of his suffering, his eye is often observed to be fixed on the countenance of the fatigued and dozing nurse, in the hope of detecting her asleep, and of thus finding an opportunity for withdrawing himself from what he considers to be forcible confinement. In such a state of mind no reference will be made by the patient to pain or bodily suffering; and his answers to questions, on the subject of his feelings, will almost always be, that there is nothing to be complained of but the annoyance arising from cruelty and unkind treatment, which he supposes to be in exercise towards him. Even at this period, within a few hours probably of his dissolution, the patient may be possessed of much physical power, and exert it for a moment, as it were,

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in a conflict for life. The paroxysm, however, is of brief duration, and is speedily followed by the setting in of symptoms that are unerring in the fatality of their character. The symptoms, which immediately precede dissolution, consist of low incoherent muttering, delirium, or perfect calm, scratching at the bed-clothes, or grasping at ideal things, with *subsultus tendinum*; very frequently, also, involuntary discharges of urine and fæces, attended with lead-cold extremities and hiccup.

In this detail of what may be considered the pathognomonic symptoms of the ordinary Sierra Leone bilious remittent fever, a somewhat prolix manner may be noticed; and it, therefore, becomes necessary to observe, that that very prolixity seemed to be absolutely necessary to render the description at once faithful and comprehensive, and calculated to afford grounds on which a correct judgment may be formed on a matter of the utmost importance, namely—the treatment of this form of fever. Upon this subject a variety of opinions exist, and it may, therefore, be desirable at once to state the course of practice which appears to be the most entitled to adoption, only premising that statement by a brief and compendious account of the circumstances and reflections which led to its pursuit. In executing this design, for the sake of perspicuity, the narrative style and singular pronoun have been adopted.

When employed on the Western Coast of Africa, in the years 1822 and 1823, in the capacity of surgeon to His Majesty's ship Cyrene, I particularly noticed a striking difference in the effects of the same measures upon patients of apparently similar constitutions, and under apparently similar circumstances, as compared with my experience in the East and West Indies and the Mediterranean. I observed, in fact, that such patients as could bear, with the greatest advantage, in the two former countries in particular, the abstraction of fifty or sixty ounces of blood from the arm, at

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one blood-letting, would faint on losing from twenty to thirty ounces on the western coast of Africa. This struck me forcibly, yet I could see nothing in the temperature of the climate, which about averages that of the West Indies, and is considerably under that of the East Indies, to account for the circumstance. I therefore still continued to practise blood-letting in such cases of fever as came under my care. Those cases were almost always seen at the onset of the disorder; and the result was such as to induce me to believe that the practice in question was the practice to be preferred, at least with seamen not long on the coast; and beyond this, on the western coast of Africa, my personal experience had not then extended.

On my arriving in the colony of Sierra Leone in June 1827, I was still buoyed up with the hope of success in my intended adoption of a more cautious and judicious use of the lancet than what seems called for in the treatment of fevers prevalent in the countries before alluded to. I soon had ample opportunities of putting my views to the test, and the first remarkable instance that occurred is worthy of particular mention.

Among a great many fever cases under my care, were seven of the crew of the "Thomas Gelston," a merchant ship, which had been about eight weeks on the coast, and loading with timber up the Sierra Leone River. The cases were brought on shore and lodged in the same house. The captain, having requested my attendance, accompanied me, and in his presence I blooded six, in whom the febrile symptoms were most marked. In the end, the whole of the seven died, but the most delicate, the one not blooded, outlived the strongest of the others for the space of about twenty-four hours. Apprehensive that this fatality might have depended upon some uncommon specific cause, I continued the system of bleeding still longer, limiting its application to such cases as had only very recently been attacked,

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but with very little success. At length being conscientiously forced to abandon a practice to which I had, in a measure, been wedded, as well from my own previous experience in the treatment of other tropical fevers, as from the concurrent testimony of the profession generally, I was induced to seek for an explanation by a reference to localities. I had now the advantage of seeing and treating fever, as well on board of ship as on shore, and I had observed that a similarity of symptoms, under these different circumstances,* did not justify a similarity of treatment. I was also further convinced that the cases which occurred amongst seamen, who had but little or no communication with the shore, were more sudden in their approach, that the symptoms were more intense in their appearance, and that they evinced a more inflammatory character than did those of Europeans, even but a few days located on shore, or such subjects as were employed in hard labour during the same period up the river. I thus came to the conclusion, in short, that, although occasionally difficult to distinguish between them, two forms of bilious remittent fever are to be recognised on the coast of Africa, and these, it may be seen, I have distinguished by the epithets, climatorial and local.

In the latter end of 1830, the boats of His Majesty's brig Plumper were employed in examining some of the rivers to the northward of Sierra Leone for slave vessels, of which there was information; and, as the people engaged in this service were greatly exposed to malaria, fever soon made its appearance amongst them. The brig put into Sierra Leone, and thirty-five of the crew were sent to the military hospital; of which twenty-nine were dead, two in danger, and four in a state of extreme debility, when I last had the

* I consider that a great difference exists between the circumstances of a man of war, lying a few days or a few weeks in Freetown Harbour, and a merchant ship employed taking in timber, during the same period, up the river; which latter is every where surrounded by mud and mangrove.

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opportunity of hearing of them through the naval medical officer who visited the hospital for information, and that in despite of the lancet both on board and on shore. These were cases of local endemic, and the mortality (extended, in my opinion, by the use of the lancet) was incomparably greater, in point of numbers, than I experienced in my own practice in the epidemic of 1829.

From the care ordinarily taken in a ship of war to prevent imprudence on the part of the crew on shore, fever rarely occurs to any considerable extent in vessels of that character for some time after their arrival on the coast; but should the contrary happen, a marked peculiarity in the effects of the approved treatment may be discerned. The patients will generally become faint before one-half or two-thirds of the quantity of blood is abstracted, which, with the best results, might be taken from similar subjects, and apparently under similar circumstances, in other warm latitudes; and, if there be much local exposure, the fatal results of blood-letting, as in the instance just quoted, will be frightful. These circumstances are not only worthy of serious notice, but suggest a most important question for the consideration of medical practitioners abroad: namely, to what is this peculiarity, in respect of blood-letting on the western coast of Africa, attributable? I shall endeavour to solve this by stating my opinion, that the western coast of Africa, in proportion to its intercourse with almost every nation in the civilized world, and to the knowledge which is extant of its seas and their navigation, is incomparably the most wild and uncultivated part of the habitable globe; and that, when the West India Islands, and many parts of the Eastern Continent, now adorned by handsome edifices, towns, and factories, added to the wholesome spread of agriculture, with extensive commerce, were in a state of native wildness, they and Africa were alike destructive of European life. With an increased agriculture the means of commerce became more and more

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multiplied and alluring, and as the country, to a great extent in the neighbourhood of the site of British or other European establishments, was gradually cleared, the fever, previously deemed incurable, then succumbed to the lancet, and former writers were impugned and disgraced because they did not see what more modern observers do; what the former could not see when they wrote, namely, that blood-letting was, as it is now admitted to be, the best general practice in tropical fevers. The fact is, that very minute observers in the days I allude to had tried blood-letting, in common with other measures, but they failed; the use of the lancet seems to have been always productive of fatal consequences, until, by a progressive change in localities, the malady changed its type, and the application of the same remedy was then attended with more gratifying results.

This, I believe, to be the correct view of the subject, but it has never been fairly entered upon, as I conceive it ought to have been, in justice to our predecessors. If it be correct, and I see no reason to doubt that it is so, the peculiarity in question, namely, the circumstance of Europeans, even on board ships of war, not being able, generally, to bear the abstraction of as large a quantity of blood on this coast as they could, with advantage, on others of a similar temperature, but differently circumstanced as to localities, is fairly accounted for. Exceptions to the generalities laid down will, of course, occur. It does not by any means follow because an occasional recovery takes place, under the use of the lancet, in the fever now under consideration, that such is the better mode of treating the complaint. How often do we hear of recoveries after the internal use of prussic acid and other active poisons?

When patients recover from general blood-letting in this local fever, that recovery is almost always very tedious, and frequently followed by ague. I had a patient under my care, a master of a ship, for the treatment of the local remittent

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fever, in the beginning of January, 1830, who, on the morning of the sixth day of his illness was doing remarkably well; his mouth being sore, and his pulse only 84 strokes in a minute, and soft. In the early part of the night he had an exacerbation, and became exceedingly irritable, as is customary in that stage of the fever. He was also much frightened and sent for me; I was, however, too unwell to attend, and another medical practitioner was sent for, who immediately let blood to the extent of thirty-five ounces. When I saw the patient in the morning, the pulse was tremulous, hardly to be felt, and the action of the mercury at a stand. On examining the blood it was found to contain a very unusual quantity of serum, without the slightest appearance of buff or cupping. The patient, however, as is customary for a certain time after bleeding in this fever, expressed himself relieved; but there was still headache, with a confusion of ideas; and I had great difficulty in persuading him to permit a large blister to be applied to the nape of his neck. The mercury was increased in quantity, with the addition of quinine, and he had an anodyne diaphoretic at bed-time. Beef-tea, sago, and arrow-root, with small quantities of wine were allowed, the bowels having been kept open by an occasional seidlitz powder. Under this general treatment, the soreness of the mouth having been established, the patient eventually recovered from the effect of the experiment that had been practised upon him.

Reasoning upon some of the facts adverted to, a conjecture was entertained that, under even limited local improvement, the fevers of Sierra Leone might, like those of other countries, change their type, and admit of a more successful treatment than that which is now generally adopted; but more mature reflection affords no grounds upon which to encourage the prospect. The fate of the capital of Sierra Leone, as to health, must ever be chiefly dependant upon the condition of the Bullom shore; although some good may be effected

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by local improvements in the peninsula itself, still no very material relief can be anticipated from that source. This, however, is not the fitting place for the consideration of the question of improvement in the localities and vicinity of Freetown, even with a view to the amelioration of its endemic fever; and, as a convenient opportunity for entering upon that important branch of the subject will easily be found, it is desirable to dismiss it for the present, and to offer a few cases illustrative of the practice recommended, and which, whether right or wrong, was adopted only upon slow and scrupulous reflection, exercised upon extensive practical experience.

Cases of Endemic, or Local Bilious Remittent Fever.

CASE I.

From my own Journal, as Colonial Surgeon of Sierra Leone.

William Wilson, a seaman, aged about 25, a well-formed man, of middle stature, was, this morning (17th January, 1828) brought from one of the timber ships up the river: he stated that, the preceding day, he was affected by giddiness and nausea, accompanied by severe pain in the loins, and tottering in the limbs; pulse full and frequent, but not particularly hard; slight redness about the eyes; tongue covered with a yellowish fur; skin in a state of partial perspiration, with great restlessness. The patient's bowels have been moved since his arrival on shore, and he has just vomited a large quantity of yellow bile. He complains now of extremely painful headache; this last supposed to depend upon the vomiting.—A scruple of calomel immediately; and two grains of the same to be continued every two hours after, in the form of pill; the hair to be cut close from the head, which, in addition to the whole surface of the body, when at a temperature above that of the natural standard, and not perspiring, is to be sponged with vinegar and cold water.—

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At 6 p. m., eight hours after the first visit, the patient had been greatly purged, but the vomiting and headache were increased; the state of restlessness extremely distressing, with a very hot, dry, and a constricted skin.—Thirty leeches to the forehead and temples, followed by a warm bath, and the application of a blister over the region of the stomach; the two-grain calomel doses to be each combined with six of calcined magnesia. A little barley-water, gruel, or thin arrow-root, only to be occasionally taken, and that in very small quantities at a time.

18th. Headache gone, but no sleep; vomiting lessened, but not subdued; frequency of pulse and heat of skin greatly reduced.—Saline effervescent draughts occasionally throughout the day; the powders to be continued.

19th. Considerable reduction of the febrile symptoms, but still no sleep; and the draughts and powders are rejected as fast as they are taken.—The powders to be omitted altogether; and, in order to avoid distending the stomach with air, the violence of the effervescence to be permitted to subside previously to swallowing the draughts, which are to be continued. A drachm of mercurial ointment to be rubbed in on the inner side of the thigh every two hours.

20th. Very restless and anxious; had very short slumbers throughout the night, with frightful dreams; skin still less intensely hot; pulse 88, small and not hard; tongue loaded, but moist; no alvine evacuation since yesterday evening; added to which, pressure over the lower bowels produces slight pain.—A seidlitz powder immediately; to be followed by the administration of a mild purgative enema. Mouth not sore.—The mercurial frictions to be continued, and the blister to be dressed with blue ointment.

21st. The patient greatly relieved by the remedies of yesterday; had some sound sleep in the night, but still no appearance of salivation.—Arrow-root, fowl broth, &c., and the other measures to be continued.

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22nd. Expresses himself perfectly well, but weak; pulse and skin natural; tongue very much loaded; mouth apparently touched, but no saliva: the countenance is demonstrative of much stupor; the whole body, in fact, appears torpid: no stool since yesterday morning.—A large blister to be placed over the cervical vertebræ, extending from between the tips of the shoulders to the commencement of the occiput, and a scruple of calomel to be taken immediately; the ointment to be rubbed in every hour.

23rd. The patient decidedly better; complains of pains from his blister, and his mouth, which latter, emits a strong mercurial odour, but saliva does not yet escape from it.—The stomach being again free from irritation, and the system apparently on the very eve of being satisfactorily brought under the mercurial influence, the ointment was left off entirely, and the following medicine directed to be administered every two hours; viz., calomel, one grain; sulphate of quinine, two grains; with six grains of calcined magnesia.

24th. The patient, having had a good night, complained only of weakness and irritation, from the state of the mouth and the blistered surface.—To discontinue the powders, and take decoction of bark, with ten grains of sulphate of quinine to each pint of the former. This, together with astringent gargles and occasional mild purgatives, to be continued until recovery of strength.

These means completed the cure, and the patient, perfectly recovered, soon after returned to his vessel.—This, from the first, was a well-marked case of Sierra Leone fever.

Case II.

From the same Journal.

John Bogue, ætatis 34—admitted on the 19th January, 1828. Complains only of weakness and sickness of stomach; had been suffering, during several days on board, from frequent vomiting of green bile. Bowels tolerably free, from

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the operation of a purgative taken previously to leaving the ship. Pulse now frequent, but weak and tremulous; skin hot, but covered with perspiration; tongue very foul; eyes suffused; no headache; no pain whatever.—Subm. hyd. ℈j. Opii, gr. j., M. divid. in pil. No. iij., statim sumend.

20th. Had been purged slightly in the night; had no sleep; bowels rather irritable; very little other perceptible alteration.—Infus. sennæ, Aq. ammon. acet. āā ℥ss., Sulphas mag. ʒij., M. statim sumend. postea, Subm. hyd. ℈j., Opii, gr. j., M. ft. pil. No. x. unam quaque secunda hora.

21st. Complains of pain on pressure over the region of the stomach.—A scruple of the submuriate of mercury to be taken immediately, and a large blister to be applied to the affected part.

22nd. Extremely restless and anxious, although the bowels are open and pain is not to be detected, either by examining or questioning the patient; still perfectly rational.—One drachm of mercurial ointment to be rubbed in every two hours; continuing the pills and the other usual auxiliaries in the way of drink, the occasional application of cold affusion, &c.

23rd. No improvement of symptoms; on the contrary, the pulse is irregular, and communicates a kind of continuous second stroke; a tremulous thrill hanging, as it were, and returning upon the retiring pulsation; tongue black, dry, and contracted, and almost motionless; no stool since yesterday morning; slight nausea, but no vomiting, except immediately after over-indulgence in the beverage directed for his common drink.—A purgative enema to be thrown up immediately, and the medicine to be continued, as directed yesterday.

24th. The patient's bowels open; he had some sleep in the night, but the countenance is greatly altered for the worse: his pulse is very small; he is in a state of stupor, and troubled with hiccough; gums swelled and red, but no

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saliva flowing.—To omit the mercury altogether; a large blister to the nape of the neck, and to take a third of a wine-glassful of the following mixture every half hour: Mistura camphoræ, ℥ss., Ammon. carbonat. gr. x., Ether. sulphuric. ʒ ij. M.

25th. Rallied considerably in the course of yesterday, but is now apparently lost to every thing around him, although the pulse is fuller and softer than it has been for the two or three previous days.—Bottles of hot water to the soles of the feet, which are now somewhat beneath the natural standard, and mustard cataplasms to the calves of the legs; all of no avail: the unfortunate man sunk in the course of the day.

Dissection.—Cadavre not much emaciated: on laying open the thorax its contents were found to be perfectly healthy, with the exception of old adhesions of the pleura pulmonalis and pleura costalis. On making the usual sections and reflecting back the abdominal parietes in the ordinary manner, the omentum being withdrawn, the whole external aspect of the viscera, *in situ*, had a pale blanched appearance. On laying open the stomach, it was found to be perfectly healthy, containing nothing but a little flocculent mucus, mixed with part of the medicine last prescribed. Liver healthy; gall-bladder distended with dark-green viscid bile; ducts pervious. Spleen enlarged and easily broken down under the fingers. There was not the slightest appearance of inflammation in any part of the intestines: the duodenum alone contained some of the same kind of mucous matter noticed in the stomach.

It is also to be recollected, in reference to the morbid condition of the parts examined, that the patient was some days ill previous to his having been under medical treatment, thus rendering the appearances after death the more extraordinary.

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Case III.

From the same Journal.

Thomas Primrose, ætat. 32—admitted 19th January, 1828. Has considerable heat of skin and thirst; pulse somewhat accelerated; tongue slightly furred, but not dry; had had a sensation of swimming in the head, and fell twice on board on attempting to stoop.—Ten grains of calomel immediately, to be followed by half an ounce of Epsom salts.

20th. Bowels very freely opened; pulse almost natural; tongue furred; thirst; no derangement of stomach.—Calomel and James's powder, of each two grains, with $\frac{1}{4}$th of a grain of opium every three hours. This patient, without any material alteration of symptoms, continued the same treatment, one uncombined calomel purgative of ten grains having been taken in the meantime, until the 4th day of his illness, when he was fully salivated. The mercurial treatment was then entirely discontinued, and decoction of bark, with extract of the same, was given in small and frequently-repeated doses, until the ninth day, when he was permitted to go about. In a few days after this the patient, in perfect health, quitted his lodgings for his ship.

Case IV.

From the same Journal.

On the 17th of July, 1828, I was requested to consult with another medical gentleman respecting the case of a European lad, about 17 years old. He had fever, and admitted, on interrogation, that he had felt unwell during the six preceding days, but had only complained the previous day. He then took some opening medicine, and continued to take small doses of calomel at rather extended intervals. The pulse was about 95, but soft and stridulous; the skin being cool. The tongue was of a pale white in the centre, and, although the countenance bespoke much internal derangement, he expressed himself entirely free from pain. His own medical attendant directed six grains of calomel to be taken in the

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night. During the 18th and 19th, calomel and quinine were given to considerable extent, but still no appearance of soreness of mouth.

20th. He was delirious in the night; the skin is now very hot; pulse 108 and stridulous, as it was when first I saw him; the tongue parched. At ½-past 6, I was suddenly called to see him, from an impression, on the part of the master, that the boy was getting worse: he was now insensible, the eyes were fixed, and the pulse was small, rapid and irregular.—A large blister to the nape of the neck, and a scruple of calomel and four grains of James's powder to be taken immediately; and two grains of calomel and one and one-half of James's powder every hour after.

21st. No soreness of mouth, a drachm of mercurial ointment to be rubbed in every hour, in addition to the internal use of the calomel and James's powder.

In this state, and without variation of treatment worthy of notice, he went on for three days; after which, from his first medical attendant being himself attacked with fever, the patient became altogether under my care. His mouth now became slightly affected, but his pulse was very frequent, feeble, and irregular, and he was affected with severe headache and nausea. Small blisters to the temples. Decoction of bark, with ammonia, in frequently-repeated small doses, with occasional effervescent draughts; omitting the calomel and James's powder.

25th. Comatose; eyes fixed, and death-like; pulse not to be felt. Madeira *ad libitum*; continuing the bark and ammonia.

26th. Sensible and much improved; complains much of sore mouth.—To omit the stimuli and mercurial ointment. —Two grains of quinine, with half a grain of blue-pill, every two hours. From this time the boy's progressive improvement continued uninterrupted until he was restored to good health.

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Remarks.—The preceding four cases are all of them strictly of an endemic character, and they vary sufficiently in their respective particularities, to enable a tolerably correct opinion to be formed of the mode or system of treatment which was pursued respecting them. To make any further extracts, therefore, upon this point, from the journal from which they were extracted, would be a work of supererogation; and, therefore, the opinions and the observations of such other medical practitioners as seem recently to have bestowed most attention upon the particular form of fever under consideration may be now referred to.

Extracts from the Half-yearly Report, Dated 1821, *of the late Dr. Nicoll, Deputy Inspector of Hospitals, on Bilious Remittent Fever.*

"It is a distressing reflection, that dissection has thrown little light on the obscure nature of this fever, and has been of still less utility in directing to a just and appropriate treatment.

"There is no disease which has received more attention from medical men in all ages than fever, none in which so many able men have laboured in vain to investigate its causes, its seat, and its action; and there is no disease about the treatment of which there still prevails in every country such discrepancy of opinion. The disease destroys as many in recent years as it did in former times; nor can it be positively asserted, that more are saved by any one particular mode of treatment than another. We are apt to fancy that this plan is more successful than the other, but on the aggregate results, our opinion appears extremely doubtful. These are melancholy reflections indeed, and I fear the facts are too stubborn to sanction, on cool and candid investigation, any other conclusion than I have drawn. We shall, how-

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ever, go on plodding in the hope of arriving one day or other at the desired end."

"Of four deaths which lately occurred amongst the soldiers, whose cases were communicated to me, one European only died of remittent fever; his head, however, does not appear to have been inspected, but the morbid affection of the viscera, of the thorax and abdomen, account sufficiently for his death. He was a great drunkard, and had been seven years in the country: he had tuberculated lungs, with much diseace of the spleen and liver. And of seven deaths among the Europeans admitted into the military hospital here, there were five from remittent fever.

"The first, George Perkins, was a case of long standing, he died dropsical; 2d, Michael Currey, was only three days in hospital, was taken ill up the river, and came down here in a dying state.

"The morbid appearances were—*Caput*:* The vessels of the dura mater were found much distended with blood; on removing the dura mater, the tunica arachnoides appeared raised from the pia mater, by effusion into small transparent capsules, which, on being cut, discharged an amazing quantity of serum. The vessels of the pia-mater were also much enlarged and distended with blood. The ventricles were completely filled with serum, and in them were observed ramifying many vessels. Each exhibited vessels of unnatural size; indeed the vessels of every part of this cavity seemed to have acquired an extraordinary magnitude.—*Abdomen*: The liver was very large, and exhibited a mottled appearance. On its convex surface there was an old cicatrix; its vessels were gorged with blood. The gall-bladder was distended with bile of natural appearance. The stomach contained about five or six ounces of apparently pure bile: on its villous coat were seen small patches of inflammation. Portions of the ilium

* Post-mortem Examination and Report, by Mr. Conway.

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were much inflamed. The spleen was enormously large, but of a firmer texture than is generally observed in these cases. —*Thorax:* Here every part was found perfectly natural.

"3. Joseph Hyne, who also died, was ill of the remittent fever about nine days: The appearances on dissection were—

"*Caput:* Upon removing the cranium all the vessels of the dura and pia-mater were found distended with an unusual quantity of black blood, as, indeed, were all the vessels of the cerebrum; and the cerebellum partook of the general distention; the other contents of the cranium, with those exceptions, appeared in a natural state.—*Thorax:* The lungs were quite gorged with blood, but more particularly the right, and there was much inflammatory adhesion between these and the pleura costalis. The heart and other contents of the thorax were in a sound state.—*Abdomen:* The contents of the abdomen were all natural and free from disease, except that the liver and spleen were both rather enlarged and indurated.—*Dissection Report by Mr. Conway.*

"4. Jose Hio, whose case also terminated fatally, was sent to the hospital in a dying state from remittent fever.

"*Caput:* There was but little alteration from the natural state in the appearance of the contents of the cranium, except that the vessels were more turgid than usual, and the ventricles contained rather a larger quantity of fluid than common.—*Thorax:* Upon inspecting this cavity, the lungs were found much diseased, particularly the right, which had many tubercles dispersed through its substance; there was no adhesion to the pleura costalis: the heart was of a natural size, very pale and flaccid.—*Abdomen:* The viscera of the abdomen were all in a natural state."—*Dissection Report by Dr. Higgins.*

"5. Valentine Guiot, died on the 13th day of the remittent fever, and had been ill six days before admission into hospital.

"*Caput:* The dura mater, in several parts, adhered very

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strongly to the cranium: the veins of the pia-mater were very turgid with blood; the lateral ventricles presented no unhealthy appearances.—*Thorax:* All the viscera healthy. —*Abdomen:* The liver much enlarged, and completely gorged with blood: gall-bladder distended with dark-coloured bile of a ropy consistence. The stomach appeared smaller than natural; its coats were much thickened, and of a dense white colour; on its inner surface were marks of extremely slight inflammation; its contents were mucus, mixed with dark-coloured bile: the greater portion of the small intestines were distended with fæces, mixed with bile; whilst the greater part of the ilium was of a very dark colour, from its containing a large quantity of extravasated blood. The coats of the transverse arch, as well as the descending portion of the colon, were much thickened, and, on cutting into it, there was to be observed a quantity of bile, with some minute ulcerations."—*Dissection Report, by Mr. M'Lauchlan.*

"Bleeding," says Dr. Nicoll, "has not been adopted in any case; nor have I myself seen a case, during the dry season, in which it would have been, in my opinion, had recourse to with safety. The misfortune is, that a medical officer seldom has an opportunity of seeing the disease in its primary stage, and experience has taught us the imminent danger of resorting to that mean, after the violence of the early symptoms are either subsiding or have passed away. The naval medical officers employed on the coast use bleeding to a very great extent in the treatment of fever; they even use it for several successive days, and, as far as I can learn from them, the practice is found safe and successful. Sailors, however, enjoy better health, are always more robust and active, than those living on shore, and their diseases at sea are generally accompanied with high inflammatory action, or are purely sthenic diseases. The ships of war seldom remain many days at a time in any port on the coast: they are usually cruising about, and often more than one hundred

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leagues from the shore. They are, therefore, less exposed to the local causes of fever, and breathe more generally a healthier air, and are consequently less liable to fever of that character which prevails on shore; and, even when they are assailed with it, I am disposed to think its action is more generally violent and inflammatory, from the circumstances of their peculiar habits of life, robust constitutions, and generally good health, than occurs amongst a similar class of Europeans residing on shore.

"I know the navy have invalided a great many men in the course of the past year; but the number of deaths have been, as far as I can ascertain, comparatively few. It would be interesting to know what influence the bleeding mode of treatment may have had in protracting convalescence.

"Mr. Vignier, who was four years surgeon of the colonial vessel, informs me that he never had occasion to bleed any of the men in that vessel from fever; that he lost not more than two by fever in the whole period; nor had he occasion but rarely to invalid any one. This said vessel was always manned with nearly as many Europeans as are on board any of His Majesty's ships of war employed on this coast. A knowledge of these facts, corroborated by some others of a like nature, have made me the more anxious to acquire the necessary information regarding the actual result of treating fever of this country on board of ship by large, copious, and repeated evacuations of blood. I also know that this way of bleeding will not answer even in this harbour;* and, as I have repeatedly observed, that although the bleeding does actually avert the immediate destruction of an organ by inflammation, or by an excessive determination of blood to it, in fever, yet all the evacuations which can be employed will not (*as I well know, from great experience in this place*) prevent exacerbations, or accessions;

* This remark is entirely in unison with the experience of the author.

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and when they once supervene under such circumstances, *death* speedily closes the scene, with every mark of serous effusion into the lungs and brain.

"The best purgative in fever, (says Dr. Nicoll) is certainly calomel and jalap, and I have found it succeed in cleansing the stomach and bowels, and removing excessive flatulency, which is so frequently very distressing in the fevers of this country, after many other remedies have been exhibited in vain.

"The leading objects which all medical men on the coast have in view in the treatment of fever in general, are to cleanse the stomach and bowels, by brisk drastic purgatives frequently repeated; to subdue the heat of skin and arterial action, by constant sponging of the body with vinegar and cold water, and by keeping thick folds of cloth wet with the same to the head, and to excite perspiration thereby, together with the aid of saline effervescent draughts, such as soda water, or seidlitz alkaline salt, prepared in the usual way: when a remission is obtained many begin with the use of the bark, while others wait for an intermission. The bark is sometimes given in water, at other times it is mixed up with aromatic confection, and made agreeable to the palate of those with irritable stomachs. Leeches applied to the temples and forehead give great relief; but it is scarcely possible to procure them here at all times."*

On the numerical rate of mortality amongst Europeans at Sierra Leone, Dr. Nicoll observes that—

"About one in twelve, or very nearly nine per cent. of the better class of society, died last year in Sierra Leone; and it appears from official documents in the office of the secretary to Government here, that such has been the average annual mortality from the census of Europeans in this colony. On the 31st of December, 1818, there were one hundred and

* The beginning and termination of the rains are the periods at which to procure leeches; and the resident practitioner should always, in due time, avail himself of such occasions. The author, generally, at such times, succeeded to obtain from one to three thousand.

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twenty-eight, of which eighteen sailed before the rainy season for England, two of which died, and of the remaining number, one hundred and ten, eight perished, giving a proportion of dead, as 7½ per cent., or very nearly one in 13.

"As is usually the case in other countries, the mortality fell heavy on the poorer class of Europeans, unprovided with good accommodations, without the means of procuring articles of comfort suitable to the climate, and who were not guarded in their general conduct, nor restricted as to regular habits of temperance.

"The climate of Sierra Leone seems to be peculiarly fatal to such descriptions of people, and the only chance they seem to have to ensure life, is the appearance of ulcers generally on the legs."

Remarks.—The success or accuracy of the result of any attempt to generalise the average annual mortality among the European residents at Sierra Leone, is rendered exceedingly doubtful, from the very great difference of risk between the newly-arrived European who has not had fever, and the one who has had it, however short or long a period either may have been in the colony; and, also, from the nature of the engagements of the different individuals, whether leading to great exposure soon after their arrival or otherwise. These are not trifling matters, and require serious consideration. The importance of the first point may be estimated from the fact, which must be borne in mind, that if a man has really gone through genuine Sierra Leone fever, such disease is not likely ever again to attack him, except during his convalescence from the first attack.

This assertion may appear to be made with too much confidence; but it is built upon the fact that, during four years local residence at Sierra Leone, with very extensive opportunities of judging, no one instance occurred which at all tended to shake or invalidate the position assumed.

Unquestionably, persons who have had the genuine fever

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above alluded to, may be repeatedly attacked afterwards with fever, accompanied by symptoms assimilating such attacks to the original disease; but it will be found, on close observation, that these attacks will not bear any similarity in their course, or in the period of their duration to the disease which has been termed genuine endemic, or original bilious remittent fever.

Upon this subject, however, very serious mistakes have been, and are still likely to be made, even by medical practitioners. These errors arise through confounding every attack where there are febrile symptoms and biliary derangement with the original fever, which ought to be carefully distinguished as one *sui generis*. Symptoms likely to produce a false impression may occur, both before the setting in of the true endemic, and also may frequently take place after the subject has passed through that disease; but in neither of these cases, which ought to be called mere bilious attacks, is there any danger, unless that which is spurious is confounded with that which is real, and erroneous measures are practised in consequence.

Epidemical fever, which fortunately does not occur very frequently at Sierra Leone, and which will be hereafter considered, forms an entire exception to the rule which has been here contended for.

It frequently happens, even in ordinary seasons, at Sierra Leone, that what are called sporadic cases of yellow fever, that is aggravated cases of the endemic, are met with; and yet this does not constitute an epidemic, which is general in the intensity of its symptoms and devastating in its consequences, even in cases in which yellowness of skin or black vomit does not appear. It is to be understood, however, that when yellowness of skin does occur the danger of the patient is increased; and if black vomit set in there is but faint hope of the patient's recovery. Fortunately, this last symptom is extremely rare in the endemic fever.

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From the Report of Mr. Tidlie, acting Staff Surgeon at Cape Coast Castle, in 1822, to Dr. Nicoll.*

"Sir,

"In Conformity to your instructions of yesterday, I beg to offer to you the following remarks upon the diseases which came under my observation during my residence on the Gold Coast. The diseases which are incident to Europeans shortly after their arrival at Cape Coast, or, indeed, at any of our settlements on the Gold Coast, are remittent and intermittent fevers, which, together, lay the foundation of hepatic affections, often terminating in fatal dysentery and dropsy.

"The remittent of this country is, I believe, the same or similar to that of every tropical climate, differing only in shade of variety from peculiar habit or constitution.

"The exceptions are very few, where Europeans have passed twelve months in the country from England, without an attack of this fever; and it has been invariably remarked, that those who have been attacked within the first few months after their arrival have a much better chance of recovery than those who were not attacked for a longer period.

"In the year 1819 there were eight new comers from England, all of whom were seized with fever, and three died: and out of forty, the total strength of Europeans in the service of the late company,† five died.

"In the year 1820 there were four new comers, all of whom were seized, and two died; and out of the total number, 39, four died.

"In 1821 there were seven new comers, all of whom were seized, and two died; and out of the total number in the

* This intelligent and very promising young officer was unfortunately killed with Sir Charles Macarthy and many other Europeans, in 1823, in the Ashantee battle.

† The then African Company.

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service, 41, six died; thus making an average of one out of every two and two thirds of new comers, during the first twelve months after their arrival, and out of every eight, including new comers.

"It is here necessary to observe, that those who led an irregular life in Europe, or those whose minds had suffered from disappointment, either prior to their coming here, or after their arrival, very seldom recovered.

"I have witnessed instances of persons who fell victims to the disease in question from disappointment in their expectations. This is a truth which was verified every year, after the arrival of Europeans, by the annual store-ship. Gentlemen, who had been led to expect many comforts previous to leaving England, and were flattered with the hope of obtaining rank in the service in which they had interest, as well as an independence by a few years residence, soon found these delusive hopes to vanish; and, when seized with remittent fever, fell early victims to its ravages."

The following is Mr. Tidlie's further account of the fever, as it occcurs at that settlement. He observes:—

"In some constitutions the heart and arteries seem to bear the onus of the disease; while in others, the stomach, liver, and alimentary canal suffer most. It is generally attended with much increased vascular action, with evident and marked derangement of the head, the pain of which is confined to the temples, as if a cord were tied around it; pains in the back and limbs; pulse full and strong, beating from 110 to 120: the eyes are inflamed; bowels, for the most part, are confined, and the urine has the appearance of bloody water; the mouth and tongue are parched, accompanied with urgent thirst; skin intensely hot; sickness at stomach; vomiting sometimes of a green bilious matter, and at others, it is ropy, with white flakes. Such are the primary symptoms that are to be met with in the persons of strong healthy constitutions lately arrived from Europe. Those who have strong constitutions,

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who are fond of good living, indulging in the luxuries of the table, and in the enjoyments of field sports, under a vertical sun, will have the above symptoms. The excitement of the vascular system continues the first forty-eight hours, when there is a remission and alteration of the symptoms, but often of short duration: the head, which was confused, is now more quiet; the skin is little altered in feel, or the urine in colour; the pulse is less full, but equally, or perhaps more quick, a symptom which is suspicious, and points out the period of cessation of vascular excitement. The tongue, which was before covered with a whitish fur, is now yellow; thirst, which was urgent from the commencement, continues, and towards evening there is an accession of fever; delirium, at this time, is a frequent occurrence; there is a fulness at the scrobiculus cordis, and a constant habit of turning and changing in the bed; the night is passed with frightful dreams, and towards morning there is a remission, but the desire of changing and tossing still remains: the day is passed in this way; and, as the evening is ushered in, the fever returns with aggravated symptoms; the night is passed extremely ill, with frightful dreams, and a constant desire to get out of bed to avoid some fancied pending danger; the mind is evidently affected, and, in this distressing manner, the night is passed, but, in the morning, there is again a remission. The stomach, which was irritable, now becomes quiet; the desire to change the posture in bed subsides; there is less fulness at the ensiform cartilage; the tongue begins to clean at the edges; the pulse is less frequent, and skin moist. Night, however, brings back the enemy with delirium; and in this way, with alternate accession and remission, it takes its course until the 9th day, when it entirely subsides, leaving the patient in a debilitated state. The second form of the disease, and which is the most usual, is that which affects the stomach, liver, and alimentary canal: the nervous system seems to suffer much throughout the complaint. The

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first day of the attack there are feelings which the patient cannot satisfactorily explain: there is want of appetite; a sluggishness and want of power of motion; yawning and stretching, with desire to sleep, without being able to procure it. He lies upon his side, with his legs and knees drawn up to his chest: sometimes there is headache, though not always; there is a bad taste invariably in the mouth; the tongue is white, with a streak of fur along its edge; the bowels at one time are confined, and at another much purged; the skin now has the feel of one in perfect health; there is, however, an inexpressible anxiety in the countenance, more easily conceived than expressed; the urine is high-coloured and scanty; the pulse is very little affected. Thus it commences in an insidious manner, and is to be the more dreaded.

"The second day is passed tolerably well, but without being able to move about, or having any inclination to take food: towards evening the pulse becomes accelerated, and the tongue more foul; the night is generally passed without sleep.

"There is more action on the third day; and in the ratio of the fever being more or less concentrated, so will the symptoms be of this day. As the evening returns there is a strong accession: the head is much affected; the pulse quick and small; the tongue, which was before white, as the disease advances, is now brown, and covered with a dry crust, which nothing can remove; the head is hot, and sometimes covered with sweat, while the lower extremities are cold; the skin, to the touch, communicates a burning unpleasant sensation; the veins of the arm are full, and, apparently, have lost the power to propel the blood to the heart; the body becomes emaciated, and changes its colour to a brownish yellow; low muttering delirium succeeds, without any evident remission, resembling a fever of the continued type; the head is thrown back from the pillow, while the chest is very much raised, a symptom, I conceive to be, highly unfavourable. The whole

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presents symptoms of the nervous system, being the source of the febrile phenomena. The tongue is tremulous, and the hands can scarcely be raised to the head; there is very little motion of the body; it seems as if the patient were in a quiet sleep; the pulse undulates, intermits, and recedes from the surface; the body is covered with cold clammy sweat, involuntary stools, and starting of the tendons of the extremities take place, and death, on the morning of the seventh day, closes the scene. In some instances I have known the fatal issue on the fifth, and in others prolonged to the ninth.

"Imperfect as this description may appear, it leads to some practical utility; for although, as I have said before, the disease is never precisely the same in any two individuals; yet a division of it into vascular excitement and nervous irritability will aid us in the *methodus medendi*.

"In the treatment of the endemic the seasons of the year must be attended to. The fevers of the months of July, August, and September, are more concentrated, and generally run into nervous irritability as soon as the disease has advanced to the third day; and here it is of the highest importance to know something of the individuals, their habits and pursuits in life; for these have much effect in modifying disease, and should aid us in our method of cure.

"When there is much vascular excitement, it is unnecessary for me to say that, if the person be of a strong healthy constitution, and lately arrived from Europe, bleeding, *even at Cape Coast*, is absolutely necessary; but, if nervous irritability be obscrved in the commencement, and that the disease is insidious in its approach, the same mode of treatment would be highly injudicious. In the beginning of the year 1819, a clergyman arrived here from England; he was of a very lively, jovial disposition; he indulged *too* freely in the enjoyments (if enjoyments they can be called) of the bottle, by which means he got himself into difficulties of a very distressing nature: his mind became much affected, and he was

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seized with the endemic six months after his arrival. There was much vascular excitement during the first twenty-four hours; but from his well-known habits, and from the state of mind in which he was, bleeding, and I believe correctly so, was thought improper.* The treatment consisted of purgatives and the cold affusion the two first days of his complaint; on the third, nervous irritability and alarming debility followed, and on the morning of the fifth he breathed his last.

"In the cure of the endemics of this country, I have chiefly depended upon the frequent use of cathartics; and these, generally, consisted of calomel, colocynth, jalap, and the sulphate of magnesia. When the head is affected, cupping is of great importance; and, wherever there is heat of skin, the cold affusion is a powerful auxiliary. In some cases little more will be necessary than to keep up a constant action in the bowels: to use the cold affusion; and, when the remissions are distinct, the use of the pulv. cinchonæ will, generally, complete the cure. But, unhappily, there are many cases that require a more decided plan of treatment. I have made it a general rule, whenever the fever continues without distinct remission, with a dry brown loaded tongue, and with fulness at the scrobiculus cordis, and delirium, to push mercury, and that to an extent scarcely known upon this part of the coast.

"That the indiscriminate use of mercury has been injurious I can scarcely doubt. In the treatment of affections of the liver and spleen, which invariably follow the endemic, mercury is of the highest importance: indeed, it is impossible to remove the congestion and inflammation of these viscera without its use. I, perhaps, cannot elucidate my mode of treatment better than to give extracts from cases. In the practice of medicine it is impossible to give anything but an outline: for who has ever been able to follow, implicitly and

* He was on the borders of fifty years of age, besides which it was in the month of August he was attacked.

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without deviation, the directions given by those of the highest talents, at the side of a sick-bed? There are many things which must be obviated, and which are only to be known by clinical observation; and, unfortunately for us, with all our anxiety to arrive at a knowledge of the treatment of disease, time and observation can alone enable us to be successful.

"A gentlemen arrived at Cape Coast in the beginning of February last: when I first saw him he appeared to be very healthy, but had not a robust constitution; he was four months from England. Shortly after his arrival he was taken ill—on the evening of the 25th February I saw him: he then complained of acute pain in the head and back; the bowels were confined, although he had taken medicine some days before; the urine was very high-coloured and scanty; pulse 110 and rather full. Judging, however, from his appearance, I did not conceive that he was a fit subject for the lancet, and merely ordered him a smart carthartic, consisting of calomel, and the extract of colocynth, of each eight grains.

"26th. He appeared very well, the headache had subsided, and he had passsd the night tolerably well; the medicine had no effect whatever, and a solution of the sulphate of magnesia was ordered. In the course of the day, the medicine operated freely. As the evening advanced he became restless: skin hot; pulse quick; with headache and fulness in the bowels; tongue covered with a whitish yellow fur.—Ordered Pil. hyd. gr. v., Extract. colocynth. comp. gr. viij., Ol. menth. pip. gt. ij., M. fiant pil. iij.

"27th. The night was passed rather restlessly, and he had no evacuation from the pills: tongue covered very much today, and the fur more yellow; skin hot, and the pulse 115 and very full, and hard; thirst very urgent; pain in his head and back. Eyes inflamed, with some degree of intolerance of light. Venesection seemed now absolutely necessary; when ten ounces were drawn from the arm, he became weak, and the arm was tied up; but, as the pulse soon acquired its late

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fulness, the vein was again opened, and ten ounces more were drawn off; shortly after which he had three copious evacuations; the headache subsided, the pain of his back left him, a free perspiration covered the whole body, and a comfortable sleep of three hours followed.

"28th. He passed a good night; remission perfectly distinct; towards noon there was a slight accession; his hands, head, and breast, were ordered to be sponged with vinegar and water, and at 6 o'clock, cold affusion.—Cathartic pills, as on the 25th.

"March 1st. Had a restless night, with frightful dreams: skin moist and cool; tongue, however, exceedingly foul, with a very bad taste in his mouth; pulse 88 and soft; bowels continue very torpid.—Pulv. jalap. comp. ʒj. In the evening visit he complained of very great fulness in the bowels, as if they had not been evacuated.—Hyd. submur. gr. vj., Ext. colocynth. comp. gr. viij., Olei. menth. pip. gt. ij. M. fiant pil. iij.

"2d. He passed a most miserable night without sleep; today he feels tolerably well, and is free from fever; pulse 86 and full. At 1 p. m., there was an accession of fever; pulse 100: ordered the cold affusion, which reduced the pulse to 86, and the temperature of the body very considerably. At night he was ordered pills, such as he took the night before—he had a few hours sleep after the cold affusion.

"He continued to have alternate accession and remission to the 5th, when the fever entirely subsided. He was ordered the bark on the morning of the third, but without effect in keeping off the return of fever. The disease seemed to take its course, notwithstanding all that was prescribed for him: the bark, however, I conceive, was of infinite service to him in the latter stage of the fever, and during his convalescence, although he was obliged, for a long period after, to persevere in the occasional use of purgative medicine.

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"Mr. S., aged 18, arrived here in the month of June last from England; his constitution appeared remarkably healthy; the countenance clear and very florid; he had no appearance whatever of having had any disease. About three weeks after his arrival he was seized with the endemic of the country, which had something of an inflammatory type. The heart and arteries, in this case, seemed to bear the onus of the disease. After taking purgatives, of which calomel, the extract of colocynth, and the neutral salts, were the principal, it was found absolutely necessary to have recourse to venesection. The inflammatory symptoms were not reduced by the first bleeding, and a second, to the extent of the first (fourteen ounces) was requisite; after which, the fever became more tractable, and observed the remittent form distinct: the principal treatment consisted of purgatives, frequently repeated; the cold affusion, wherever the temperature of the body indicated its use; and, with these, he got on until the seventh day, when the fever subsided, and left him rather in a debilitated state. During his convalescence he used the powder and tincture of bark with decided advantage.

"He improved very rapidly for some time, when he began again to complain, and, about three weeks after, he applied for advice. At this period he had irregular paroxysms of intermittent fever. Cathartics were again prescribed for him, as I conceive bark in such cases highly prejudicial, and in a short time he complained of pain in the inferior part of the rectum, with a frequent desire to go to stool: he took a few doses of calomel, followed by castor oil, but without any effect. The skin was dry and hot; the urine high-coloured and scanty; the tongue covered with a brown dry crust; the pulse very quick and full; the stools consisted more of ill-conditioned pus, than fæces; and he had the most excruciating tenesmus.

"The disease assumed the appearance of hepatic dysen-

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tery, and, as it advanced, the stools were mixed with considerable quantities of blood and mucus. He was ordered two grains of calomel, and one-quarter of a grain of opium, every two hours, interposing a dose of castor-oil occasionally, with the warm bath: this plan, although continued for some time, had no effect. He was then ordered ten grains of calomel and half a grain of opium, every four hours, and, notwithstanding this plan was regularly carried into effect, there was no alteration. The skin, tongue, and pulse, were in the state already described. This, with the addition of mercurial ointment in considerable quantity, was persevered in, without any evident effect, for several days longer; after which, the stools began to assume more of a natural colour; the mouth, though scarcely affected with mercury, became less dry, and he passed five inches of the rectum. From this period the pain subsided, the stools became daily more natural, the skin and tongue moist, and his general health improved. A few doses of castor-oil set him again upon his legs.

"This case, I conceive, is of much importance, in showing us how the endemic runs its course, as well as its consequences on the human constitution. The treatment is no less worthy of notice, from the manner in which mercury acted upon the system: it had no evident effect on the salivary glands, a circumstance generally fatal; but it, however, acted upon the disease, and brought it to a favourable termination. On the probable manner in which it acted, so as to produce such wonderful effect, without any external appearance, I shall not, at present, venture to give an opinion. The external secretions throughout the disease were all obstructed, and it was not until he passed the extraordinary piece of intestine that the skin showed any symptoms of secretion.

"A mate of a vessel, a man of respectability, came on shore here about two months ago, for the purpose of being appointed master of another vessel; but circumstances turned

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out contrary to the expectations of the parties, and he was left until the arrival of his former vessel, which at that time had proceeded to the windward coast.

"Under these circumstances, he was shortly after this period seized with the endemic. He was about 26 years of age, of a strong, robust, healthy constitution, and had (to use his own expression) never known what it was to be sick. It was the third day of the fever when I first saw him; he had then an accession. The pulse was quick and small, not such as might be expected in so robust a constitution; the tongue was dry, and, when put out of the mouth, tremulous (generally a bad symptom); the bowels were confined, and the urine high-coloured; skin dry and hot; severe head-ache; fulness at the scrobiculus cordis; vomiting of a bilious matter, like grass in colour; and a constant desire to toss and change his position in bed.—A smart cathartic of calomel and jalap was ordered; the head to be cupped, and to have the cold affusion as soon after as possible. Directions were also given for the employment of an enema, if necessary.

"The next day every symptom was worse: there was much confusion of intellect; the tongue was now covered with a thick brown crust; the hands were tremulous, and with difficulty could he raise them to his head. There was great prostration of strength; skin, as before, dry and hot; bowels scarcely acted upon by the medicine, he merely had one black bilious stool.

"Cathartics were ordered to be repeated every two hours, consisting of calomel and jalap, until the bowels acted freely. Head to be shaved and cupped, and to be kept wet with vinegar and water by means of towels. A large blister over the region of the liver.

"On the morning of the fifth day of the disease there was no alleviation of symptoms, on the contrary, all seemed aggravated. The teeth were now covered with a brown crust, similar to that on the tongue. Head, as before, much con-

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fused; eyes glassy, and flakes of white matter around the cornea. There was starting of the tendons of the arms, and increased difficulty in raising his hands to take medicine or nourishment. In short, all seemed to indicate that the nervous system was the source of the febrile phenomena. As his bowels were exceedingly torpid, cathartics were again ordered, and three grains of calomel every hour till his mouth was affected, and a blister to be applied to the back of the neck, extending from the middle of the scapulæ to the occiput. At night he was so ill that those who were in attendance supposed he was near terminating his career, and I was sent for to see him expire; he was then very low, the pulse could scarcely be felt, the extremities were cold, and clammy sweat covered the whole body. He was ordered a little port wine, and that to be repeated frequently during the night.—Calomel in powder, five gains every three hours. After he had taken a little wine the pulse got up, and the skin became dry and more hot. Mercurial ointment was ordered to be rubbed over the body, and on the thighs, without any regard to quantity. This, together with calomel, was steadily persevered in till morning, still, however, without any effect. The blister seemed to relieve his head, but, in other respects, no change for the better. During the day he took arrow-root, with wine, and the calomel and ointment were continued, interposing a cathartic to keep the bowels open.

"At night there was no affection of the mouth, nor was there any change for the better. The fever continued without remission, certainly like one of the continued type. He had now taken an immense quantity of calomel; a quantity of ointment had been used, certainly more than I ever had witnessed before, and all without effect; every symptom seemed to indicate approaching death.—An ounce of the diluted nitric acid, put into a quart of water, was ordered to be taken in divided doses, which, apparently, had the happi-

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est effect; for, when he had taken two ounces of the acid in the diluted state, which I have mentioned, the tongue began to clean at the edges, and at last his gums got sore; from this moment every bad symptom disappeared, and with tonics, consisting of wine and bark, and a nutritive generous diet, he finally recovered.

"In taking a view of this case, a practical point may be elucidated: it is evident, that the vascular excitement of the first and second day of the disease had subsided, on the morning of the third, when I first saw him, into a low nervous fever; and, as it advanced, assumed something of the continued type; generally a dangerous, almost always a fatal circumstance. It is to be presumed, if he had been bled under such temporary excitement, the probability is that he would not have recovered.

"To account for the apparent want of stamina, in a constitution so robust, it is but fair to take into consideration the state of his mind. I am fully persuaded, if he had been seized with the endemic under more auspicious circumstances, that it would have assumed more of an inflammatory type; hence the importance of knowing something, if possible, of the individuals who visit this climate prior to our being called to see them on a sick bed.

"Those who are fond of using mercury upon every occasion, as the grand specific in all endemic diseases, may ask, why was not the object to produce salivation from the first moment?

"In the latter end of March, a Sicilian arrived here from Sierra Leone, who had been on board one of His Majesty's ships as a marine. He was attacked with the endemic in the latter end of May following. The fever had not any thing of an inflammatory type, and it observed the remittent form distinct. He was about 28 years of age, rather of a delicate constitution: he was treated with purgatives and the cold affusion, and, during his convalescence, with tonics. After

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he recovered he had very good health until the beginning of August, when he was attacked with intermittent fever. For some time he did not apply for advice, considering that it was only an ague, and that he would get well without medicine. Attention to the state of his bowels removed the fever, and his health continued to improve for several days; but, towards the latter end of the month, he complained of constant inclination to go to stool, without having the power to pass any thing. Purgatives were ordered for him, which removed the tenesmus, and brought away an immense quantity of fetid bilious matter. For a day or two he remained tolerably well, but the complaint returned, and calomel was directed to be given to effect salivation. The warm bath was used frequently; repeated doses of saline medicines were given to remove feculent matter from the bowels; and calomel, with ointment (the latter rubbed on the thighs), were steadily persevered in, but without any evident effect on the system. The disease proceeded with rapid strides, and terminated fatally.

"On dissection, the omentum was very much thickened, and the great and small intestines inflamed; there were some adhesions between the ascending colon and the inferior surface of the liver: the liver itself was not enlarged, but its colour indicated diseased action having gone forward in its substance; it was of a blueish-grey colour. The gall-bladder was full of grumous ill-conditioned bile, of the appearance and consistence of tar, a state which I have invariably found in those who have died from the endemic. The ascending and transverse portions of the colon were in a state of ulceration, and the inner coats of which completely destroyed. The stomach had not participated so much in the disease as might have been expected from the diseased state of the omentum. The spleen was gorged with blood, though not so large as is usually found in the country; the other viscera

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of the abdomen did not appear to be affected, and the lungs and heart seemed perfectly healthy.

" A sailor from His Majesty's brig, Snapper, was admitted into the regimental hospital on the 17th of September last; he was 18 years of age, and had been on the coast about six months: he seemed of rather a delicate constitution, and had been some days ill on board prior to his coming on shore. The fever with which he was affected appeared to be the regular remittent fever of this country. The remissions were perfectly distinct, and cathartics were prescribed for him; indeed, attention to the state of his bowels brought the complaint to a favourable termination. He was discharged from the hospital on the 2d of October perfectly well; but, as the brig had sailed on a cruize, there was no opportunity to send him to sea. He continued for some time very well; but running about exposing himself to the rays of a vertical sun, he brought on a disease of a more formidable nature than that of the remittent of the country.

" On the 11th of November following, he began to complain of headache and want of appetite, with a constant pain at the ensiform cartilage, which, as he described, extended up the œsophagus, and produced pain when he made an attempt to swallow. He had irregular paroxysms of fever, and, as it was considered to be produced by an affection of the liver, calomel was ordered to affect his system; purgatives at the same time were ordered, and, in the course of a few days, his mouth was slightly affected, but this soon went off, and, notwithstanding that calomel and mercurial ointment were steadily employed, they had no effect, and the disease proceeded to a fatal termination. On dissection, the abdomen appeared one mass of disease; a very considerable quantity of a yellow serous fluid was found in its cavity, and an abscess was found between the ascending colon and abdominal parietes; the liver had several tumours, each containing a wine

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glass-ful of matter. In short, the body was so offensive that we could not prosecute our examination farther. It is important to mention, that the abscess, which had formed between the parietes of the abdomen and the colon, had burst into that bowel and produced sudden death."

Extracts from Observations on the Diseases incident to Europeans after their Arrival on the Western Coast of Africa, addressed to Deputy-Inspector Nicoll, by Mr. John Bell, acting Assistant Surgeon at Acera (now Staff-Surgeon).

"Europeans, after their arrival in western Africa, are subject to what the natives call a seasoning, but which, in medical language, is termed febris remittens biliosa: in some cases the disease assumes the intermittent type. The time of attack is very uncertain, generally within the first twelve months, very often within a few weeks, entirely depending on the constitution and circumstances of exposure of the individual. In many instances, after the recovery of a patient from a month's indisposition, or longer, he finds his spleen enlarged and indurated, from which state he commonly suffers, more or less, whilst he remains in the country; but if he takes a sea voyage, or goes to England, the spleen becomes reduced to its natural size. I have observed, during the last year, that this disease depends principally on a derangement of the biliary functions, and sometimes from that, follows structural affections of the liver. On post-mortem examination of those who have died under these circumstances, I have found the vena portæ full of dark blood, also its larger branches, but the extremities of the veins were quite empty, and the hepatic branch of the cœliac artery very small, from which cause the supply of blood became diminished to nourish the liver, consequently a greater quantity flowed to the splenic branch, as I saw evidently in a few

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cases, from the dilatation of the calibre of the artery; so, I think this accounts, in part, for the gradual enlargement of the spleen, by determining a greater flow of blood to that organ, which ultimately gets firm to that degree that it will feel like cartilage. There was an instance at Cape Coast Castle, in the early part of the year, in a prisoner who died suddenly from hæmatemesis, in consequence of the very enlarged size of the spleen; it nearly covered two-thirds of the anterior part of the abdomen. This man was rather a free liver, else he might, with care and attention, have prolonged his days; he seemed, however, quite regardless of the adoption of any measure to benefit his health; latterly he never felt comfortable in society till he got a little elevated by wine or spirits, then he became animated and disposed to converse. In enlargements of the spleen the digestive organs are much impaired, which is known by loss of appetite, constipation, or diarrhœa, and sometimes flatulency is a troublesome concomitant: When the latter symptom is present the spleen often suddenly becomes of a considerable size, with dents or notches, perceptible to the touch, in the right margin, frequently passing over to the right side, and coming in contact with the liver; the urine is high in colour, and scanty, nearly resembling small beer, leaving in the *pót-de-chambre* an incrustment after settling a few hours. An increase of biliary secretion creates pain, sometimes a heavy sensation in the left hypochondrium, followed by a splenic attack. The methodus medendi is in restoring the tone of the digestive organs; that, however, acts merely as a palliative,—no certainty of cure without change of climate."

Remarks.—It is to be observed, that these are not treated of by Mr. Bell as distinct affections, but as consequences of the bilious remittent fever, as it occurred to him at Acera, and on the Gold Coast.

Upon the treatment of fevers Mr. Bell observes—

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"The treatment varies much, according to the stamina of constitution: some will bear bleeding followed with great alleviation of pain in the head and liver; these two organs being generally affected during the attack; the latter, for some time after convalescence, is very slow in performing its functions. Mercury administered so as to produce ptyalism, is attended with success, if the salivation is free; the healthy functions of the different viscera are thus restored, shortly after the patient gets convalescent, but continues debilitated, which will frequently happen for weeks: bark and port wine are to be thrown in, paying particular attention to the state of the bowels: in some instances bark, with occasional doses of calomel, have best answered the purpose. Purgatives should always be freely made use of, alternated with diaphoretics."

Remarks.—Although the observations of Mr. Bell may be thought trite, they are of considerable importance. That gentleman had much tropical experience previously to his visiting the coast of Africa.*

From the Report of Dr. Barry, Deputy Inspector of Hospitals in 1822, *to the Director General.*

"The arrival of twelve white sergeants from England forms a striking feature in the events now under consideration, and affords a gloomy illustration of this deleterious climate. They were selected from the detachments at the Isle of Wight; men of good character—their conduct, at least, when on this coast, was as exemplary as could have been expected from men of their class in society. Some irregularities of course occurred, but had they been sinners above all

* Quinine was not then in such general use as it now is.

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sinners, we could not have expected so desolating a retribution. The whole of them were attacked with fever, and within a few months after their arrival eight paid the debt of nature, and only one (the serjeant-major) appears at present fit for duty. The constitutions of the other three are in such a shattered state that plainly indicates an advanced stage of visceral disease. The sickness and mortality amongst their wives and children are nearly in the same proportion.

"There has existed a marked coincidence in the post-mortem appearances of those who have fallen victims to the fever of Sierra Leone—a local congestion of some internal organ, connected with the vital functions; and this does not appear to be produced *in articulo mortis*, for the appearances before dissolution lead to that conclusion, the symptoms varying according to the seat of the disease, being attended with deranged functions of those viscera which after death appear gorged with blood. If it exists in the brain the febrile accessions are attended with violent delirium, and the remission with stupor and dilated pupils: if in the organs connected with the stomach, there is violent vomiting, anxiety, and uneasiness about their region on pressure; if in the spleen, or any other organ not so immediately connected with life, enlargement succeeds and continues for a considerable time without any injurious effects. The increased quantity of fluid in the cavities would lead to the supposition of local inflammation; but the disease does not obey its usual laws; it should run its undeviating course, instead of which the remissions, in many instances, are nearly intermissions, with the exception of some slight morbid appearance, with anxiety and an idea of danger in the patient exceeding that entertained by his medical attendant, if he should not be perfectly aware of the nature of the insidious disease. The lower classes, who have not sufficient protection from the night air, and those, who, from imprudence, or a mistaken idea of extreme ventilation, expose themselves to it, are in

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general the subjects of this disease. The condensed fogs, and the chilling and variable winds appear to produce a revulsion, or what is more intelligible, a sudden check to the immense determination to the skin, and congestion takes place in some viscus, in which, perhaps, there is a predisposition to disease. To restore the balance of the circulation, Nature assumes an inordinate action, which continues, for a certain time, proportionate in duration and action to the strength of the patient. If the repeated accessions are totally unequal to the task, the fate of the poor sufferer is soon decided, and a fatal collapse succeeds her ineffectual efforts. If her object is only partially attained, the disease becomes protracted, visceral affection supervenes, and renders the patient, if he survives, highly susceptible of remittent, intermittent, or hectic fevers. The mode of treatment that has been found most successful, corroborates the above observation. It becomes necessary to direct and correct the efforts of Nature by moderating the increased action during the accession of the fever, by the cold affusion or aspersion, with the usual antiphlogistic treatment, and to remove the congestion by purgatives. Local bleeding, by leeches, or the cupping instrument, are certainly advantageous, and perhaps general bleeding, if the patient's *strength will allow it;* but, unfortunately, the class of patients are of such an emaciated character, that the sudden depletion appears to be contra-indicated, and certainly the use of the lancet requires *the greatest caution,* when we are informed, from the highest authorities, that the practice hitherto has been found unsuccessful.

"The disease certainly leaves a predisposition to subsequent attacks; and he who trusts to the preservative effects of seasoning, will be most miserably disappointed. A striking instance of this was afforded in the case of an officer of engineers, who, at the commencement of the rains, in consequence of exposing himself to the chilling effects of the night air, underwent an attack of the remittent fever, from which

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he with difficulty recovered; but soon resumed the duties of his profession with his usual elated spirits: he found, however, that his constitution had suffered a severe shock, and a long train of visceral disease, with attendant fever, rendered it necessary for him to quit the coast, as the only probable means of preserving his existence. The mortality amongst the officers of the garrison forms an evident contrast with that of the non-commissioned, and shews, in a high degree, the prophylactic powers of a generous diet, proper clothing, and weather-proof habitations."

The Stomach generally the principal Seat of Diseased Action in the Endemic Fever, whether Gastric Derangement be evidently present or not.

In a multitude of cases of the endemic fever, there was not one in which a diseased action of the stomach, whether gastric derangement was evidently present or not, did not form a principal symptom. It is true that that symptom was not always referred to by the patient, but in such cases its actual existence or previous occurrence was in general easily to be ascertained, upon the medical attendant instituting a proper investigation. In some instances interrogation of the patient will be practicable, and will prove sufficient; and when it is adopted it should be conducted by an inquiry into the previous and present feelings of the patient, with a view of learning whether there had been vomiting accompanied by pain at the pit of the stomach. In other cases an actual examination with the fingers over the *scrobiculus cordis* will be found to be necessary, and it affords certainly the most satisfactory test, if not an unerring criterion, as to the existence or non-existence of the symptoms. It must be observed, however, that this last mode of acquiring the necessary information must be delicately managed, because

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the part in question is extremely sensitive, and if roughly, or carelessly examined and pressed upon, the patient will wince or start, whether the stomach be affected by disease or not. If this precaution be attended to, but very few cases of endemic fever will be found, judging from very extensive experience, in which the stomach will not prove to be more or less unusually sensitive.

The state of the brain, also, at the occurrence and during the progress of the endemic fever, would induce the practitioner to infer that the stomach is the principal seat of diseased action. Headache is far from being an invariably attendant symptom, and when it does occur it hardly ever proves to be permanent, and, consequently, it must be concluded there is no inflammation of the brain, but that that organ is affected sympathetically by means of the well-known physiological connexion subsisting between it and the stomach. Nor is this the case merely at the outset, and during the progress of the disease; for, of many subjects examined, who had died of this fever, not one instance occurred of inflammation of the brain having existed. A deposition of serum and considerable venous congestion were almost always observable, but nothing further; while, with respect to the stomach, on the contrary, some slight trace of inflammatory action, either in that organ or in a neighbouring intestine, seldom failed to present itself. It may also be worthy of remark, that the inflammatory appearance alluded to, was generally confined to the lower portion of the stomach; and in the generality of cases, extending through the pyloric orifice and rarely failing to occupy a small portion of the duodenum, immediately around the entrance of the *ductus communis choledochus* into the intestine—that duct being ordinarily nearly impervious, or choaked, as it were, by dark-looking thick viscid bile. And, indeed, it would appear, that the inflammatory appearances in question were altogether attributable to the irritating or corroding quality of the bile, so al-

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tered and disordered; and this is almost certain, from the inflammatory blush around the entrance of the common duct being almost constantly observed in the post-mortem examinations. Regurgitation of the bile into the stomach accounts for the phenomenon noticed in regard to that organ; for, if it were not on account of the mechanical nature of the suspected cause, inflammation would be just as likely to affect the lateral boundaries, or the upper portion of this viscus, as it would its most depending portion. This, however, is not the case: an inflammatory patch or shade, it is true, does occasionally extend upwards; but that is almost invariably less intensely marked than that inferiorly situated, and depends, in all probability, upon the frequency and violence of vomiting, caused by the bile, as it is gradually forced by an inverse action of the duodenum.

The following is a specimen of the ordinary appearances met with on the examination of the bodies of persons who died from the endemic fever, without any medicines having been given them until twelve or fourteen hours before death; when, of course, such means could hardly have any effect, either over the disease or upon the parts more immediately affected by it.

From my own Journal, kept as Colonial Surgeon.

A seaman, of about fifty-five years of age, was sent on shore for medical treatment, from the ship Mary. On my seeing him he was perfectly sensible; nor did he complain of any pain or unpleasant feeling, but debility. The pulse was very small and frequent; the skin but little above the natural temperature; the tongue having a dry light-brown fur upon it. His disease was of ten days' duration. Looking upon this as a case of neglected endemic fever, I judged tonics and cordials most appropriate, and prescribed them accordingly. He, however, died in the night.

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On the following morning the abdomen was laid open, with the intention of examining the stomach, in the expectation of finding the mischief there. On laying open that viscus, traces of active inflammation were seen all round the pyloric orifice, and thence along the duodenum to the entrance of the biliary duct, around which, to the extent of about the size of a Spanish dollar, the inflammation seemed to have attained its greatest height. There were slight diverging patches ascending from the pyloric orifice upwards in the stomach, but, evidently, not so distinctly marked as those previously described. All the other abdominal viscera were healthy, the only deviation from the natural state consisting in venous distention—the mesenteric, splenic, and other large trunks being gorged, whilst those, ramifying on the external coat of the intestines, appeared in many parts as if they had been injected.

With the knowledge that this is the general state of the stomach after death, from the fever now under consideration, it will readily be imagined, that cupping, leeching, and blistering over the region of that organ, should be regarded as most important measures in the *modus medendi;* and, in confirmation of the propriety of that mode of practice, it may be stated with as much confidence as satisfaction, that a late rigorous pursuit of these measures has more than realized the hopes anticipated from their adoption.

General Remarks.

The means for cure, commonly employed in the treatment of this disease, may now be adverted to; and such general remarks offered respecting them and the fever itself, as appear to be worthy of attention, and likely to prove serviceable to the practitioner.

The effects of the use of the lancet have already been observed upon. Mercury, as a means of cure, is next entitled to consideration. So important is the use of that medicine in the treatment of the endemic fever, that whenever the

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mouth is affected by it, to the extent of salivation, the patient is considered and declared, by experienced practitioners, to be out of danger. Many mistakes, however, are made by persons ignorant of what should be termed salivation; through which, false prognostics are not unfrequently ventured upon, and the most distressing consequences occasioned.

"It frequently happens, in *advanced stages* of the disease, that mercury is the only hope. In such cases, affecting the system, through its agency, is the object in view; and if ptyalism, or a flow of saliva be excited, the patient almost invariably recovers; but if, on the contrary, a *sore mouth*, that is to say ulcerated gums, &c. take place, and it is found to be impossible to establish ptyalism by increased quantities of mercury, there is rarely any ground for hope. Out of a great many such cases not one terminated otherwise than fatally."* Such is precisely the result of much practical experience on the western coast of Africa. Indeed, it may be observed, that not one case of genuine Sierra Leone endemic fever recovered (mercury having been administered,) wherein the patient was not more or less salivated, either previously to, or at the favourable change.

There can be no doubt, that cases of this fever, altogether without the use of mercury, occasionally terminate favourably; the suffering individuals having no other treatment, perhaps, than that of the natives, or even the conservative powers of unaided Nature, to rescue them. Such occurrences, however, are extremely rare; and, indeed, the cases of recovery, without more or less evident mercurial action, are so very uncommon, that the question fairly arises, whether this local endemic fever can be cured by European practitioners without the use of mercury, and whether there is any other practice that can, with propriety, be adopted in preference to mercurial action. Rather than dispose of so important a ques-

* Boyle on Syphilis, page 59.

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tion by a mere monosyllable, which might, hereafter, by possibility, stand in adverse judgment against its promulgator, it may be right to state the sum of experience upon the point. I have, however, heard differently from other medical practitioners. The point is one which may involve life, and, therefore, calls for a most impartial and candid examination. It will at once be admitted, that exceptional cases to the rule do take place; but that cases of this kind have occurred, as often as patients have been induced to believe, by some practitioners who were themselves deceived as to the real character of the disease they were treating, cannot, with very extensive opportunities of judging upon the subject, be allowed. Cases, as already shewn, may frequently occur, in which, at their immediate onset, it would be risking the judgment of the professional attendant to pronounce positively as to the nature of the disease; unless, indeed, it is known, that the patient had the fever in its regular form some time previously, when it may be assumed as certain, that no such secondary disease exists; but, if the patient has not had the fever in its regular form previously, its actual nature is not immediately to be decided on. On one occasion it will be found, that a case will, for the first day, and sometimes the second also, seem to be a simple bilious attack, which will afterwards be ushered in with all the characteristic symptoms of genuine endemic bilious remittent fever, and establish itself in that character; whilst, on the other hand, it will very often happen, that a simple bilious attack will, for the first day or two, afford many reasons for the belief, where persons who are the subjects of the attack have not had the fever before, that the endemic is in full play. It is under a mistake, arising out of this last position and the unnecessary continuance of mercury, that bilious attacks are frequently confounded with the endemic fever. In such cases, perseverance in the use of mercury will cause irritability of stomach; nay, perhaps, if incautiously administered, slight

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inflammation of the mucous coat; but the patient may recover under such circumstances without salivation, and the mistake being undetected, it is too often erroneously stated, that the endemic fever has been cured without mercury having touched the mouth so as to cause salivation.

This is a mistake which should be sedulously guarded against, for it may lead to the most injurious, if not fatal, consequences. If the subject, in whose case it has occurred, continues in the climate, and, at a subsequent period, becomes the patient of another practitioner, while suffering under somewhat similar symptoms, that practitioner is deceived by the patient's history, given on the authority of the first medical attendant; and when actual *endemic* fever does set in, a degree of overconfidence is felt on all sides, and the patient, in all probability, dies from the want of a sufficiently vigorous practice.

As has before been observed, the seventh, eighth, and ninth days are critical as to the fate of the patient. If he be not salivated by the seventh day, great danger may be apprehended; and if not palpably affected on the eighth or ninth day with mercury, there is then scarcely a hope either of the occurrence, after that time, of the state desired, or of the recovery of the sufferer. Thus, the period at which the mouth is to be affected *to the extent of salivation*, towards the latter days of the existence of the malady, is of considerable importance: it is, therefore, worthy of remark, that early salivation, that is, salivation on the second or third day, is unfavourable; whilst the same taking place on the fourth, fifth, or sixth day, may be looked upon as a most favourable indication of the patient's approaching convalescence. There are two very strong and palpable reasons which would, in themselves, seem to afford just ground for concluding there must be danger likely to arise from early salivation: the first is, that the medical attendant, observing that he has succeeded in his object, will generally remit, or altogether withdraw, the medicine; and the second is, that the patient, in all probability,

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having been previously advised that all is well if salivation appear, and loathing the disagreeable feeling, would refuse to take anything he thought contained mercury, even should his medical attendant deem it right to continue it after its active operation on the system was decidedly evident. On the first view of the question, these considerations appear to be sufficient to account for the circumstance of an early salivation proving, generally, unfavourable to the patient. Experience, however, leads to the conviction that there must be another and more deeply-seated cause; for it may be confidently asserted that, even if the strictest observance of all due precaution be adopted, in order to guard against the consequences of an erroneous procedure on the part of the practitioner or patient, still early salivation is in itself decidedly unfavourable. This, it must be confessed, seems somewhat inexplicable, but such is the fact.

To effect salivation should be the object of the practitioner from the commencement of the disease; and in order to attain success, a scruple of calomel, in the case of a male adult, is generally the first dose that should be given; which should be followed, perhaps, by a mild purgative draught, or a seidlitz powder; the administration of either of which, however, must altogether depend upon circumstances. The first dose successfully administered, two grains of calomel should be given every two hours, and seconded by leeches or blisters, or both, applied to the head, according to the nature and degree of pain there. If there be difficulty in keeping the pills down, from vomiting, the scruple dose should be repeated, with the addition of a few grains of calcined magnesia; and, if that fail to afford relief, a large blister should be placed over the stomach, and may be preceded by the application of leeches. In this case, twenty or thirty grains of carbonate of soda, dissolved in a little plain water, may be occasionally administered. If all should fail to restrain the vomiting, the internal use of mercury should be discontinued, and mercurial

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friction adopted instead; the quantity employed and the frequency of its application being regulated by circumstances.

When the patient's mouth is once affected by the medicine, an increase of that affection is in general to be expected, without fresh doses, if the medicine has been long administered. This occurrence, however, should not be allowed to mislead the practitioner; for a sudden cessation of mercurial action in the fever under consideration, is indicative of almost certain death. Care should, therefore, be taken to let the action subside gradually, and that may best be done by lessening the quantity of mercury previously administered, whether by the mouth or by friction. If the mercury be administered by the mouth, in this stage, it should have sulphate of quinine combined with it; but if that cannot be kept down in the form of pills, the quinine may be administered in decoction of bark, and the mercury by means of friction.

A warm bath is generally administered in the commencement of the disease, but seldom repeated; both on account of the debility attendant upon the frequent employment of the remedy, and the difficulty, inconvenience, and occasional danger of moving the patient at an advanced period of the disorder.

Removal from one house to another at an advanced stage of the complaint is almost certain death. This is a point of more importance than it may at first appear to be. A novitiate practitioner on the coast of Africa might be induced to imagine, from the supposition that he was judging from analogy, that patients would be relieved or benefited by an apparent salutary change of apartment, or of situation, or of air; but the contrary is the fact. Cases of recovery, indeed, even under the most favourable circumstances of change, are most rarely to be met with. This remark applies, also, to the removal of a patient from the shore to a ship, although the vessel immediately starts

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for England, and consequently rapidly bears the sufferer into other latitudes. The danger of removal may be advantageously illustrated by a few cases.

CASE I.

Extracted from my own Journal, as Colonial Surgeon.

July 5th, 1828.—Mr. C——, a mate of a merchant vessel, a remarkably fine-looking and well-formed man, in the prime of life, had laboured under an ordinary attack of endemic fever during six days, when his mouth was satisfactorily affected with mercury; the tongue was moist; the temperature of the skin natural, and the bowels were open; the pulse being about 88: he had now no complaint in short, but slight sickness of stomach. This was the state of the patient at 7 o'clock in the morning, and in which he continued until 3 p. m., when, contrary to advice, he imprudently got out of bed and employed himself in writing on business. At this hour, after rising from stool, he was suddenly seized with difficulty of breathing: he requested to be propped up in bed, and that I should be immediately sent for. Unfortunately I was going my rounds in another part of the town, and did not arrive until ½-past 4 p. m., when the patient was *in articulo mortis*, and expired in a few seconds; only one hour and a half from the first feeling of the fatal symptoms.

The body was examined next morning. On laying open the abdomen, much venous congestion presented itself: the iliac and mesenteric veins were the more conspicuously distended; whilst the large abdominal arteries were comparatively empty. The spleen was about three times its natural size, (a circumstance which might follow from temporary congestion, without actual disease of that organ,) and broke down under the fingers with more than ordinary facility. The liver was larger than usual, but bore no appearance of disease. On laying open the stomach, arborescent-like patches

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of minutely-injected vessels were seen upon the internal coat of that viscus. The intestines exhibited similar changes from their natural condition. The thoracic viscera were all sound. No examination of the brain was resorted to, there never having been severe headache, or the slightest sensorial disturbance during the previous indisposition.

The conclusions to be drawn, on reflecting upon the sudden and fatal change in this case, are, as they appear to me, that the patient, by prematurely getting out of bed, and exposing the surface of the body to a damp atmosphere, as he did, was suddenly seized with an aguish paroxysm, which the powers of the constitution, debilitated as it then was, could not overcome; the heart gradually losing its wonted stimulus from progressive accumulation of blood in the large veins, as seen and described on examination; and from this a consequent loss of temperature and natural influence in such diminished portion of the vital fluid, as reached the centre of the circulation.

Case II.

From the same Journal.

July 20th, 1828.—A French boy, of about 12 years old, was put under my care on the 17th; he having laboured under fever for some days previously. On the 20th, the date above referred to, he was salivated, and the fever was then apparently subdued. He was now ordered small doses of calomel and quinine at short intervals: his state was altogether most favourable, his pulse being nearly natural; his spirits good; and the appetite returning; but, unfortunately, in this promising condition, the boy was removed from one house to another; and at the hour of between 7 and 8 p. m. he was suddenly affected with headache; the hands and feet were felt to be cold; the apparent fit or state of collapse, in fact, had set in: the nurse ran to her kitchen, for the purpose of obtaining a bottle of hot water to apply to the feet, but on her return, in a few minutes, the boy was a corpse.

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I was not made acquainted with this unexpected occurrence until I called the following morning to pay my intended visit, when preparations for interring the body were going on and prevented a *post-mortem* examination.

Remarks continued.

The foregoing cases are sufficient, perhaps, to show, that the greatest possible care is necessary to avoid sudden transitions at the commencement of convalescence. Getting out of bed at this very particular and critical period is exceedingly dangerous, and may be the cause of sudden death; it is still more dangerous to shift a patient so circumstanced, from one house to another; and of the fatal consequences of removing a patient in this state from a lodging-house to his ship, numberless instances might be cited: there is, in fact, hardly an exception to such a procedure being attended by a fatal result.

It will frequently happen, after salivation, in extreme cases of this fever, and when the patient is to all appearances doing well, that sudden collapse will set in; and then, if medical assistance be not at hand, or that assistance not properly directed, the sufferer will, in all probability, perish. The author was himself more than once in this most dangerous stage of collapse. On one of these occasions he was declared to be dead by the medical friends around him; and he, therefore, cautions upon the point, as well from personal as from general experience. In such cases, bladders or bottles filled with hot water, or hot bricks, should be placed to the feet, calves of the legs, and abdomen, and the hands should be placed in a basin of water as hot as can be borne; whilst such medicines as camphor, sulphuric ether, spirits of lavender and ammonia, should be largely and confidently administered. Let it also be borne in mind, that if these internal and external remedial measures be not promptly and simultaneously practised the patient will inevitably sink.

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Glysters are of the greatest importance in the treatment of Sierra Leone endemic fever, and should never, particularly where there is derangement of stomach, be neglected. Their constituents require as much judgment as do those of purgatives; a glyster may be nutritious, mildly purgative, powerfully purgative, or merely a soothing fomentation to the lining membrane of the intestines, when in a state of irritability and over excitation, from the conjoint operation of the disease and the remedies previously employed.

Quinine is constipating and stimulating, and appears rather hurtful than serviceable, until a kind of *break* in the disease occurs, and the mercury appears to be in action in the system; or when, in fact, the force of the febrile exacerbations seem to undergo some little reduction. At that period, the best effects of this useful medicine are found to result from the daily administration of from fifteen to twenty grains of it. When the object is only to keep up the action of mercury already established, and to prevent relapse, the mercurial preparation for combination with the quinine, which is ordinarily the most preferable, is the blue pill, for it is less distressing to the stomach and intestines, already sufficiently weak, than calomel.

Opium, like all other narcotics, should be given in this fever with the greatest possible caution. It is but rarely prudent to administer this medicine in a larger quantity than one fourth or one eighth of a grain within the twenty-four hours (and that not always) until after the mouth becomes more or less affected by mercurial action, and the violence of the febrile symptoms is more or less conquered.

Antimonials and James's powder can but rarely be administered from the irritable state of the stomach. When they can, the latter, in particular, is a happy adjunct to mercury. It favours the influence of that medicine on the system, and rarely fails to determine to the surface.

Saline effervescent draughts may be considered as generally

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injurious, for the air generated and swallowed very frequently causes most painful distention of the stomach, together with eructations in and from it. Even if the effervescence be permitted to subside previous to drinking them, still they cannot well fail from their bulkiness alone, to irritate a previously overloaded stomach; and, in addition to these considerations, it is impossible that a draught of this kind can do what it is intended to do, namely, to correct acidity in the stomach. Soda, or any of the alkalies, given for this purpose, in the form of an effervescent draught, is necessarily neutralized previously to its being taken; and when in the stomach, therefore, it only aggravates the evil by the distention it produces, and allowing the original acid, formed in the stomach, to remain predominant there, as a matter of course; effervescent draughts, therefore, should be avoided, and in cases of acidity of stomach a scruple or half drachm, and sometimes a drachm dose of pure soda, dissolved in about an ounce of water, should be given, and repeated according to circumstances. This practice very frequently avails when all other internal remedies fail; but it is also, however, sometimes unsuccessful, and in such instances the application of a blister to the region of the stomach is recommended, to be sometimes preceded, according to the circumstances of the case, by the application of a few leeches to the intended site of the blister; and, should there be no leeches, cupping should be substituted.

Natural sleep is of the greatest service, provided it be unaccompanied by sudden starting or by stupor: so favourable, indeed, is this state, that the patient should not, on any account, be disturbed from it to take medicine at the specific hours otherwise unconditionally laid down.

The judicious application of vinegar and water to the surface of the body is generally productive of great relief to the patient. Frequent repetition of this application, in fact, should not be neglected when the skin is above the natural

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standard; and the forehead, chest, hearts of the hands, and soles of the feet, will be the parts found to require it most, from the greater intensity of heat there, than elsewhere. Lime-juice and water is a good substitute for vinegar and water; but, it is to be borne in mind, that either would be very likely to give rise to bad effects, if applied, through the ignorance of the nurse, during a perspirable state of the skin.

The state of the tongue demands the closest watching in this fever: it is, indeed, the truest index as to whether the patient is in danger or otherwise. If the tongue remains the natural size, and is covered with a light-brown, or cream-coloured moist fur, the condition of the patient may be pronounced to be favourable; but if the tongue be smaller or larger than natural, or if it be coated, apparently painted, with a dark-brown dry fur, having cracks in it, or if the tongue, on being pressed forward, be tremulous, contracted, and pointed at the extremity, with red sides or margins, the indication is unfavourable, if even the centre exhibits the more desirable coloured fur at the time. All furs upon the tongue, becoming hard and cracked, are bad; and, strange as it may appear, a tongue having no fur whatever, and continuing even moist, the fever being in progress at the time, is indicative of great danger. Such a state of the tongue, under such circumstances, may be regarded as a more certain indication of inflammation of the stomach, than even pain increased by pressure over the region of that organ.

The state of the pulse, if it be considered abstractedly only, affords but little exclusive guidance as to the probable result in cases of this fever.

The appearance of the eye is to be judged of as in disease generally. It may be remarked, however, that an extreme of brilliancy and watchfulness is as threatening as the opposite condition of dulness and immobility in that organ.

Food, after a certain period, demands great attention, and more especially after the action of mercury has been fairly

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established; fortunately, until after that has taken place, the patient has rarely any desire to eat. Drink, on the contrary, is constantly required; and its nature and quality are points of great importance. Farinaceous drinks, in the first instance, are by far the best; and, as the case advances, it will frequently happen that no fluids will be required, beyond those of beef-tea, fowl-broth, or mutton-broth, deprived of fat. After the ninth, tenth, or eleventh day, patients, generally speaking, will begin to crave for food of a substantial nature; and, at that period, there will be no danger in a moderate indulgence in the dictates of Nature. Generally speaking, a patient may then be allowed to try any kind of plain dressed food he may wish for; and there is no danger in the practice, for the soreness of mouth will restrict the patient to the use of such food as will be easy of digestion. Wine, too, at that period, is admissible, care being taken to begin with extremely small quantities. Port, Madeira, or Sherry, may be administered, according to the quality procurable, and the taste, habits, &c., of the patient.

If the appetite be bad, which will not unfrequently be the case even in a tolerably good constitution, watery bitter infusions, with small quantities of some of the purgative salts in combination, appear to be exceedingly useful; but if there be any tendency to ague, which there occasionally is, decoction of bark, with extract of the same, or with quinine, (purgatives when required,) necessarily take precedence.

All fermented liquors are improper, although they may occasionally be taken with impunity.

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CHAPTER IV.

Irregular Bilious Fever, as it occurs to Persons who have had the Regular Local Endemic; and Intermittent Fever, or Ague.

Irregular Bilious Fever.

This form of fever is very common on shore, particularly after the occurrence of the endemic, or seasoning fever, as it has been, and may with propriety still be designated; nor is there any limitation to the frequency of its recurrence in the same individual. Happily, however, it will rarely prove fatal, if some very erroneous view be not entertained regarding its nature and probable termination; or unless, contrary altogether to what is usual, it should be complicated with some serious internal disease, having for its cause an existing process of disorganization in addition to mere functional derangement. Such, indeed, is the almost universally favourable termination of this fever, under the ordinary circumstances of its visitation and (it is hoped) a judicious practice, that not one case, under the charge of the colonial surgeon, affected with it only, proved fatal during a period of four years.

If a person be attacked with fever, the conclusion of the practitioner, as to whether it be irregular bilious fever or not, must be determined rather by the history of the patient than by the character of the symptoms; and it may be laid down as an invariable rule, that if a subject having had, and thoroughly recovered from, an attack of the endemic fever, be again the prey of febrile symptoms, apparently of a similar character with those of the endemic, it is the irregular bilious fever which prevails, and not a recurrence of the local or

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seasoning fever. This remark, it must be borne in mind, applies not to periods when an epidemic fever is raging, for nothing gives immunity from the apparently indiscriminate attacks of that disease; and, consequently, care should be taken not to mistake an attack from that form of disease for one from irregular bilious fever. Irregular bilious fever is of uncertain duration and intensity; but the severity of the symptoms will very rarely continue unsubdued beyond the fourth or fifth day.

A knowledge of the foregoing facts is most important, in many points of view, and particularly so with regard to the treatment; for, although this form of the disease is ordinarily ushered in with threatening symptoms, corresponding with those of the endemic, its progress and termination are so different, that a similar treatment is inadmissible.

An attack of irregular bilious fever is usually ushered in with vomiting, more or less violent, with headache and general pyrexia; the tongue being, in the majority of cases, loaded, at least in its centre, by a light-brown or cream-coloured fur, and its edges rarely changing their colour, or, if they do, it will be to that of red. The premonitory symptoms, in fact, greatly resemble those of the first fever, and are not, in the first instance, to be distinguished from it without the knowledge that the patient has already had the common endemic fever.

This malady is most prevalent during the damp and rainy season of the year, and is alike unsparing in its assaults, both upon natives and Europeans. It is from the circumstance of vomiting of bile being an almost invariable symptom in the complaint, that the disease has obtained the local appellation of bilious attack, or second fever.

The irregularity of this fever consists in its never running a fixed course as to the period of its duration, for it sometimes exhausts itself on the second or third day, and at others not

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until the fourth or fifth day, but it very rarely continues to a later period.

The treatment, of course regulated by the intensity of the attack, should be so far that of the first fever, that topical measures must be employed with reference to local pain, but mercury must be most guardedly administered, it being a very curious fact, that a few grains of calomel, in this, the second fever, might suddenly and unexpectedly throw a patient into a profuse salivation, whose system, in the first fever, had, perhaps, only a few months previously, resisted the influence of some hundreds of grains. Mercury, however, is the principal remedy in the treatment; and, although a very little of that medicine genenerally succeeds to establish its sanative operation on the system, yet a specific effect from mercury seems absolutely necessary to the complete subduction of the symptoms in the severer form of the complaint. After the administration of a mercurial purgative, the practitioner may generally immediately proceed by combining quinine with remarkably small doses of camomel, continuing that practice until slight soreness of mouth appears. The mercury is then forthwith to be omitted, and the quinine continued, with such other adjunct as may appear necessary to alleviate attendant symptoms at the time. Rhubarb is generally the medicine added, and that in order to prevent the constipating effects of the quinine. Should there appear to be great determination to the head, with acute pain and throbbing in the temporal arteries, the application of leeches or the measure of cupping should be adopted; and similar remedies will be proper over the region of the stomach in case of symptoms of inflammatory action going forward in that organ. It will sometimes prove advantageous in this fever, as in the endemic, to employ cold applications to the forehead, hands, and feet; but the temperature of the whole surface will seldom, in these attacks, be so much heightened,

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or the body so perfectly free from perspiration as to demand, or indeed justify general affusion. When the practitioner has succeeded in removing local pain and local congestion, a warm bath will be appropriate, and will rarely fail to expedite the progress of recovery, by determining the circulation to the surface more equally, and thereby establishing a general diaphoresis.

Many persons are subject to frequent attacks of this form of fever whilst others are comparatively free from its unwelcome visitations. Some are regularly periodically the subjects of its influence, notwithstanding the practice of the most cautious habits; and others, from the nature of their calling, necessarily exposing them to all the vicissitudes of the weather, are constantly liable to its pernicious inroads upon their constitutions. Frequent attacks of irregular bilious fever are generally the forerunners of a particular species of ague.

Intermittent Fever or Ague.

If an European, located on the western coast of Africa, be frequently attacked by the intermittent fever or ague, he is generally supposed to possess the best, although a most disagreeable and painful security against the ravages or assaults of the more dangerous fevers of the climate.

It must be unnecessary to explain, for the information or guidance of the medical reader, what are the symptoms and stages of this disease, or what is in general the condition of a person immediately prior to its attack; but, as this volume may be resorted to by those who are not medically informed, but who are particularly interested in the subject, from being settled on the coast, it may be right to detail such particulars as will enable even the non-medical reader to recognise the disease, and form a tolerably correct view of its character, its progress, and its results.

Intermittent fever is a disease which consists of paroxysms,

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between which there are distinct and perfect intermissions from febrile symptoms. This disease, on the coast, usually follows, though sometimes after a long lapse of time, the endemic, or local remittent fever; and it is, commonly, immediately preceded by an attack of what has been already cursorily remarked on under the denomination of "Irregular Bilious Fever." It usually occurs in persons, who, being debilitated by a residence of some time in the country, become more susceptible of the common exciting causes to fever when exposed to them; such, for instance, as exhalations arising out of marshy or swampy situations, and those in which underwood and water abound.

A paroxysm, or fit of this fever, consists of three stages: namely, a cold, a hot, and a sweating stage. The period at which the paroxysm returns, points out its character, which again admits of three varietes; namely, the *quotidian*, the *tertian*, and the *quartan*: the quotidian having an interval of twenty-four hours; the tertian having an interval of forty-eight hours; and the quartan having an interval of seventy-two hours. And these distinguishing characters of the disease, or perhaps rather specific forms of it, may occur twice on the respective day of return, which has given rise to the appellation of double quotidian, double tertian, and double quartan, either of which may be regular or irregular in that double character; that is, regular double quotidian, irregular double quotidian, and so forth.

The symptoms of the cold stage are, languor, debility, listlessness, and aversion to motion. The face becomes pale, the extremities cold, and the skin over the whole body appears constricted, as if cold had been applied to it; a state which is known by the denomination of "goose-skin appearance." The patient will generally complain of a sensation of cold, as if commencing in the back, and thence diffusing itself over different parts of the body. Sometimes this sensation is confined to a particular part. Cold shivering next sets in,

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and terminates in one universal convulsive fit of shaking. The hot stage follows, after a longer or shorter duration of the cold and shaking fit, and commences, for the most part, by flushings of the face, which are soon after succeeded by fixed and burning heat over the body. In this stage the skin becomes red and swollen, and is particularly tender to the touch. Sensibility, which, in the preceding stage, was blunted, is, at this period, particularly acute. The pulse becomes elevated, quick, full, and hard, and the tongue is furred; there is much thirst, and either scanty, high-coloured, or, on the contrary, copious discharges of pale, limpid urine are attendant. The sweating stage succeeds the hot one, and is first observed by moisture breaking out over the face and neck, which gradually extends to an universal perspiration. The heat of skin, and state of pulse, soon approach their natural standard; respiration becomes free, and all the temporarily suspended functions are again gradually restored. These are the ordinary symptoms, progress, and termination, of the common paroxysmal forms of intermittent fever, as it shows itself in the countries in which it is observed to occur, and as it very generally occurs amongst the natives of western Africa.

Amongst some of the natives, however, and amongst the European residents generally, the disease assumes a very different form: one which excites but little comparative commiseration in the eyes of the spectator, there being much less external evidence of its existence than in the form described. It is the unfortunate sufferer alone who can commiserate with one similarly situated to himself in the particular species of the disorder about to be considered. This species, which seems only to be met with on the western coast of Africa, at least, its occurrence in any other part of the tropical world has not been noticed, affects the patient with a sensation of cold, in some part or other of the back, quickly flying, perhaps, from one part to another, and frequently communicating the sensation of pieces of ice

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being applied to these particular parts, or of the whole back being in contact with one broad unbroken mass of it. The skin is generally dry and constricted under this feeling; one part of the body will frequently be very hot, whilst another is extremely cold. An occasional suspension of these symptoms will take place for an hour or two, when all will again return, more or less violently, and be followed by lighter symptoms, such as the sensation of some acrid substance having been applied to the superior part of the back or shoulders; the loins being immersed, as it were, in a clammy perspiration, which feels like so much ice-water. The head will rather be confused than affected with acute pain. The eye will be muddy looking, or glazed and heavy, exhibiting more the appearance, to the uninitiated observer, of one who had been previously living irregularly, than of one who was unavoidably suffering from disease. The countenance will be pallid, the abdomen ordinarily tumid, and the whole system will be relaxed and affected with nervous debility during the existence of the complaint; the bowels being almost always out of order, either constipated or unnaturally relaxed.

With these indications of impaired bodily health, the mind will be invaded to a certain extent: absence, partial loss of memory, and more or less irritability of temper, in spite of the aid of reason, will afflict the patient; and this state will be more or less intense and trying in proportion to the ordinary balance of the original temper and the degree of severity or otherwise of the attack. Something will also depend upon the profession or calling of the patient: if his avocations or duties be such as to require his constant personal attention, his mind, in case of bodily incapacity, will be more put to the test than that of the person for whom a substitute can be procured. Circumstances, indeed, hold a wonderful sovereignty over this species of the disorder; those of an adverse character hardly ever failing to aggravate it;

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whilst those that are calculated to excite pleasurable sensations as rarely failing to act favourably towards its removal. An apparent act of tyranny or moroseness on the part of a superior in office may bring on an attack, and even unkindness in an equal will keep it up; whereas, suavity of manners, and the kind conversation of others, are amongst the most powerful antidotes against its worst influences. The same degree of suffering in two individuals, from the same causes, will hardly ever be experienced; nay, the degree of suffering will even vary in the same individual, at different times, without any apparent alterations in the circumstances of his living, or of exposure to those external causes which may be considered as inducing the disorder.

In those who have suffered repeated severe attacks of this *illegitimate* species of ague, if it may be permitted to use that term, the spleen in general becomes ostensibly affected; a circumstance which seems to be rather a result of the cold stage than a cause of it. In the cold stage the blood ceases to be forced to the surface and to the extremities of the body with its wonted energy, and occupies of necessity the large venous trunks and the blood-vessels generally, supplying the thoracic and abdominal apparatuses. Of these the spleen is the most accommodating, on account of its peculiarly sponge-like contexture, admitting of great engorgement and enlargement without its being felt as an inconvenience, until the commencement of structural disease or disorganization.

The same reasons that justified brevity, in the definition of the ordinary form of intermittent fever, also call for conciseness, rather than amplification, in the remarks upon the treatment to be observed.

The first object in the treatment of the ordinary form of the disease is to lessen the duration of the cold stage by the application of artificial heat, such as that of first placing the feet of the patient in hot water, and then putting him to bed and well covering him with bed-clothes. An emetic may be

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administered, or forty drops of tincture of opium, and as much compound spirits of lavender, may be given at the immediate approach of the attack, with hot drinks. The hot stage being thus induced, warm drinks may be plentifully administered, so as to bring on perspiration, which, once established, is to be encouraged, as long as it continues warm, by similar means, and allowed, eventually, to cease spontaneously; the patient should then be wiped dry, and the clothes should be all quickly changed for dry ones. During the intermissions or absence of fever, quinine, but always preceded by the administration of a smart purgative in which calomel has formed a part, should be regularly given at stated periods; and had better be combined with some tonic, such as extract of gentian, or a purgative bitter, such as rhubarb, which will generally increase its effects. A super-sulphate of quinine, prepared with sulphuric acid, has sometimes appeared to deserve the preference; but the intensity of the bitter, acquired by this form of combination, renders it objectionable to many patients. Much difference of opinion exists regarding the dose of quinine; some advocating large doses and *vice versa*. This difference of opinion should be reconciled by its effects on the individual patient—for the effects of the same quantities in different persons will frequently vary widely. Scruple doses will be found advisable in particular cases; but, in many instances, even half the quantity will cause a most violent headache, or great temporary disturbance of the sensorial functions. As a general rule, it will be found that small doses of from two to three grains every two or three hours best answer the purpose. This doctrine is not derived from general experience only. Unfortunately, the writer has suffered severely for many months from that species of ague which is peculiar to the coast; and now that he is arranging his notes upon the subject, he is enduring no very enviable feelings from its presence.

If there be any reason to suspect visceral derangement, small quantities of blue-pill should be added to the quinine;

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but, it will sometimes happen, that quinine and all other preparations of peruvian bark, will disagree with the patient, by causing an increase of febrile symptoms. When such is evidently the case, the quinine is to be withheld, and the *liquor arsenicalis* substituted: and if, by the occasional use of mercurial purgatives, the mouth should not happen to be slightly touched, it will be proper to direct frictions, with camphorated mercurial ointment, over the region of the organ affected, aided by the occasional use of a warm bath, until the object in view be attained. This is the course generally to be adopted. When inflammatory symptoms, or those of local congestion appear, they are to be subdued by the measures recommended under similar attendant circumstances in the fevers already treated of; but should it unfortunately happen that a cure is not effected by what may appear the best application of such means, in addition to a well-regulated system of dietetics, the patient should be recommended to adopt change of air and scene.

The treatment of that species of intermittent fever, which has been described as affecting Europeans more particularly, varies but in detail from the foregoing. The same practice, in fact, is to be observed as far as the symptoms correspond; but it unfortunately so happens that many of those affected are public officers, who cannot always, with facility or propriety, even for a few days, quit their posts and take advantage of a change so desirable. Under such circumstances it becomes necessary to reflect upon what can be done rather than upon what might be done. In such cases, in addition to the plan of treatment laid down, the greatest degree of regularity in eating and drinking ought to be enjoined. The food should be uncomplicated and plain, and never taken at a late hour in the evening, so as to interrupt the digestive process in the night. Rain and night air, as well as all circumstances that are even in a remote degree calculated to disturb the quiet of the mind, should be most scrupulously avoided. Even if the patient have not the power of greatly varying the scene of

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his residence, and consequently the atmosphere in which he is suffering, sleeping at a short distance from his usual dwelling, and especially if it be on a more elevated site, may be found to produce the most beneficial effects. It may have the desirable influence of interrupting what had been considered as the regular periodical attack, and, by thus lengthening the interval between the paroxysms, may materially increase the advantages to be derived from medical treatment.

On the subject of this disease the late Mr. Tidlie has made some remarks, which appear to deserve further publicity than they have hitherto received.

From the Report of the late Mr. Tidlie, acting Staff-Surgeon at Cape Coast Castle, and addressed, in 1822, to Dr. Nicoll, Deputy-Inspector of Hospitals.

"Intermittent seems to be the first link in the chain of diseases, which follow the remittent, or first fever of Europeans; and if this be neglected, hepatitis, splenitis, or dysentery generally follow. It is for this reason that I dread the arrival of white troops from Europe, knowing as I do the effects of intemperance on European constitutions. Every one who has spent any time on the Gold Coast of Africa, must have observed the unusual quantity of blood which is thrown on the abdominal viscera, even when disease is absent: the fulness of the abdomen, of which we all daily complain, arises from this cause; and hence it is, that inflammation of one or more of the viscera of that cavity is so commonly met with. I regret that my experience has been so limited, that I am not enabled to give an accurate description of the pathology of these affections, which are always consequent on the remittent form of the country. My mind, on this interesting subject, is not fully matured; I shall, therefore, confine my

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remarks to a few superficial observations; and, in tracing effects to causes, it may be of some practical utility to make a reference to anatomy.

"The abdominal viscera are principally supplied with blood from the cœliac artery, which comes off from the aorta, when it has penetrated the diaphragm, and divides into three great branches to supply the viscera of the abdomen. The blood, which it thus conveys directly from the heart, circulates through the cavity, and is collected and returned by the three great or corresponding veins, the superior and inferior mesenteric and splenic, which unite behind the pancreas, and form the vena portæ; hence it is, that congestion in the liver, or enlargement of the pancreas, particularly the former, will obstruct the free passage of blood, the consequence of which will be congestion of one or other of the viscera, in proportion to the obstruction; and it is, in this manner, that I conceive inflammation is produced, and its train of consequences.

"From repeated attacks in my own person, I was led to conclude that hepatic derangement was generally the cause of the intermittent fevers which are observed in those who have had the endemic. After my recovery from the first fever, I was severly afflicted with ague for the period of eight months; and as it was at a period of the year the most healthy, when the weather was dry, the atmosphere clear, and my residence being remote from marshy countries, I was at a loss to ascertain the cause of fever so long protracted. I observed that not an individual who came to the country, and had the remittent, ever escaped an attack similar to mine.

"In my own person I found bark of no use; it generally did harm: I tried the effect of purgatives constantly repeated, much in the same way that I have recommended for the use of the remittent, and from these invariably found relief; but no sooner was there derangement in the biliary functions, than there was an attack of ague. Since my arrival from

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Europe, I have observed the same thing in almost every one who has resisted this climate; I therefore conclude, that to relieve the abdominal congestion in intermittent fever is the first indication of cure; I am well aware that this cannot be always affected without the use of mercury to the extent of salivation. But with those who are enervated from the effects of remittent fever, mercury is rather a questionable practice; unless, indeed, there is some organic congestion, which imperiously calls for its use.

"Many of the troops of the Royal African Corps are the descendants of Europeans, and are, of course, subject to some of the diseases peculiar to them, modified, of course, from their being born in the country, and being but one remove from the negro. Their mode of living also renders them less liable to disease in the concentrated form with which it is met in the European character."

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CHAPTER V.

Epidemic Fever at Sierra Leone: General Character and Symptoms of the Epidemic Fevers of 1823 and 1829; peculiar Seasons the Immediate Causes of those Fevers: History, Progress, and Treatment of the Epidemic Fever at Sierra Leone, in 1829; Inquiry into the Origin, Remote Causes, and Progress of that Fever: Epidemic Fever of 1823; its Character, Progress, and Treatment: Together with General Remarks on the Epidemic Fever, embracing its Distinctive Peculiarities, Mode of Treatment, and Concluding Observations.

This fever, whether recognised under the appellation of Epidemic fever, Bulam fever,* or Yellow fever, is one of the most fatal that has ever appeared, either between the tropics or elsewhere, and has given rise to more violent medical controversy than any other malady to which human beings have been subjected, the epidemic cholera of India, and that now prevailing in Russia and other parts of the continent of Europe not excepted.

Some of the ablest writers, possessing great tropical experience, have devoted a large portion of their time and attention to a consideration of the original causes and the actual nature of this disease; but it unfortunately happens, that occurrences have presented themselves so opposite to each other as to give rise to protracted discussion, and to afford

* This fanciful name was given to the fever now under consideration, because, some years back, a fatal yellow fever made its appearance amongst the people, who, under the late Captain Beaver, made an attempt to colonize the Island of Bulam, situated in the Rio Grande.

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grounds for the assumption of apparently warrantable positions at extreme points. Were it the object at present to enter into a general investigation of the whole subject, it would, perhaps, be at once safe and appropriate, with regard to those writings, to adopt the maxim, "*in medio tutissimus ibo.*" Such, however, is not the intention here. It is proposed in this place to limit observation to actual experience more particularly, and not, by any means, to presume from that experience to decide the great and still pending question of contagion *ab initio*, or otherwise, although the circumstances detailed may go far towards its elucidation. It should also be remarked, that the observations made will be founded more especially upon the occurrence of the fatal epidemic of 1829 at Sierra Leone, than with reference to those of 1823 and 1825; but, regarding the latter, sufficient details will be introduced to establish the identity as to character of the diseases of the different periods. By pursuing this course, it is hoped that the causes and the decided changes in the disorder, under the peculiarities that attended it, and the means of its extension upon the coast, will be rendered, if not fully apparent to all, at least so clear as to satisfy those whose minds are not strongly prepossessed with different conclusions; and even to cause those, who are wedded to different opinions, to seriously re-consider them.

General Character and Symptoms of the Epidemic of 1829.

The general character and symptoms of the epidemic fever bear so strong a similarity to those of the endemic fever, that it seems to be only necessary to refer to the description of the latter; and, in addition, to notice separately such points as are peculiar to the former

The epidemic is more unsparing in its attacks, and more fatal in its consequences, than is the endemic; and, in fact, no climatorial seasoning gives security against its assaults; and no practice, hitherto discovered and pursued, has been

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generally successful in repelling them. It nevertheless, however, so much resembles the endemic in general character, that a broad and vague notion of its qualities may best be formed by supposing those of the endemic greatly aggravated.

With respect to the symptoms, it may be remarked that, as in the endemic fever, there will generally be pyrexia, but rarely so marked or developed, and it will sometimes advance with so insidious a march as not to attract the particular attention of either the patient or medical attendant. In most cases the action of the pulse will be quickened, and the temperature of the surface elevated; but it will frequently happen that the patient is first seen in a state of collapse, to which re-action never succeeds. Sometimes pain in the head will be complained of as being very severe; but more frequently, however, it will be very slight, and not unfrequently altogether absent. Occasionally great giddiness will prevail. There will almost always be pains of the back, loins, or limbs, with pain in the chest, extending along the course of the *œsophagus*, from its commencement even to the stomach; and this pain will be said to be of a burning description. The state of the tongue varies greatly, it being at one time hard and dry, like a chip, and of a dark brown colour; the patient being unable to articulate for want of saliva. At other times the tongue will have a white centre, with edges of a bright red; and, still more commonly, in the worst cases, the tongue will be altogether without fur, and of a deep blood-red colour, and either very much enlarged and sponge-like, or elongated and contracted at the tip. There is generally thirst and a desire for cold liquids. The bowels are, for the most part, deranged; sometimes constipated, and sometimes, on the other hand, there is slight purging, attended with griping or tenesmus. The red appearance of the tongue, and the pains of chest, back, loins, or lower extremities, may be considered as the truest characteristics of the existence of the disorder. The

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changes of symptoms that usually occur in the advanced stages, will be best seen in the description of the cases.

Peculiar Seasons the Immediate Cause of Epidemic Fever.

From the topographical account of Freetown, as well as the descriptions already given of the kind and character of the fevers which ordinarily prevail there, and the notice of the fact, that occasional cases of yellow fever are to be met with every year in that colony under the usual circumstances, it may naturally be inferred that a peculiarity of season, which is sufficient to cause an extraordinary number of fever cases, would be alike powerful in the production of cases of a more deadly character. That this inference is as just as it is natural, will be evident, upon reflection and a reference to facts.

It has already been shewn, that upon the changes of the seasons on the western coast of Africa entirely depend a notable increase or immunity from febrile disease. And if the records of ordinary seasons be examined, and they be compared with those of the periods in which the epidemic prevailed, the contrast will be striking; whilst a coincidence in the peculiarities of the weather in 1823 and 1829, previously to and during the epidemics of those years, will appear as remarkable as was the similarity of attendant fatal circumstances.

Unfortunately, it has been found to be impracticable to procure an official documentary record of the weather in 1823 for the whole of the period desired, but such evidence as is known to exist upon the subject is inserted, and will be found to favour the position laid down. It is right to observe, however, that the conclusion was not adopted upon that evidence, but in consequence of the result of the strictest inquiries made in the settlement of Freetown, which, though convincing, were of so general a nature, as to render it impossible to reduce them to a tabular or precise form.

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State of the Thermometer and Weather during that part of the period of the prevailing Sickness on board His Majesty's Ship Bann, when in the River Sierra Leone, from Sir William Burnett's "Official Report."

Year and Month.	Day of Month.	Thermometer. 8 A. M.	Thermometer. Noon.	Latitude at Noon.	Longitude at Noon.	Weather.
1823 Mar.	1	78	80	.. ..		Moderate breezes, hazy, & fine.
..	2	80	80	.. ..		Ditto ditto, ditto, ditto.
..	3	80	80	Lying off Free-		Light ditto, clear sun-shine.
..	4	79	80	town, Sierra		Ditto, ditto, cloudless, hazy.
..	5	80	82	Leone.		Moderate ditto, clear.
..	6	82	82	.. ..		Light ditto, cloudy.
..	7	80	83	.. ..		Ditto ditto, ditto.
..	8	83	85	.. ..		Ditto ditto, ditto.
..	9	83	86	.. ..		Moderate ditto, do. heavy dews.
..	10	83	84	.. ..		Light ditto, cloudy, thunder
..	11	82	84	During this period		Ditto ditto, ditto, ditto.
..	12	83	85	I was absent from		Ditto ditto, ditto, with appearance of tornadoes.
..	13	83	85	the ship, being		Moderate ditto, cloudy.
..	14	80	84	ordered on board		Strong ditto, very cloudy.
..	15	80	82	the San Raphael, which was sent to the river Gallinas.		Light ditto, ditto.
..	16	80	83	.. ..		Strong ditto, ditto.
..	17	80	82	.. ..		Light ditto, ditto.
..	18	79	81	.. ..		Moderate ditto, ditto.
..	19	80	82	.. ..		Fresh breezes, cloudy.
..	20	80	82	.. ..		Light ditto, very hazy. [night.
..	21	80	80	.. ..		Ditto ditto, cloudy, rain last
..	22	80	80	Laying off Free-		Moderate and hazy.
..	23	82	80	town, Sierra		Moderate breezes, clear.
..	24	80	82	Leone.		Ditto ditto, ditto.
..	25	81	82	.. ..		Ditto ditto, ditto.
..	26	80	82	.. ..		Ditto ditto, ditto.
..	27	77	78	Off the Carpenter's.		Light ditto, cloudy, rain.
..	28	78	81	Working up the river.		Ditto ditto, hazy.
..	29	79	81	Laying too outside.		Ditto ditto, ditto.
..	30	77	79	08·31 N.	13·19 W.	Ditto ditto, ditto.
..	31	80	82	08·00	14·14	Do airs and calms, a little haze.

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Meteorological Observations made at Freetown, Sierra Leone; from December 8, 1828, to June 30, 1829.

Date.	State of the Thermometer in the Shade. Hours. 8	12	4	METEOROLOGICAL OBSERVATONS.
1828.				
Dec. 8	79	82	81	Tornado at 6 a. m.—fine clear day.
.. 9	79	81	82	Fine and clear.
.. 10	78	82	81	Ditto.
.. 11	79	82	81	Ditto.
.. 12	79	82	83	Rather hazy in the distance.
.. 13	79	82	82	Ditto.
.. 14	78	80	81	Ditto.
.. 15	79	82	82	Ditto.
.. 16	80	83	82	Ditto.
.. 17	79	82	82	Ditto.
.. 18	76	78	79	Tornado at 3 a. m.—cloudy all day.
.. 19	79	81	82	Rather hazy in the distance.
.. 20	75	80	80	Ditto, harmattan very fresh.
.. 21	74	79	81	Ditto, ditto.
.. 22	72	78	80	Ditto, ditto.
.. 23	74	78	80	Ditto, ditto.
.. 24	74	80	82	Ditto, ditto.
.. 25	75	81	83	For the last fortnight could see about five miles off, with the harmattan blowing fresh.
.. 26	75	80	81	Hazy, cloudy, harmattan fresh.
.. 27	73	80	81	Ditto, ditto.
.. 28	74	80	81	Ditto, ditto.
.. 29	74	79	81	Ditto, ditto.
.. 30	75	80	82	At 7 and 8 a. m. a thick fog, harmattan fresh.
.. 31	75	79	80	Hazy, ditto.
1829.				
Jan. 1	73	77	78	Cloudy, with harmattan fresh.
.. 2	73	78	80	Rather cloudy, ditto.
.. 3	72	78	80	Ditto, ditto.
.. 4	75	80	81	Ditto, ditto.
.. 5	75	80	81	Ditto, harmattan very feeble.
.. 6	75	80	81	No harmattan.
.. 7	76	80	81	Clear, harmattan very feeble.
.. 8	76	81	82	Ditto, harmattan fresh.
.. 9	77	81	82	Ditto, no harmattan.
.. 10	74	79	81	Fresh breeze from E. N. E.—cloudy W. N. W.—rain at 4 a. m.
.. 11	77	80	81	Cloudy, breeze from W. N. W.
.. 12	77	80	81	Cloudy ditto.
.. 13	77	80	81	Ditto ditto.
.. 14	78	80	81	Ditto ditto.
.. 15	77	79	80	Ditto ditto.
.. 16	78	80	81	Ditto ditto.

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Date.	State of the Thermometer in the Shade. Hours. 8	12	4	METEOROLOGICAL OBSERVATIONS.
Jan. 17	78	80	81	Cloudy, breeze from W. N. W.
.. 18	78	80	81	Rather cloudy ditto.
.. 19	79	81	82	Ditto ditto.
.. 20	78	80	81	Ditto ditto.
.. 21	77	79	80	Ditto ditto.
.. 22	78	80	81	Ditto ditto.
.. 23	78	80	81	Ditto ditto.
.. 24	78	80	81	Ditto ditto.
.. 25	78	80	81	Ditto ditto.
.. 26	77	81	82	Rather cloudy, sea-breeze.
.. 27	79	80	81	Clear, ditto.
.. 28	79	80	81	Clear.
.. 29	79	80	81	Ditto, harmattan feeble.
.. 30	77	80	81	Ditto, ditto.
.. 31	78	80	81	Ditto, sea-breeze.
Feb. 1	78	80	81	Ditto, ditto.
.. 2	78	80	81	Rather cloudy, sea-breeze.
.. 3	78	80	81	Clear, ditto.
.. 4	79	81	82	Ditto, ditto.
.. 5	77	78	80	Clear, sea-breeze fresh.
.. 6	77	78	79	Cloudy, ditto.
.. 7	77	78	79	Ditto, ditto.
.. 8	77	78	80	Harmattan, ditto.
.. 9	77	78	80	Cloudy, harmattan.
.. 10	97	80	81	Clear, sea-breeze.
.. 11	77	79	80	Ditto, ditto.
.. 12	77	79	80	Ditto, ditto.
.. 13	77	79	80	Ditto, ditto.
.. 14	78	80	81	Ditto, ditto.
.. 15	78	80	81	Ditto, ditto.
.. 16	78	80	81	Ditto, ditto.
.. 17	78	80	81	Cloudy, sea-breeze fresh.
.. 18	78	80	81	Ditto, ditto, ditto.
.. 19	78	80	81	Clear, ditto, ditto.
.. 20	78	80	81	Ditto, ditto, ditto.
.. 21	77	79	80	Ditto, ditto, ditto.
.. 22	78	80	81	Ditto, ditto, ditto.
.. 23	78	80	81	At 7 a. m. 70 in the air, clear, sea-breeze fresh.
.. 24	78	80	81	Clear. ditto.
.. 25	78	80	81	Cloudy, sea-breeze.
.. 26	78	80	81	Clear, ditto.
.. 27	79	81	82	Ditto, ditto.
.. 28	78	80	81	Ditto, ditto.
March 1	79	80	81	Cloudy, ditto.
.. 2	79	80	81	Clear, ditto.
.. 3	79	80	81	Ditto, ditto.
.. 4	80	81	82	Ditto, ditto.
.. 5	80	81	82	Ditto, ditto.
.. 6	80	81	82	Ditto, ditto.
.. 7	80	81	83	Ditto, ditto.
.. 8	80	82	84	Ditto, ditto.
.. 9	79	81	82	Ditto, ditto.

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Date.	State of the Thermometer in the shade. Hours. 8	12	4	METEOROLOGICAL OBSERVATIONS.
Mar. 10	80	82	83	Cloudy, sea-breeze.
.. 11	80	82	83	Ditto, ditto.
.. 12	80	82	83	Ditto, ditto.
.. 13	80	82	83	Cloudy, lightning and rain at 10 p. m.
.. 14	80	81	82	Ditto, sea-breeze.
.. 15	79	80	81	Ditto, ditto.
.. 16	80	81	82	Ditto, ditto.
.. 17	80	81	82	Ditto, ditto.
.. 18	79	80	81	Ditto, ditto.
.. 19	79	80	81	Ditto, strong breeze, N. W.
.. 20	79	80	81	Ditto, ditto.
.. 21	78	79	80	Ditto, ditto.
.. 22	78	79	81	Ditto, ditto.
.. 23	78	79	80	Ditto, sea-breeze.
.. 24	78	79	81	Rain at 5 a. m. ditto.
.. 25	80	82	83	Breeze, rain, and cloudyish.
.. 26	80	82	83	Cloudy, rain, sea-breeze.
.. 27	80	82	83	Cloudy, rain at 2 a. m.
.. 28	80	82	83	Ditto, rain, tornado at 10 p. m.
.. 29	80	82	83	Ditto, sea-breeze.
.. 30	80	82	83	Clear, ditto.
.. 31	80	82	83	Cloudy, ditto.
April 1	80	82	83	Ditto, ditto.
.. 2	80	82	83	Ditto, ditto.
.. 3	80	82	83	Ditto, ditto.
.. 4	80	82	83	Ditto, ditto.
.. 5	81	82	83	Clear and cloudy, sea-breeze.
.. 6	81	82	83	Ditto, ditto.
.. 7	81	82	83	Ditto, ditto.
.. 8	81	82	83	Ditto, ditto.
.. 9	81	82	83	Ditto, ditto.
.. 10	80	82	83	Tornado at 10 p. m., sea-breeze.
.. 11	80	82	83	Clear and cloudy, ditto.
.. 12	80	82	83	Tornado at 2 a. m. ditto.
.. 13	81	82	83	Not cloudy at 12, ditto.
.. 14	81	82	83	Tornado at 4 a. m. ditto.
.. 15	82	82	83	Cloudy, ditto.
.. 16	81	82	83	Ditto, tornado at midnight, ditto.
.. 17	82	82	83	Ditto, ditto 5 p. m. ditto.
.. 18	82	82	83	Rather cloudy, ditto.
.. 19	81	82	83	Ditto, ditto.
.. 20	81	82	83	Ditto, ditto.
.. 21	81	82	83	Clear—tornado at 6 p. m.
.. 22	81	83	84	Ditto, no sea-breeze till 12.
.. 23	81	83	84	Ditto, ditto.
.. 24	81	82	83	Ditto, slight sea-breeze.
.. 25	81	82	83	Ditto, ditto.
.. 26	81	82	83	Ditto, fresh sea-breeze.
.. 27	81	82	83	Cloudy, ditto.
.. 28	81	82	83	Ditto, rain, sea-breeze.
.. 29	81	82	83	Ditto, sea-breeze.
.. 30	81	82	83	Ditto, rain, ditto.

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Date.	State of the Thermometer in the Shade. Hours. 8	12	4	METEOROLOGICAL OBSERVATIONS.
May 1	81	82	83	Ditto, rain ditto.
.. 2	81	82	83	Ditto, ditto.
.. 3	78	81	82	Ditto—tornado at 4 a. m. and 7 p. m.
.. 4	80	82	82	Ditto—ditto at 8 p. m.—sea-breeze.
.. 5	81	82	82	Thunder, cloudy, and lightning, at 5 p. m.—sea-breeze.
.. 6	80	81	82	Ditto, ditto, ditto, at 5 a. m.—ditto.
.. 7	80	81	82	Ditto, vivid lightning from 2 to 5 a. m.—breeze.
.. 8	79	80	78	Cloudy—rain at 11 a. m. and 3 p. m.—sea-breeze.
.. 9	79	81	82	Ditto, ditto.
.. 10	80	82	84	Clear—tornado at 9 p. m., ditto.
.. 11	81	83	84	Ditto, ditto.
.. 12	81	83	84	Rather cloudy, ditto.
.. 13	81	83	84	Rain at 3 p. m. ditto.
.. 14	83	84	83	Close and sultry,—rain at 10 a. m. and 3 p. m.—tornado at 8 p. m.
.. 15	79	82	83	Cloudy, close, and sultry—sea-breeze slight.
.. 16	81	82	83	Ditto, sea-breeze.
.. 17	81	82	83	Much rain, slight sea-breeze.
.. 18	80	82	83	Rather cloudy, ditto.
.. 19	80	82	81	Ditto, ditto.
.. 20	80	81	81	Rainy, ditto.
.. 21	78	80	81	Ditto, ditto.
.. 22	79	81	82	Tornado at 11 p. m.—sea-breeze.
.. 23	80	81	82	Cloudy ditto.
.. 24	80	81	82	Tornado at 5 p. m. ditto.
.. 25	80	81	81	Much rain, ditto.
.. 26	79	80	81	Showers slight, ditto.
.. 27	78	79	80	Much rain, ditto.
.. 28	79	81	82	Rain, ditto.
.. 29	79	81	83	Cloudy, ditto.
.. 30	79	81	83	Rainy—tornado at 6 p. m.—ditto.
.. 31	80	82	84	Cloudy, ditto, at 10 p. m.—ditto.
June 1	80	82	84	Ditto, at 2 a. m.—ditto.
.. 2	80	81	81	Rather cloudy—rain at night—ditto.
.. 3	79	80	80	Rainy—thunder at 2 p. m.—ditto.
.. 4	79	80	81	Ditto—ditto at 4 p. m.—fresh breeze.
.. 5	78	78	79	Ditto, ditto.
.. 6	79	80	81	Cloudy, slight sea-breeze.
.. 7	79	80	81	Rainy, fresh ditto.
.. 8	79	80	81	Cloudy, rather fresh sea-breeze.
.. 9	78	79	80	Tornado at 1 a. m.—rain, fresh sea-breeze.
.. 10	78	78	78	Rain—tornado at noon—ditto.
.. 11	80	82	82	Clear—tornado at 5 p. m.—ditto.
.. 12	77	80	81	Ditto—lightning at night—ditto.
.. 13	78	81	81	Cloudy—rain, ditto.
.. 14	79	81	82	Clear, showers, ditto.
.. 15	80	82	82	Cloudy, rain, ditto.
.. 16	80	81	82	Ditto, ditto, ditto.
.. 17	80	81	82	Ditto, showers—lightning at 8 p. m.—sea-breeze.
.. 18	80	81	82	Cloudy—shower before day-light—ditto.
.. 19	76	80	81	Tornado at 3 a. m.—cloudy, ditto, slight.

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Date.	State of the Thermometer in the Shade. Hours. 8	12	4	METEOROLOGICAL OBSERVATIONS.
June 20	80	81	81	Cloudy, rain, heavy clap of thunder—sea-breeze at 2 p.m.
.. 21	79	80	80	Rain, close, slight sea-breeze.
.. 22	79	80	80	Cloudy, tornado at 11 p.m.—strong sea-breeze, rain.
.. 23	79	80	80	Much rain, ditto.
.. 24	75	79	80	Cloudy, slight showers, ditto.
.. 25	79	81	81	Ditto, rain, slight sea-breeze.
.. 26	76	78	77	Ditto, ditto, chilly, ditto.
.. 27	76	80	80	Ditto, ditto, ditto, ditto.
.. 28	79	80	80	Ditto, ditto, strong sea-breeze.
.. 29	78	79	80	Ditto—tornado at 9 a.m.—chilly, sea-breeze.
.. 30	78			

These two records present a striking coincidence, with respect to the occurrence of rains as early as the month of March. Both in 1823 and 1829, during that month, the weather was unseasonable, and it afterwards became still more so. Frequent heavy showers of rain, alternated with a hot sun, and attended by thunder, lightning, or other unusual phenomena, occurred; and it is further remarkable, that these elementary commotions happened, as nearly as can be learned, on the same dates of the different years, and sometimes even at the precise hours of the respective dates. Indeed, so extraordinary is the similarity in the weather, that it renders the fatal consequences attendant upon the two periods reconcileable, if not to be anticipated.

It is to the influence of the weather in the month of March, however, that the worst consequences are to be attributed. To the casual observer this may appear strange and questionable; for the showers, during that period, ostensibly served to renovate and beautify the face of nature: but it must be remembered that they were unseasonable, and that, being immediately followed by a burning sun, they were among the principal causes of extensive and malignant malaria.

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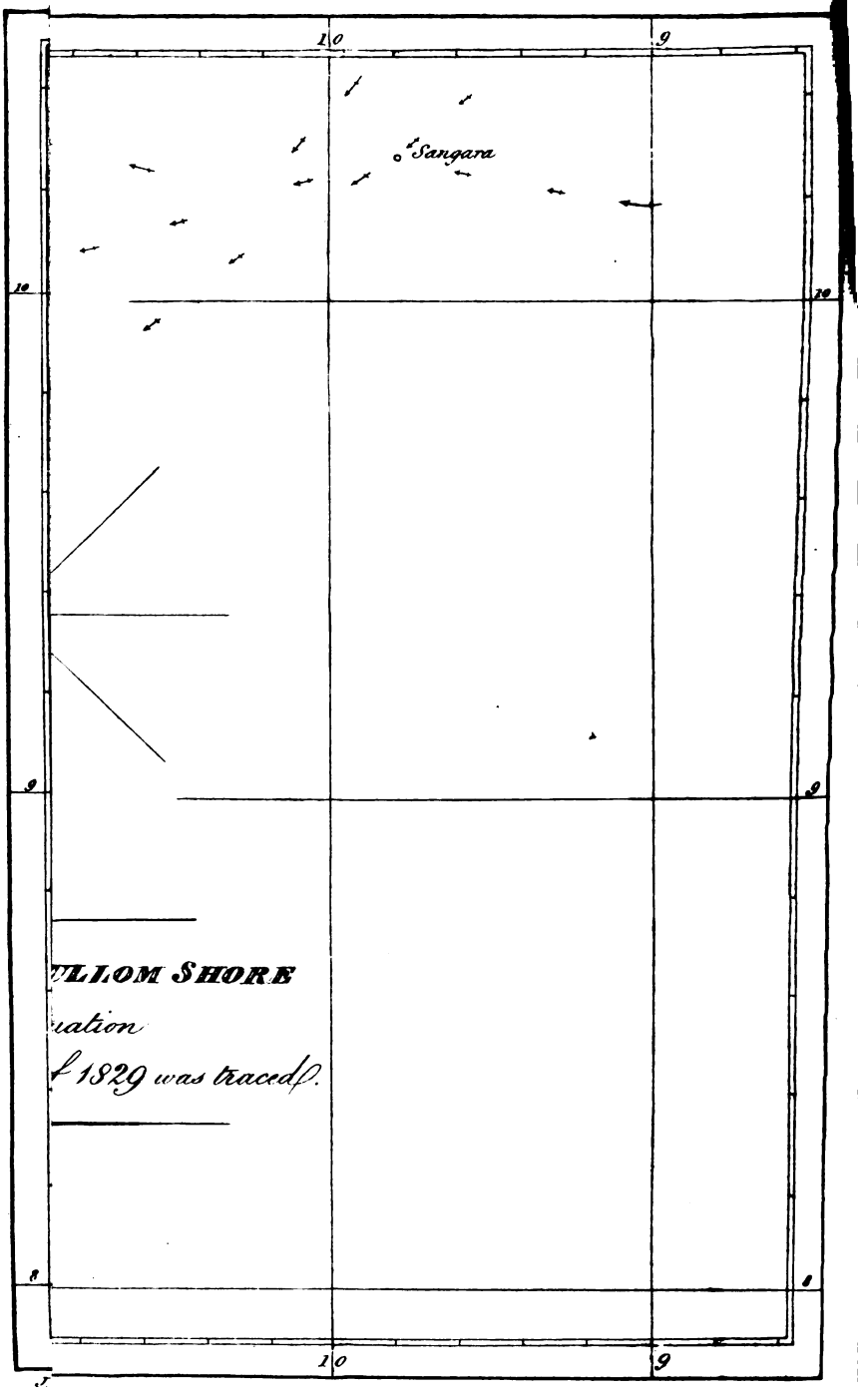

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History, Progress, and Treatment, of the Epidemic Fever in Freetown, in the Year 1829.

For the purposes of perspicuity and brevity, a plan of Freetown is introduced,* pointing out the houses occupied by Europeans, in which the fever actually presented itself. The numbers to the reference are so arranged as to notice the cases in the course in which the habitations are situated, rather than as they occurred in respect to dates; and, in order to prevent any possibility of confusion, with respect to the latter point, in the description of the cases which follows, each case is so numbered as to point out the period of its occurrence with reference to that of the others. In the description just alluded to, the symptoms, the progress, the treatment, and the results of every remarkable case, are detailed with sufficient minuteness, it is presumed, to enable the reader to form a just opinion with respect to them, and consequently to arrive at a satisfactory knowledge of the objects purported to be accomplished in this section or division of the work.

In proceeding thus, there may appear a want of regularity in giving precedence to the description of cases of later date than those which follow; but, it is believed, the advantages will counterbalance the defect. They will consist in showing, at one view, and in the strongest light, the extraordinary course which the fever ran in the town, and supplying an easy reference to the site of its operations there.

Before entering upon a description of the cases, however, it may be right to remark that, in many instances in 1829, there was much difficulty in deciding whether epidemic or endemic was the disease complained of. This difficulty, of course, only occurred in cases amongst new comers,

* For the execution of this Plan, and a Chart of part of the Bullom Shore subsequently introduced, the author is indebted to the kind assistance of Mr. Pyne, Colonial Surveyor to Sierra Leone.

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who had not had the endemic, and whose symptoms very frequently did not exhibit any thing uncommon or untoward until an advanced stage. With the old standers, who were proof against the ordinary fever, an attack was at once known to be epidemic, or of uncommon character. It may be observed also, that the first fatal case was that of a Mr. Loughnan, a writer in the secretary's office, and made its appearance on the 21st of April; that the second occurred in the person of a Mr. Gibson, and shewed itself on the 4th of May; that the third case, that of Mr. G. Barber, shewed itself on the 9th of May; and that, in a few days after that period, the epidemic began to spread rapidly, both on shore and on board of ship, and continued its destructive progress until the height of the rains in the middle of August.

Plan No. 1—Case XXIV.

Commencing with the eastern extremity of the Plan, which is called Fourah Bay, and where stands the Church Missionary-house, or College, the case of the Rev. C. L. F. Haensel is the first to be noticed, and but briefly; for although Mr. Haensel was confined for some days, and that the attack was unquestionably epidemical, the patient having gone through most dangerous endemic fever in 1827; still the case was so mild that its details would be uninteresting, and his recovery was not a matter of surprise.

Plan No. 2—Case XXVIII.

Shews the residence of Mr. De Paiva, the Brazilian Commissary Judge. Miss E—— and Mr. Amasin, residing with Mr. De Paiva, had both had endemic fever, and were attacked with epidemic in the month of April; but neither of the cases were of a character to call for particular notice.

Mr. De Paiva was attacked with fever, for the first time, at Sierra Leone, on the 8th of June. The attack was a slight one, and the patient recovered.

Mrs. De Paiva, having had endemic fever some months

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previously, was attacked with the epidemic on the 29th of June, and died on the 18th of July of a relapse.

Of these cases, all but Mr. Amasin's were decidedly epidemic. Those of the two ladies were evidently so, from the circumstance of their having some months previously gone through the usual seasoning of Sierra Leone fever, and having enjoyed good health afterwards; and the third, that of Mr. De Paiva, from his having had the symptoms that characterized and distinguished most cases of the epidemic fever from the fever cases of ordinary occurrence.

The treatment consisted, generally, in the employment of the warm bath at the commencement; the use of mercury, either internally or externally administered, and proportioned with a view to meet the circumstances of the case; leeches, blisters, glysters, cold affusion, &c.

Mrs. De P——, whose case terminated fatally, though not an aged woman, was, in other respects, an extremely bad subject for a tropical climate, having been extremely corpulent and sensitive.

Plan No. 3—Case XXII.

At the house of Mr. Dougan:—Mrs. D——, a remarkably well-formed woman, rather *embonpoint*, of excellent constitution, and in the prime of life, was attacked on the 16th of June, but, not having been my patient, I am not supposed to be acquainted with further particulars than that she was not blooded, and she happily recovered.

It is necessary that the motive should be explained for alluding to the patients and practice of a cotemporary. In this but little apology will seem necessary, since the object in view is to afford every possible information to disinterested inquirers, whereby future practice may, perhaps, in some measure, be improved. It has been mentioned, that blood-letting was not adopted in this case—first, because that seems to be contrary to the general practice of the gentle-

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man under whose care the patient was; and, secondly, because it presents a valuable illustration of a question of very great importance.

PLAN No. 4—CASE VI.

Shews the residence of Mr. Jackson, His Majesty's Commissary Judge in the Courts of Mixed Commission. This gentleman, who had not had fever before, was attacked on the 19th of May. His constitution, certainly, was not at all adapted for the climate of Sierra Leone; but his exceedingly uniform and well-directed habits so preserved his health during the earlier part of his sojourn, that he had entertained the hope of escaping from the disease then progressing with awful consequences around him. His symptoms were, at first, of a mild character; but, in a few days, a deep yellow colour of the skin and eyes appeared; there was much vomiting, evidently bilious, except on one occasion, when the matter ejected was decidedly that which has the denomination of "black vomit." The practice adopted in this case was warm bath, *pediluvium*, leeches to the forehead and temples, blister to the stomach, calomel, latterly combined with quinine, soda draughts, neutralized with diluted sulphuric acid, with an occasional seidlitz, enemata, &c. On the fifth day soreness of mouth appeared, and saliva was flowing; the yellowness of skin continuing and increasing, the calomel was omitted altogether, and very small doses of blue-pill, quinine in combination, were substituted, and friction with the hands was directed to be applied over the region of the liver. Mr. Jackson recovered, and, in a state of extreme debility quitted Sierra Leone for England on or about the 8th of June, in the Earl St. Vincent merchantship.

PLAN No. 5—CASE IV.

The residence of the late Chief Justice Banister. The house was greatly out of repair, and having been exposed, from situation, necessarily greatly subjected its European inmates

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to the influence of the then prevailing tornadoes and other local causes of fever. Mr Banister was himself taken ill on the 17th May, having had Sierra Leone fever prior to that date, and having been many months previously in tolerably good health. This was a very threatening attack, there having been great acceleration of pulse and high fever, almost constant vomiting, with low muttering, or violent delirium; and, at an advanced period of the disease, yellow eyes for a short time, apparently fixed in their sockets, with coldness of the extremities.

He was treated by leeches and blisters to the stomach; blisters to the temples and nape of the neck; the warm bath; calomel internally; mercural frictions, and occasionally clysters. After a break in the violence of the malady, and after the inflammatory symptoms were somewhat subdued, quinine was added to the calomel, sometimes in the form of pill, and sometimes in the form of powder, with the further addition of a few grains of calcined magnesia to each dose of the above medicines. On the mouth becoming affected, the calomel was left off, and, symptoms of debility appearing, decoction of bark, to which was added extract of the same, with diffusible stimuli, was administered: remarkably small allowances of Madeira being also directed until reaction was effected, when the stimulants were withdrawn and the tonics already named continued, with an occasional mild purgative, until good health was again restored.

This gentleman, unfortunately, had a relapse in July, and was carried off in a few days.

Case XVIII.

Edward Bebil, the Chief Justice's European servant, about 18 years of age, had had endemic, and was attacked with the epidemic on the 10th of June, but was not seen by me until the 16th or 17th of that month, he having, in the meantime, under the direction of a friend, taken alternate potations of

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sour cider and brandy and water, with occasional doses of calomel and powdered bark. On enquiring into his symptoms, I found that there was much headache, with vomiting of a dark stercoraceous matter, not precisely that of black vomit; the skin was hot and dry; the pulse was hurried, stridulous, and irregular, and the tongue was of a dark blood-red colour, without the slightest fur. I gave it, as my opinion, that there was scarcely a hope of the patient's recovery, and the prognostication was but too true; he died on the 21st, four days after, although, during this latter period, he was well nursed, and the practice already laid down rigorously carried into effect. Towards the termination of his sufferings black vomit and yellowness of skin took place.

PLAN No. 6—CASE XIX.

Shews the residence of Mr. Hook. His native-born coloured servant, Jemny, was attacked on the 11th of June with violent vomiting of bile, with dark-coloured striæ intermixed, severe headache, high fever, dark blood-red tongue, &c. Leeches relieved the head; a blister over the region of the stomach subdued the vomiting; mercury produced the desired effects on the constitution, and the patient was convalescent on the 17th. This case, being an exception to the description of cases intended for notice here, not being in the person of a resident European, requires the explanation that it has been introduced in order to shew the general route of the malady along the beach.

CASE V.

Immediately under the above house, and at the very point to which the water flows at high tide, was an office in the possession of Mr. Savage, an attorney: in this, an apprentice was in the daily habit of transacting his business. Mr. Williams, the subject of the case, was about 18 years old, and tolerably healthy; he was taken ill, having had endemic

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fever, about the 18th of May, but I did not see him until the 22d, when he complained of severe headache, and pains in the back and loins: there was general pyrexia and frequent vomiting.

He was treated by leeches to the forehead and temples; mercury in frequently repeated small doses. Occasionally, when the vomiting was very severe, a scruple of calomel was given; a blister over the stomach; saline draughts neutralized with diluted sulphuric acid, the fixed air being permitted to escape previously to their being drank, in consequence of the same having been observed, on other occasions, to create great uneasiness in the stomach. In addition to the above measures, mercurial frictions were used every two hours, until the fifth day of attendance, when the mouth seemed to be very much affected; the tongue became clean, moist, and red; all vomiting ceased; the intellectual faculties became perfectly lucid; and the patient expressed himself altogether free from pain or uneasiness. From this time, he took nourishment until the eighth day of his medical attendance, his medicine, during the latter period, being small doses of blue-pill, combined with quinine. A sudden and fatal change then took place; the mercurial action ceased, and he became affected with nervous tremor of the hands and tongue, the pulse being, at the same time, extremely low and irregular in its action. The extremities became cold, and low muttering delirium took place. Diffusible stimuli and wine were administered. Capsicum cataplasms to the legs, bottles of hot water to the feet, purgative clysters, containing small quantities of spirits of turpentine, were employed to no purpose. The unfortunate young man made a temporary rally through these means, but soon relapsed into the same low state, and died the following morning.

Plan No. 7—Case XI.

Refers to the residence of Mr. Magnus, Clerk of the Crown,

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&c.,—between four and five years resident in Sierra Leone. Mr. Magnus had previously had regular fever, was comparatively healthy, and about thirty years old. He was attacked on the 30th May: he was evidently apprehensive, and acknowledged that the reports in circulation respecting the existence of a contagious fever, which, on reflection, he did not believe to have been founded on truth, had, nevertheless, greatly agitated him. In his case, the blood-red tongue and black vomit, preceded by pain of chest, made their appearance at an early period of his disease, and he died on the seventh day, the body being yellow, but not in the greatest degree. His treatment consisted in repeated applications of leeches to the forehead and temples, mercury, internally and externally administered, warm baths, blisters, glysters, &c. Conducted as already explained in nearly similar cases.

Case XXX.

In the same house, Mrs. M. and her European servant-maid were both confined on the 2nd of July, having each been indisposed during the two or three previous days. Mrs. M. had now been a second time to Sierra Leone, and had had regular fever on the former occasion of her being out. She had red tongue and constriction across the chest, but no yellowness of skin, nor had she black vomit; she was, however, very dangerously ill, and her recovery, which happily took place, was more attributable to peculiarities of mind and body, than to medical treatment, which was not permitted to be systematic. As far as this last could be observed, it was in proportion to her strength, she having been of extremely small stature.

The servant had red tongue, black vomit, and constriction across the chest. She appears to have given herself up at the first moment of being visited: she looked all despair throughout, indeed, and died on the fifth day of attendance.

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Plan No. 8—Case XIV.

Refers to the residence of the late Mr. K. Macauley, who had been an inhabitant of Sierra Leone during about twenty years. He was, for years, looked upon by myself and others as a very critical subject, and it was believed that, from his attachments to, and interest in Sierra Leone, he would die there; but no one ever supposed that his death was likely to occur from fever. His constitution, it was thought, from assimilation to climate, could not be susceptible of such disease. It was otherwise, however, for he was attacked on the 2nd of June with all the fatal symptoms of the epidemic, and died, on the fifth day of his illness, perfectly resigned, and in the full possession of his mental faculties. His treatment was very similar to that of the others already remarked on. Mr. Macauley had but a short time recovered from a very dangerous attack of hepatitis, and unfortunately resisted an urgent recommendation to return to England.

Case XV.

In the same house, Mr. Lavers, who had but just returned from England, and who had previously been about four years in the colony, and had had fever, was attacked on the 6th of June. This was a fine young man of about 24 or 25 years of age. He was very much agitated from the first, had black vomit, the skin soon acquired the yellow tinge, and he died on the 7th day of his illness, notwithstanding the advantages of immediate attendance, and the prompt application of the remedies already noted in such cases.

Case XVII.

In the same house, also, Mr. George Nicoll, a native, but of European parents, and having been in England for education, was taken ill on the 10th of June. His attack was a very severe one, but he fortunately recovered. His treatment

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was similar to that adopted in the cases immediately preceding.

Case XXIII.

Mr. Edwards was attached to the same establishment, and he had returned but a few days from the Mellicoree for the benefit of his health, when he was attacked with epidemic. He was a young man of about 25 years of age, had been for some years in the colony, and had had the endemic fever. His symptoms were very threatening, and the disease ran a violent course; but, under the application of the means already detailed, he fortunately recovered.

Plan No. 9—Case X.

Refers to the house of Mr. Weston, in which his clerk, Mr. John M'Cullum, resided. He was a powerful man, about thirty years of age, had been two or three years in the colony, and had had fever: he died on the third or fourth day of his attack. Not having been a patient of mine on this last occasion of his illness, I cannot speak with certainty as to the treatment pursued.

Plan No. 10—Case IX.

Shews the situation of the Liberated African Department in which Mr. George Cole was lodged during the greater part of his illness, which commenced, however, in the house of his brother, situated a little to the southward and westward of his lodging, but still within a few yards of the water's edge, as may be seen by the unnumbered representation of the first house facing George's Bay. Mr. Cole was about nineteen or twenty years of age, of medium stature and regular habits; he was about one year in the colony, and had had fever before. His attack was said to be (for he was not under my care) of the ordinary type of Sierra Leone fever, as it appears for the first time in Europeans; and he,

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it is stated, was blooded three times from the arm. He died, after a lingering illness of about three weeks.

Plan No. 11.

Shews the situation of the Gaol. A few casualties took place there, in the early part of June, amongst the prisoners, who comprised merchant seamen, Kroomen, and town's people. One case in each of these classes terminated fatally, whilst the others recovered.

It is a curious, and, in my mind, an important fact, that all the cases of fever that occurred in the gaol, excepting two solitary cases of obstinate intermittent, took place in the northern extremity of the eastern wing of the building, clearly shewing the disease to be immediately attributable to the prevailing winds.

Plan No. 12—Case XXVI.

Shews the house of the late Wesleyan Missionaries, situated on the very brink of the beach. Mr. Peck, who had but just recovered from a severe attack of endemic, was about 23 years old, naturally inclined to be stout and powerful, but rather sensitive. He was seized with all the symptoms of the epidemic on the 28th of June, but, not suffering so acutely from the symptoms of the disorder as he had done from such as accompanied the previous fever, he could not be prevailed on to confine himself to bed, until he was no longer able to resist the power of approaching death. After this he ceased to entertain the hope of recovery. He was treated like other patients whose cases are given more in detail, and sunk on the 3rd of July.

Case XXXI.

Mr. Munro, senior colleague of Mr. Peck, and living in the same house with him, about twenty-eight years old, a very well-formed, and particularly healthy-looking young man,

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was attacked on the 3rd of July, the day of his friend's decease. He had violent headache, which was easily removed by the application of leeches, but yellowness of skin and black vomit soon set in, and in defiance of the employment of every remedy that appeared calculated to lessen his sufferings, he was carried off on the 7th, four days after the commencement of the disease.

Plan No. 13—Case XVI.

Shews the residence of Mr. Darby, acting Agent Victualler, who had been in the colony about two years, and had had a very severe and dangerous fever the previous year. He was attacked on the 6th of June, with all the symptoms of the prevailing epidemic: he was brought to Freetown for medical attendance, and returned to his own residence and his business on the 19th in perfect health.

A few weeks after this gentleman's return to business, news of his unexpected death reached Freetown. A coroner's inquest was of course directed to sit, and the evidence adduced on the occasion was conclusive, that another attack of the prevailing fever was the cause of death.

Plan No. 14—Case XXI.

Shews the residence of Mr. White, Assistant Surveyor. He had served in the West Indies, had been about eighteen months in the colony, and had had fever. He was attacked when the disease was at its height. His fever was severe, and terminated in hepatitis, of which also he recovered.

Plan No. 15—Case XX.

Shews the residence of the late Mr. Cleugh, Clerk of Police. He had been at Sierra Leone between five and six years, had had fever, and was not, it is believed, more than twenty-eight years old; but he was a very free liver, and his constitution was exceedingly broken down. He was taken

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ill on the 12th of June, and died on the 24th, without the slightest pain or suffering, his mental faculties having been clear, and he continuing to take food until within an hour of his dissolution.

Case I.

In the same house, Mr. Loughnan was attacked on the 21st of April, and died on the 28th. He was a young man of about 22 years old, and filled the place of first writer in the colonial secretary's office. His habit was extremely sensitive, and he had lately given way to excesses. He was greatly alarmed from the first, and died under all the symptoms of the epidemic, not then known. This, indeed, was the first case of the kind that appeared, as will be seen by reference to dates, and none other occurred having the same specific symptoms and fatal termination until that of Mr. Gibson, on the 4th of the following month.

Plan No. 16—Case XXV.

Shews the residence of Mr. Reffell, late Registrar in the Courts of Mixed Commission. This gentleman, aged about 34, had been fifteen years in the colony, and, was supposed, to be inaccessible to any kind of fever, but that of an aguish character. He was very apprehensive of his own health, when he found disease and death making such awful devastations around him amongst his old fellow-colonists. On this account he was advised to retire to the mountains for security: there, unfortunately, he became affected with a complaint, to which he was subject, a scorbutic affection of the mouth. Thus circumstanced, he returned to Freetown for medical attendance. His local complaint was soon removed, and he was again about to depart for the country; but it seemed to be otherwise decreed: this excellent officer was attacked on the 27th of June, and fell a sacrifice to the raging, and it may be said relentless, malady, on the 3d of

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July, he having retained the full possession of his mental faculties until within a few hours of his deservedly lamented dissolution.

Plan No. 17—Case XII.

Shews the house of Mr. M'Cormack, who, with a clerk named Smart, and a Captain Brokinton, of the merchant service, were, all three seasoned men, ill at the same time, in May and June. Mr. M'Cormack's was a slight attack, contracted, apparently, by a visit to the River Scarcies. His illness was of short duration, and he soon regained his former state of good health.—Mr. Brokinton's attack, was most likely contracted in Mr. M'Cormack's house, which was lofty and exposed to the north-east winds, as he had slept there for some time previously. The attack was severe, but he recovered. Mr. Smart, who was of a very bad constitution, died.

Plan No. 18—Case XXVII.

Shews the residence of Mr. Smith, now Commissary Judge in the Courts of Mixed Commission. A young friend and inmate, Mr. Walker, who had been on a short visit to the mountains, was brought into Freetown on the morning of the 28th of June, labouring under fever. Mr. Walker was a slight lad, about seventeen years old; he had only been about five months in the colony. It was his first attack, and was the ordinary Sierra Leone fever, common to persons circumstanced as he was. There was nothing very particular in the case, and he recovered.

Unfortunately, this young gentleman, whilst convalescent, but weak, was attacked by the epidemic in its worst form, and it carried him off in a few days.

Case XXXIV.

Mr. Jarvis, also an inmate in the house of Mr. Smith, and

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residing for some time previously in the mountains, was attacked on the 27th of July. This gentleman, about 28 years of age, had now visited Sierra Leone a third time, but had never had fever before. He was a remarkably strong person for his height, which was not more than five feet three inches, and in him the febrile symptoms ran high. He was repeatedly leeched and blistered, and was once cupped in the nape of the neck with great apparent benefit. All the other auxiliaries, such as mercury, given by the mouth and rubbed in, warm bath, glysters, cold affusion, &c. &c. were regularly and strictly persevered in, his state frequently varying, until the 7th of August, when he expired.

PLAN No. 19—CASE VII.

Shews the residence of Mr. Christenson, who had been a few years in Sierra Leone, and had had a regular attack of fever the previous year. He was a young man of small stature, not powerful, and of leuco-phlegmatic habit. He was attacked on the 20th of May; was blooded more than once from the arm; and died on the 25th, five days from the commencement of the attack. He was not a patient of mine.

PLAN No. 20—CASE III.

Represents the house of Mr. T. H. Barber. His brother, Mr. George Barber, was taken ill on the 9th of May, and was, as it will be seen by reference to dates, the third person affected with the epidemic. He was a young man, about 24 years old, of great zeal in his engagements in the timber trade, up the rivers Sierra Leone, Melicorree, and the Scarcies. By these engagements, Mr. George Barber was exposed to great bodily fatigue, and dangerous varieties of weather; his constitution was very delicate naturally, and, undoubtedly, though supposed to be seasoned and safe, as regarded fever, not benefited by an almost continuous residence of about ten years on the coast; the correctness of his

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habits, however, was unquestionably the grand cause of his long preservation. He had had the regular fever, the supposed preservative against all others, and I had attended him myself on two or three occasions of bilious attacks, of which nature his last illness was supposed simply to be. The epidemic was not then known or recognized as differing from fevers of every day's occurrence. In his case there existed red tongue, pain in the fauces, and down the centre of the chest as far as the stomach. On the third day, black vomit appeared, slight yellowness of the skin and eyes followed, and he died on the seventh day of his sickness, to the very great astonishment of all who entertained the opinion that seasoning was safety.

Case XXXII.

Mr. T. H. Barber was attacked, on the 6th of July, with bilious and sharp fever, which ran a regular course of eight days, varying in intensity at different periods, until the mouth became affected by the mercury administered in his treatment, when the symptoms of his disorder gave way, and he gradually recovered. This attack, though apparently brought on by the then existing vitiated condition of the atmosphere, wanted the characteristic symptoms of the epidemic at that time known and raging around him. Nor was the attack anything equal in severity to one for the treatment of which I had attended him on a former occasion.

Case XXXIII.

Mrs. Barber, the wife of the latter-named gentleman, a remarkably well-formed and interesting young woman, only six months married, and *enviente*, was attacked on the 7th of July, the day following that of her husband. This was her first fever, and ushered in with the symptoms of an ordinary attack of first fever, in every respect, apparently, similar to that of common seasons: nor did the attack at the onset appear to be severe. Everything, indeed, seemed to be in

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her favour, as far as related to the constitution of her mind, which was serene and pliable; and that of her body, which was well formed, naturally healthy and youthful. Mrs. Barber was not 20 years old.

On the third day of her illness, Mrs. B.'s fever changed its type: she was attacked with a violent vomiting of a watery-like fluid, having floating on its surface thin scales or flakes of a dark-brown colour, similar to the deposit commonly observed to line a port-wine bottle. The violence of the vomiting was attended by miscarriage, followed by such an alarming hæmorrhage, that, had not timely and prompt means been resorted to, she must have suddenly expired. Re-action having taken place, the internal use of uncombined soda, and the application of a blister over the region of the stomach, succeeded to stop the vomiting, which did not return again; and mercurial frictions repeated every hour, except during sleep, were practised, occasional emenata having been administered to prevent constipation or accumulation, and leeches having been three different times applied to the temples and forehead to remove pain. From this time, all fever, headache, and vomiting ceased; the bowels were easily kept regular; much sound natural sleep was obtained; and nourishment, without any apparent inconvenience, was taken; but the tongue, gradually losing a moist brown fur that is known to be favourable, slowly and insidiously acquired a clean red appearance, which, at this time was well-known to signify a most dangerous state, although all the other symptoms remained in *statu quo*.

Salivation did not appear until the 7th day: this, though at a late period, was somewhat encouraging, but unfortunately of short duration; only about two hours. Quinine was now given in combination with blue-pill, continuing the mercurial frictions, but without being again able to produce ptyalism until the 12th day. The state in question, that of salivation, again made its appearance, but was of still shorter

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duration than what it was noticed to be on the former occasion. She continued free from threatening symptoms, except from the state of the tongue and the recession of mercurial action, taking nourishment and having sleep, by means of an anodyne draught, until the 17th day, when the alvine evacuations, which then assumed a very dark tar-like appearance, came away involuntarily. At this time, there was loss of speech and the power of articulation, with *subsultus tendinum*. On the 18th day, a most extraordinary and delusive change took place. The much-desired free flow of pure saliva now appeared, and the patient, though unable to articulate, was evidently sensible of the returning prospect; the pulse rallied; the countenance assumed a more healthy aspect; and, with her anxious husband, the medical attendant acquired confidence, and was accordingly urged to renewed efforts for the preservation of his nobly struggling patient.

Two grains of calomel, with ten of magnesia, were then given, with a view to effectuating a clearance of the stomach; and, in order, if possible, to dilute and wash away the vitiated matter contained in the intestinal canal, an enema of tepid water with olive oil was administered. The nourishment directed consisted in three parts of beef-tea and one part of good old Madeira wine. All things seemed to answer their intended purpose for some hours, when, unfortunately, the final fatal change commenced, and this excellent young woman, in the course of a few more hours, gradually, and without the appearance of one painful struggle, slept, as it were, into death.

Mr. T. H. Barber, whose case has been already noticed, was recommended, on the death of his wife, to remove to one of the mountain villages, named Bathurst, for the recovery of his strength, &c.; here, unfortunately, he gave way to his natural reflections, and, on one occasion, on endeavouring to avert those, over-exerted himself under a

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powerful sun: he was again assailed by fever, but very different in its appearance to that of the previous attack. On this occasion there was pain of chest, with red tongue, and vomiting of dark matter: being acquainted with the danger of the symptoms he laboured under, he considered his case hopeless, as did others around him; fortunately, however, he rallied, and eventually recovered.

Plan No. 21—Case II.

Shews the house in which Mr. Gibson lodged, and in which he was taken ill and died; but there is good reason to believe that he did not contract the epidemic there. Mr. Gibson was an active man, and not more than 33 or 34 years old. He was a free-liver, had been above four years in the colony, and had had regular Sierra Leone fever, and several secondary bilious attacks. Having been to the Scarcies, he most imprudently returned to Freetown in an open boat, and, in a state of inebriety, he slept during much of the passage, and was exposed to a north-east tornado which occurred, and to subsequent heavy rains, which lasted for some hours. This unfortunate man was attacked on the 4th of May, the day after he landed on his return from the Scarcies, and died on the 10th.

Plan No. 22—Case XIII.

Shews the residence of the late Mr. B. Nicoll, brother of Mr. George Nicoll, whose case has been noticed. Mr. B. Nicoll was about 20 years old, a tolerably active and strong young man, and was attacked on the 1st of June. He had been under the care of another medical gentleman until the seventh day of his illness, when, from an accidental circumstance, I was called in. At this time there was not the slightest apprehension of danger on the part of his friends: it became my duty, however, to apprize them of my opinion, which was, that he could not live beyond the following day: my

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prediction was too true. Mr. Nicoll had been blooded from the arm once or twice, previously to my seeing him.

Plan No. 23—Case XXIX.

Shows the residence of Mr. J. Emerson, in whose house Mr. Masterman was clerk. This young man was about twenty years old, of very delicate frame, and only a few months from England. He was attacked with all the worst symptoms of the epidemic on the 29th of June, and died on the 8th of July. His tongue exhibited the most extraordinary appearance of any I had seen: it was of the darkest blood-red hue, and so enormously swollen and sponge-like, that it could not be got out of the mouth but by artificial means.

Plan No. 24—Case VIII.

Shews the residence of the late Mr. Grove, who was taken ill on the 22nd of May, and died on the 28th. He was a slight small-sized man, and had been nine or ten years in the colony. Of the circumstances of this case I only know that he was blooded two or three times from the arm: he was not my patient.

Remarks.

In addition to the cases enumerated, three others, which terminated fatally, might be named, but their insertion is considered inappropriate, inasmuch as they were not originally cases of fever, but of constitutions broken down from drunkenness.

It is a very strange fact, that almost all the fatal cases which occurred during the epidemic, no matter what the original nature of the diseases, were, on the approach of dissolution, attended with red tongue, and without fur. All the fatal cases, in fact, and many severe ones, were decidedly under the influence of one general and prevailing cause of disease, *malaria*, arising from a specifically ill-conditioned atmosphere, which affected the mucous membrane of the

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whole passage from the mouth, and indicated its presence and mischievous effects by the unerring symptom of red tongue. Several cases, in which this symptom was prominent, occurred in the gaol, amongst persons labouring under debility and long-standing chronic disease. Four idiots confined there, for their own and the public safety, were all so affected, and two died. In those cases there was no elevation of pulse, but, on the contrary, considerable depression, with reduction of temperature, and a feeling, in such as were capable of describing their sensations, similar to the commencement of that species of ague already treated of, and which is more a disease of the nervous than of the vascular system. This is an important point for consideration in the regulation of the treatment; for, although nothing, in all probability, within human reach, could correct the fatal course of the worst cases of the late terrific disorder, still the fate of many might and did hinge on the treatment adopted.

A knowledge of the real nature of the malady is, of course, a matter of the very first importance; and, as the result of the dissections made upon the bodies of some of the European patients may assist in the elucidation of this question, the following details are inserted. All of the subjects were in robust health immediately preceding the fatal attack.*

Dissections.

Post-mortem Examination of a European, who had laboured under Black Vomit and Yellowness of the Skin, with a contracted Dark-brown furred Tongue, with Fissures or Cracks in the Fur.

Welsh, one of the discharged soldiers, who had been on board the Earl St. Vincent, then lying in the river, for a passage to England, is the subject of the following dissection:— This was a well-formed and rather powerfully made man,

* Upon the subject of second attacks, sufficient ground for comment has been afforded the controversialists.

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of middle stature, and in the prime of life. He had been in the country some years, and was seasoned. He acknowledged, on being first visited, that he had lived freely since his discharge, and that he had then been suffering the previous nine or ten days. The patient was perfectly sensible until the immediate approach of dissolution.

Dissection.—Thoracic viscera entirely free from disease. Of those of the abdomen, the stomach was first examined: it proved to be perfectly healthy, and, so far from being inflamed, had a pale blanched appearance, as had also the duodenum, except at and about the entrance of the common (biliary) duct, which had rather a reddened and excoriated appearance to the extent of an inch square; other parts of that intestine, healthy. Jejunum, about its middle, had a slight red blush to somewhat greater extent than that of the duodenum: this part of the intestine was filled with a dark matter, similar to that vomited, and appeared to have been retained there by a contracted condition of the gut a little nearer to the commencement of the ilium, where were also about six living worms of the *tænia* class. The irritation of the matter here accounts, perhaps, for the red-blush, whilst the vitiated state of the bile seems reasonably enough to explain the cause of the appearance noticed in the duodenum around the entrance of the biliary duct; all other parts of the intestines having been entirely free from the slightest inflammatory appearance. The liver was sound, and the gall-bladder empty; spleen enlarged, as is generally the case in Africa, but in structure it was sound.

Post-mortem Examination of an Individual, in whose Case there was Blood-red Tongue, Black Vomit, and, slightly, Yellow Skin.

This person had been some time in the colony, and had suffered from a very dangerous attack of Sierra Leone fever the previous year.

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This cadavre was examined in the presence of Dr. Sweeney, the then Deputy Inspector of Army Hospitals, and of others not medical.

Thoracic viscera, perfectly healthy. On proceeding to the viscera of the abdomen, the stomach was, in like manner, healthy, but contained nearly a pint of black coffee-ground-like fluid, similar to that previously vomited: the duodenum, to the extent of about a dollar around the entrance of the duct, was rather vascular, attributable, very reasonably in this case, I think, to the acrid nature of newly-formed bile after the administration of calomel; for the patient had previously complained very much of pain about the entrance of the biliary duct, as well as of the usual symptom on such occasion, namely, a sensation of burning in the parts during the passage of alvine evacuations: other parts of this gut were free from inflammation, and rather pale than otherwise. The jejunum, near to its termination, was slightly reddened, and here there was a contraction, apparently of long-standing, and from former disease; there were also some portions of fat in this part of the intestine. On laying open the ascending colon about its centre, another slightly red blush appeared, and, on continuing the opening to the caput coli, that part had the appearance of being in a state of slough, but, on washing this, nothing but mucus was to be seen, the part being quite healthy. No other diseased appearances were seen in the intestines. The liver was enlarged, but healthy, and the gall-bladder was perfectly free from bile and flaccid, with pervious ducts. The spleen was about twice the ordinary size, but healthy; the subject, not very long previously, had intermittent fever; the size of the spleen is therefore accounted for in this case. The brain was not examined, as there never was the slightest sensorial derangement until very near dissolution, when slight confusion of ideas only, appeared.

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Post-mortem Examination of a Seaman, who had been Seven Days sick on board his Ship, up the Scarcies River, previously to his having been brought to Freetown for Medical Assistance.

In this case the tongue was contracted, bearing a dark-brown fur; there was no sickness of stomach; nor was there any yellowness of skin until after death, when the body was slightly tinged only.

On exposing the thoracic viscera, they, as in the other cases, were perfectly sound. The stomach was next examined, and that organ was empty, pale, and flaccid, and altogether free from diseased appearance. The duodenum around the entrance of the biliary duct had precisely the same appearance as that noticed in the two dissections previously given. The jejunum, at its upper part, contained several dark-coloured flakes, similar to the crust of a port-wine bottle, whilst, in the lower portion of this intestine, a white curdy-like matter, very much like what I had seen in the intestines of persons who had died of the epidemic cholera of India, was deposited: no inflammation here, nor in any other part of the intestines, all which were carefully examined. The spleen was double the ordinary size, and very much disorganized, breaking down readily under the fingers. The liver was large, but perfectly healthy, whilst the gall-bladder was distended with thick dark bile, which, with great difficulty, could be forced through the duct into the intestine. No examination of the brain was had recourse to, there never having been any symptoms to justify the apprehension that disease had existed there.

Inquiry into the Origin, Remote Causes, and Progress of the Epidemic Fever of the Year 1829.

The foregoing *post-mortem* examinations are sufficient, perhaps, to shew that inflammation was not the immediate

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cause of death; for, in each of the cases, inflammation was likely enough to occur, and in that of the sailor, in particular, for he had only been a few weeks on the coast, and the disease ran an uncontrolled and unmolested course for seven days. It must also be observed, that, if reference be made to the very worst symptoms of the cases previously detailed, it will appear that the disease, as it occurred at Sierra Leone, arose out of a powerful impression or shock having been, in some way, conveyed to the nervous system, to which impression re-action did not always succeed; and that, even when re-action did follow, it varied more or less in the intensity of its power, and was frequently not sufficiently strong to shake the dominion established over the vascular system; and that, therefore, the part affected called for local depletion rather than for general blood-letting. How the shock was communicated to the nervous system may be a fit subject for future inquiry; but the fact, that not one patient labouring under the epidemic recovered who was blooded from the arm, goes further in establishing the validity of the preceding position, than would the most lengthened argument. Should it be disputed, and that upon an assertion, that one exception could be referred to in which blood-letting from the arm in the epidemic of Sierra Leone, in 1829, led to a favourable result, an intimate knowledge of most of the cases would lead to a confident conclusion that the disease, so treated, and with such a result, was not in reality a case of epidemic fever at all, but of some other febrile disorder which had been misconceived and misnamed.

Having, endeavoured to exhibit the disease itself, and with which the term proximate cause is, when employed, ordinarily confounded, the consideration of the remote and exciting causes may now be attempted; and, as the result of this part of the inquiry is of the utmost importance, the investigation demands the most scrupulous candour, as well for the sake of truth as to free it from the obscurity in which error, exaggeration, or tergiversation involved it.

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In proceeding to this investigation, it seems right that every opinion, whether apparently founded in truth or error, which was in circulation at Sierra Leone during the prevalence of the epidemic, and had more or less influence on the minds of the community, should have a fair consideration. It will, therefore, be necessary to commence with a presentment made by the Grand Jury of the June Quarter Sessions for 1829; for, however inconsistent it might be with the calling of that body as jurymen, or the occupations of its members as tradesmen, to attempt to decide upon the circumstances which led to the epidemic fever, still, as they did do so, and as the members of that body were men of respectability and sworn to the truth of what they asserted, their opinions might be taken by some persons as matters of fact, and again communicated to others under the impression that they were vested with official authority.

The presentment of the Grand Jury sets forth as follows: First—"The Jurors of our Lord the King, (June Sessions, 1829,) present, that, in a great measure they attribute the present unhealthy state of Freetown to the practice of landing slaves from the prizes in the centre of the town, where they are necessitated to remain under the disease with which they are afflicted, in a small yard, not more than 120 feet square, and recommend, &c.

Secondly—"That dead horses and cattle are frequently thrown into the water, and not being taken off to a sufficient distance into the stream, frequently float on shore, and remain in a putrid state, to the great detriment of the health of the inhabitants.

Thirdly—"That the slaughter-house is now too near the high water-mark, and when the water leaves it underneath causes a most offensive effluvia to arise, which spreads itself through a considerable part of the town."

One other point, in reference to the market-place, is mooted, but not considered a necessary or fit subject for consideration here.

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With respect to the first allegation, it might be observed, that it is not correct:—The slaves are not landed in the centre of the town. On the contrary, they are landed at the watering place, which, as may be seen by a reference to the Plan, or any chart of Freetown, leaves the entire body of the town to the eastward; and the yard, lately greatly improved as to its condition, and in which the slaves do not remain but during the short time pending adjudication, is still further to the westward, and consequently further from the body of the town than is the place of landing. Nor are these people penned up in the yard, as might be inferred from the wording of the presentment, but they are regularly made to take exercise out of doors when the weather and circumstances of their condition render such a proceeding salutary.

Respecting the remarks on dead horses and cattle, it need only be observed, that if one or the other be only placed in the water, there is no fear of their again returning to "float on the shore," for the sharks speedily devour them, as a great portion of the inhabitants of Freetown could prove, from ocular demonstration.

The presentment next attaches evil consequences to the slaughter-house, but they are prevented by the very circumstances alluded to by the Grand Jury themselves, namely, by the daily flowing of the tide, and the avidity of the animals before mentioned. If this were not the case, it would not be remarked, as it now most truly is, that the western portion of Freetown has been infinitely more healthy than the eastern portion, during all seasons and through a long period of years.

The opinions just examined soon died away on the circulation of a report that made a much stronger impression on the public mind; one which was calculated so to do, from the circumstance of its origin having been attributed to persons whose opinions should be correct and influential. The opinion announced was, that the disease was of foreign

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origin, and had been imported by His Majesty's ship Eden; and the supposition was founded upon the circumstance of that vessel being very sickly, and having lost several of her crew within a few days. As the fever was only then commencing, and was attended with symptoms which were more threatening in their aspect and more fatal in their consequences than the Sierra Leone fever of ordinary occurrence, its real nature was not immediately known, and every one who thought seriously and with any knowledge of the general subject, at least hesitated to give a positive judgment at once, on so serious a point.

The surgeon and acting commander, Badgeley, of the Eden, being amongst the number taken ill, the colonial surgeon of Sierra Leone was requested to visit the ship, which he did on the 17th of May, and continued to repeat his visits twice daily for three successive days, when the ship, as was recommended, put to sea. Upon inquiry it appeared that fever had only exhibited itself a few days previously, and that several deaths had taken place. The following are extracts from a report, made to the Lieutenant Governor, upon the state of the ship; and here it is right to premise the fact, to be seen on reference to the cases and their dates, that three fatal cases of fever, and several might be added of a favourable termination, had occurred on shore before anything was heard of the existence of fever on board the Eden. The fact seems to be, that the fever was not yet at its height on shore, and its nature was still involved in mystery and doubt.

Extracts from the Report on the State of His Majesty's ship Eden.

Freetown, Sierra Leone, 20th May, 1829.

"Sir,

"I have the honour to acknowledge the receipt of your letter of yesterday, relative to the unhealthy state of His

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Majesty's ship Eden; and I beg to report, in reply thereto, that on the several occasions of my professional visits to that vessel, during the 17th, 18th, and 19th, I made the strictest inquiries, with a view of ascertaining, if possible, the cause of the alarming and rapidly-spreading disorder with which her crew has been assailed.

"In these inquiries, however, I have not been so successful, regarding past circumstances, as I could have wished, owing to the unfortunate circumstance of the surgeon being dangerously ill with the malady of the ship: thus, in the conclusions at which I have aimed, I am, I trust, rightly regulated by direct observation alone. From this I am enabled to state, and that in the most confident manner, that the distinguishing features of the fever in question are different from those which characterize the fever usually prevalent in this colony; those of the former being still more insidious and less marked, in the first instance, than those of the latter, and the results, in proportion to respective numbers, proving the disease to be incomparably more fatal in the ship than on shore; indeed, many of the cases on board have terminated their fatal career on the third day of illness, which is well known to be very contrary to the ordinary results of Sierra Leone fever, the eighth, ninth, and tenth days being always looked forward to as the critical periods at which to offer a medical opinion as to the event. Death on the fifth or sixth day, in Sierra Leone fever, is of very rare occurrence—is always, in fact, considered extraordinary, and can, in any such case, as I have seen or heard of, be clearly accounted for as depending on extreme exposure and consequent aggravation of the exciting causes; nor have I known one instance of fatal termination, of what, in contradistinction to the fever in question, may be called the fever of the place, occurring on the second or third day.

"On referring to the condition of the vessel, I feel called upon to state, that she is less clear and clean than the ships

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of war which I have been accustomed to see; and that, when I visited her, at least, her ventilation was altogether imperfect for the maintenance of health. It is notorious, that the people have been frequently seen to stroll about the streets of Freetown, as well in the night as during the day, in a state of inebriety, greatly exposed to the heavy rains which prevail at this, our worst season. Several of the men on board informed me, that only twenty-four or twenty-five of the original crew were then remaining in the ship, the others having died or invalided; that the fever then raging appeared to be exactly similar to that which they witnessed off the Bonny and at Fernando Po. To this latter communication, however, I do not attach much importance; but, from the most scrupulous consideration of the facts previously noticed, I am of opinion, that the seeds of disease existed in the ship long before her arrival in the Sierra Leone River, whatever might have been the previous apparent state of healthiness, or otherwise amongst the people; that these were brought to maturity by the alternate action of heavy showers and a powerful sun; that the people, exposed in the manner shown above, naturally became subjects for the operation of the previously existing dormant, but latterly excited and active, cause on board; and that the alarming disease, as it now appears, if not contagious, is on the eve of becoming so.

"I have the honour to be, Sir,

Your obedient humble Servant,

(Signed) J. BOYLE,"

Colonial Surgeon.

Subsequently to forwarding the Report, from which the above are extracts, it was ascertained, that the only cases of disease which had occurred on board for nine or ten weeks previously to the Eden's arrival at Sierra Leone, were affections of the bowels.

The application of the word contagion, as was used in the

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Report, was, unfortunately, not accurately judged of by those who had only heard the outline of the opinion given in that document, and a wrong inference was drawn by many. It was either overlooked, or not known that a disease of local origin, as it may now be confidently asserted, upon more information than was then possessed, the fever of the "Eden" was, might become contagious, and was likely so to do under the circumstances of that vessel's condition, and the habits of many of her crew.

The Eden departed, but the disease continued, and even increased, not only on shore, but also on board the vessels in the harbour; many of which had no communication whatever with the Eden or with each other. It became necessary, therefore, to seek for other causes; and, accordingly, three slavers lately arrived—the Brazilian schooner "Mensageira," the Netherland schooner "Hirondelle, and the Spanish schooner "Panchita," came in for a portion of the alleged obloquy of having imported the fever into Freetown. This report gained ground on the announcement of the fact, that the surgeon to the Courts of Mixed Commission had traced the origin of a disease (ulcers) amongst the slaves brought in to Fernando Po; a most important counterfact, that not one case of idiopathic remittent, or other fever, except intermittent, had been brought into Freetown by a slaver since July, 1827, at least, not being known. But, in order to remove all doubt upon the point, and to set the matter entirely at rest, it may be advisable to insert the original reports verbatim, on the state of their human cargoes when the vessels arrived at Sierra Leone. It is utterly impossible that any unbiassed and disinterested person of common sense can seriously believe that bowel-complaints, craw-craw,* or even Fernando Po ulcers, such as appeared in the vessels in question, could

* A species of itch to be noticed in a subsequent chapter.

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possibly be productive of a fever, which had for its characteristic distinctions either one or more of the following symptoms—namely, black vomit, yellowness of skin, red tongue, and pain and irritation in the superior part of the chest. What is not less to the purpose, had the fever been of foreign introduction, as stated to have been by many, it must have been contagious. Which latter has been strangely enough denied by even the abettors of the former inconsistent argument.

Reports of the Surgeon of the Mixed Commission Courts, in the cases of the Mensageira, the Hirondelle, and the Panchita, Slavers.

Freetown, Sierra Leone, 5th May, 1829.

Gentlemen,

I have the honour to report, for your information, that I have this day been on board the Brazilian slave schooner Mensageira, captured by His Majesty's ship Eden, W. F. W. Owen, Esq. captain commanding, and that there are 184 slaves on board; 127 having been landed at Fernando Po, and 42 having died since the time of capture.

The people on board the Mensageira are particularly unhealthy; nineteen are afflicted with a peculiar species of ulcer of a very malignant character; which, from the statement that no such complaint existed at the time of capture, and that it appeared and spread before the vessel's departure from Fernando Po, where, it is reported, the slaves were landed, and remained about five weeks, was evidently contracted at that island.

Many are greatly debilitated from the effects of bowel complaint or "craw-craw," or both; and ophthalmia prevails: from all which, I consider it my duty respectfully to recommend that these suffering people be landed as soon as possible, for the purpose of obtaining medical assistance; the ophthal-

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mic cases to be confined to an apartment appointed to themselves exclusively, and the ulcer cases, in particular, to be entirely separated from all but the necessary attendants.

I have, &c.

(Signed) J. BOYLE,
Surgeon to the Courts.

To their Honours, the Commissary Judges in the British and Brazilian Court of Mixed Commission.

Freetown, Sierra Leone, 7th May, 1829.

Gentlemen,

I have the honour to report, for your information, that I have this day been on board the Netherland slave schooner Hirondelle, captured by His Majesty's ship Eden, W. F. W. Owen, Esq. captain commanding, and that there are seventy-three slaves on board the detained vessel; thirty-four having been left at Fernando Po, and five having died since the time of capture.

These people are reported to have been in good health when landed at Fernando Po, where they remained about six weeks; but some of them met with slight cuts or scratches, and they soon became afflicted with ulcers; ten of which of extremely bad character, are now on board the detained vessel; there are, also, amongst the slaves, one case of venereal, and several of "craw-craw." I therefore beg respectfully to recommend, that all be landed, as soon as possible, and that the ulcer cases be most carefully separated from the others not so afflicted.

I have the honour to be, &c.

(Signed) J. BOYLE,
Surgeon to the Courts.

To their Honours, the Judges in the British and Netherlands Mixed Court of Commission.

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Freetown, Sierra Leone, 18th May, 1829.

Gentlemen,

I have the honour to report, for your information, that I have this day been on board the Spanish slave schooner Panchita, captured by His Majesty's ship Sybille, commodore Francis Augustus Collier, C. B. commanding; and that there are 282 slaves on board the detained vessel, nine having died since the time of the capture.

Amongst the Panchita's people about twenty cases of bowel complaint, some very bad, and a few cases of "craw-craw" appear; all of which, I beg respectfully to recommend being landed as soon as possible; and that the prize officer be permitted and instructed to land such others as may afterwards be taken ill, at his earliest convenience.

I have the honour to be,
Gentlemen,
Your obedient Servant,
(Signed) J. Boyle,
Surgeon to the Courts.

The Hon. the Commissioners in the Courts of Mixed Commission, &c.

In due course of time the vessels, to which the above reports refer, were condemned. The Panchita was purchasedin to the service of His Majesty; an officer, with some of the people previously on board remained in charge, and the vessel continued in a position in the harbour greatly exposed to the north-east winds and tornadoes from the Bullom Shore. In addition to that circumstance, the vessel was in a most filthy state, and, therefore, the occurrence of disease was almost necessarily to be expected. Casualties did happen; and a report professedly founded upon them was most industriously, and, it may be added, indiscreetly circulated, to the very great alarm of a number of over-credulous

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people, who were incapable of judging rightly for themselves. This delusive report was, that the Panchita was very sickly, and that every one who went on board caught fever.

The following pretended facts were argued in support of this newly detected focus of disease, viz:—that two white soldiers of the Royal African Colonial Corps, men of excellent character for sobriety, &c., just stepped on board for a few minutes and returned with fever, of which they died; and that a boatswain's mate belonging to the vessel, who was returning to her from sick quarters, and who remained on board one hour only, was attacked with fever, and died; and, further, that the midshipman in charge was attacked with fever, arising from his being on board the Panchita, and he died.

Previous to entering upon the actual facts of the case, it may be right to notice an argument which was recurred to at the time, and which seemed to destroy the validity, and even probability of the report.—If the soldiers, who visited the Panchita, and who were such excellent men, contracted a contagious fever in that vessel, how happened it that none of the patients or nurses in the military hospital, where these people were received, were afterwards affected by that disease? To this query it was answered, that the military hospital was well ventilated, and that, when any suspicious cases were admitted, especial care was taken to cause a thorough draft to pass through the centre of the ward, and thus, if even contagion had previously existed, it was, as it were, dissipated and rendered innocuous. Let this reply be supposed to be satisfactory, and a question naturally follows as to how it happened in the civil service of the colony, wherein the fever had shewn itself to great extent, that none of the nurses had been affected by the disorder, although entirely without the advantage of a hospital to destroy contagion in the manner presumed? It must be remembered that the nurses, from the very nature of their

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duties, added to the confined situations in which those duties were too frequently performed, must have been peculiarly exposed to the influence of contagion, if contagion existed. To this it has been remarked, that the nurses in the town are natives; totally, in the reply, overlooking the fact, that natives, as well as Europeans, if placed in certain situations, and alike exposed to the prevailing atmosphere, also suffered similarly from its influence; whilst amongst the nurses who were confined within doors, and consequently secluded from the atmosphere in its more active state, not one solitary case of fever was known to occur. These circumstances would seem to be tolerably conclusive, as to the worthlessness of the report; but an examination of the actual facts of the circumstances of the case must remove any particle of doubt that can, by possibility, still remain.

With respect to the soldiers of the Royal African Colonial Corps generally, it is not necessary here to pretend to know any thing; but it is just and requisite to detail impartially what is known of the soldiers in question. Those men, it is true, visited the Panchita, and were found on board of that vessel by the late Mr. Jarvis, then acting marshal to the Courts of Mixed Commission, in the most brutal state of drunkenness: they were lying on their backs nearly suffocated, and unable to speak beyond the indistinct articulation of some threatening imprecations. It was not clearly ascertained whether, after this, these two soldiers slept on the beach all night or not, but it was proved beyond all doubt that they were there under heavy rain, and at a late hour.

The instance of the boatswain's mate may be disposed of with still greater brevity, and with equal certainty. It is, indeed, only necessary to observe, that on the day of his return to the Panchita, that unfortunate man was so completely overpowered by drink that he could not stand, nor could he speak to be understood.

Nor does the case of the lamented young midshipman, Mr.

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Feltham, present any greater difficulty. It is true that he was attached to the Panchita, and that he died; but it is also true that he contracted his disease, not on board the Panchita, but in an equally exposed situation, as regarded the prevailing winds, on shore, at King Tom's Point, No. 24 in the Plan, where he was employed assisting and nursing the acting agent victualler.

These facts are surely sufficiently strong to utterly disprove the report; but if they be not, there is still another which is wholly incontrovertible in every application of the word. Immediately after, and for a considerable time following the sicknesses alluded to, a number of persons were employed on board of the Panchita in repairing and cleaning her, and not one case of fever occurred amongst them.

These explanations of the facts which actually did occur are not meant to shew that fevers might not, or did not, take place on board of the vessel in question; but merely to prove the absolute absurdity of attributing to her the importation of the cause.

Reflecting calmly upon these several reports, and with all the facts at command, they appear extraordinary, and it may seem difficult to conceive how any faith could be reposed in them; but it should be taken into account, that there existed in the public mind a predisposition to entertain the conclusion they suggested. The thought, perhaps the belief would not be too strong a phrase, that epidemics were imported by the medium of ships into Freetown, was so strongly entertained by some, that, long prior to the occurrence of the epidemic of 1829, when a merchant ship, named the Thomas Ritchie, was expected from Gibraltar, where it was known there had been an epidemic in 1828, her arrival was most narrowly watched. That vessel made the port of Freetown in the beginning of March, and was ordered to come to an anchor, at a distance of about eight miles from the town, until such time as a satisfactory explanation should be ob-

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tained of her history and the state of health of her crew. On inquiry, all on board proved to be in good health, and the ship had a clean bill of health; but still, as she had no cargo on board, and wanted not necessarily to communicate with the town, except merely to obtain her instructions for loading with timber up the river, she was directed to repair to the ballast-ground, where she discharged her extra ballast, and then proceeded at once up the river in pursuance of her object. That occurred on the 10th of March; and having completed her cargo, she returned off Freetown on the 21st of May, without having had one man sick in the interim. On her return, luckily for her people, she anchored to the westward of King Tom's Point, where the prevailing north-east tornadoes could scarcely reach her, and the consequence was, that not a soul on board was affected by the epidemic. The captain, who had come to town some time previously to the arrival of the ship, had an attack of fever, of which he recovered; but the prevailing disorder did not make its appearance on board. The position taken by this ship was an unusual one, and was adopted, not with a view to health, but in consideration of the facility it afforded for putting to sea.

The reports and the fears of epidemic fever being imported into Freetown by shipping may now be considered as disposed of; but, in the course of investigation, a most important point has been mooted, namely, the prejudicial effects of the north-east winds upon such vessels in the harbour as they reached, and there has been occasion to speak of. This is a matter that requires further consideration. It has already been shewn, that the part of the town peculiarly opposed to those winds was that in which the epidemic raged almost exclusively; and if it should also appear, that the shipping, subject to their influence, suffered from the malady, while that, differently circumstanced, escaped its ravages, it may fairly be presumed that a clue to its origin has been detected, or, at least, that a probable ground-work

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for further inquiry has been attained. In order to elucidate this point, it will be necessary to give some account of the different timber ships that visited Sierra Leone during the epidemic; and that shall be done with as much brevity as is consistent with the object in view. Respecting the Thomas Ritchie, nothing more need be said but that the case is an extremely strong one.

The Sappho proceeded up the river to load in March, and returned in the latter end of May. During the period of her stay up the river, had not only not epidemic, but she had not one man ill. She soon suffered, however, on her return to the lower harbour. As was usual with timber ships in general, she anchored in a position in which she was exposed to the north-east tornadoes blowing across the Bullom Shore. She was by no means tedious in preparing for sea, and the captain seemed to act with considerable caution; but still several of the crew were taken ill of the epidemic in a few days, and three of them died.

The Earl St. Vincent arrived, and went up the river in March, short handed, owing to her people mutinying and volunteering for ships of war. She had not one man ill from fever whilst up the river, although the work, from the above circumstances, fell very heavy on the few remaining of her original crew. On approaching her anchorage off Freetown she was caught in a north-east tornado; and on the following day the colonial surgeon was requested to visit her captain and six or seven seamen on board, labouring under fever. In addition to that, all her Kroomen, ten in number, were sent on shore sick, from the same cause. Of the seamen, three died, and of the Kroomen, four are said to have died. During the sickness of the seamen, and when the vessel was necessarily unclean through the want of hands, six discharged white soldiers went on board to work a passage to England: they, as might be supposed of such men, circumstanced as they were, in the absence of all discipline,

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indulged very freely in the use of spirits, which, with exposure to the common cause, soon affected them, and in a very little time, five of the number were landed, labouring under fever. The cases varied in their existence from five to eight days, and four of them proved fatal.

At about the same time a vessel, named the Jane, a brigantine, from Liverpool, with three men on board, was lying in the same direction. All three of the men were taken ill, and landed: their cases were at once seen to be hopeless, and their pitiable condition was in some measure to be accounted for from the circumstance of their having been several days without either nursing or medical care. They all died.

The Perseverance, a very beautiful vessel, was detained under an alleged breach of the navigation laws. She had previously been extremely healthy, and was in a high state of cleanliness and discipline, and had fewer casualties on board than any other vessel in proportion to her situation and the length of time she was exposed to the north-east winds.

The only persons, in fact, attacked by fever on board of this vessel, out of twenty-eight officers and seamen, were the captain, two mates, a drunken boy, and a drunken old man. The cases of the three first, there is some reason to believe, were, in a degree, excited, if not actually brought on, by the circumstances of the vessel; whilst the cause of the two latter cases was obviously imprudence in drinking, &c. One of the mates, who had had fever before in Sierra Leone, and the old man, died.

It is remarkable, that the rest of the crew were rarely, if at all, exposed to the north-east winds. Owing to the circumstances under which the vessel was detained, they had but little work on deck, and they fortunately remained quietly below out of the strength of the passing fatal breezes.

Soon after the departure of the Sappho and the Earl

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St. Vincent for England, the Maria merchant ship arrived; and, although she came direct from England, and, therefore, could not be supposed to bring with her the seeds of disease, yet, in a very short time, she lost half her hands. She anchored in the customary place, and her crew were greatly exposed to the weather, being occupied in landing stores. On proceeding up the river she ceased to be sickly.

About the same time, also, arrived the Britannia and Margaret, timber brigs, which were quickly despatched for their intended cargoes; the former to the River Scarcies, and the latter to that of Melicorree. On leaving Freetown Harbour, both of the crews were in good health; but, on their arrival at their respective destinations, all hands in both vessels died from fever, with the exception of the captains, who also suffered greatly.

This last melancholy circumstance naturally attracted peculiar attention; for it was calculated to prove that the disease prevailing was not confined to Sierra Leone; and, considered in combination with all the other occurrences, seemed to indicate that a general cause was in existence; and the direction from whence the fatal wind came, naturally led to inquiries as to the state of the health of the people on the main land opposite to Freetown. Accordingly, a letter was written, in the hope of obtaining some local information, to Dalla Mahommadoo, a well-informed chief, whose possessions, on the main land opposite to Freetown, are situated on the extreme point westward, and, from the recession of the land towards the interior on the northern side, nearly form an island. This point is particularly dry and elevated, and, from the peculiarity of its position, is not exposed to the action or influence of any wind coming from the interior, excepting such as may blow directly from the East. But, to return to the letter forwarded to Dalla Mahommadoo. An answer was returned in due time, which is herewith inserted, and which, as will appear, threw but very little additional light upon the subject.

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"Medina, Bullom Shore, 20th June, 1829.

"My good Friend,

"I have received your respectful letter on the 27th instant, of which I am sorry to hear that we have lost many of our friends; however, I am happy to say, thanks be to God, for we only hear about the fever in Sierra Leone, but never saw the likeness of such in this part of the country; and, as far to my recollection, I only lost a man in these nine or ten months past. Wherewithal, the people in the High Country complaint very much about it on last drys, of which they lost many of their chiefs.

"We are all quite healthy, and remain as always,

(Signed) "ALIMAMEE DALLA MAHAMODOO.

The impressions which Dalla Moodie's answer gave rise to, in the minds of some who became acquainted with its substance, were, that it was conclusive testimony of the healthy condition of the people on the main land, and that it was erroneous to suppose the disease could be traced or referred to the interior on the Bullom side. This conclusion, however, was not the invariable one; for, putting every faith in the correctness of the communication, and taking all the circumstances of locality into consideration, and particularly the impossibility, as may be seen by a reference to the chart, of Dalla Moodie's people being influenced by the late tornadoes, their course having been from north-east to south-west, and, consequently, passing clear, and in the rear of, Medina, it would have been surprising had the circumstances been different to what they were stated to be; still the statement of the *loss of many chiefs* did not escape notice, and, therefore, it was deemed proper to extend the inquiries.

It soon appeared, from information received from various quarters, that the apprehensions were but too-well grounded, and that the epidemic fever had prevailed on the main. In the presence of the Lieutenant Governor, it was stated by King Paraniah, of Porto Logo, that fever and mortality had oc-

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curred to a greater extent in the interior since the period of Christmas than had ever before been recollected by the oldest inhabitants. In addition to this statement, Paraniah gave a very good outline description of the symptoms of the malady —a description which corresponded precisely with the symptoms from which Europeans, natives, and settlers had suffered in Freetown, and in the shipping in the harbour.

Reflection upon these circumstances suggested the propriety and importance of visiting the Bullom Shore, for the purpose of personally making inquiries among the natives of the region which was supposed to have been affected. The proposition met with the approbation of the Lieutenant Governor; and W. W. Lewis, Esq. Colonial Secretary, and W. Smith, Esq., His Majesty's Commissioner of Arbitration, kindly and zealously volunteered to accompany and assist the colonial surgeon in prosecuting the projected inquiry. These parties, accordingly, visited the Bullom Shore; and, as the information they acquired is both important and interesting, and should be given with the utmost fidelity, it may be right to insert the report upon the subject, which was drawn up at the time when the impressions were fresh and the memory altogether unimpaired, in preference to any more elaborated account in which there would be a danger of adventitious reasoning, and presumptions being introduced and injuriously mingled with the legitimate subject matter.

Narrative of a Visit made to the Bullom Country for the purpose of acquiring Information respecting the Epidemic Fever of 1829.

"Apprehensive that political motives, in regard to the character of the country, and with respect to the effect which might be produced on their trade, might induce the natives to hesitate to make us acquainted with all they knew, we

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took with us a few trifling presents for the purpose of rewarding truth. Thus furnished, we proceeded, at an early hour, on the morning of the 26th of July, to Dalla Moodie's residence, which is situated in a native town, named Medina, and is distant from Freetown about nine miles. On explaining the object of our visit, that chief expressed his readiness to give us all the intelligence he possessed, and we soon proceeded to business. Several messengers from the interior were with Dalla Moodie at the time, and we had speedily the satisfaction of finding that there was no lack of the information sought for. In order to facilitate our inquiries, we took with us a chart: Dalla Moodie soon shewed that he understood the relative situations of the four quarters of the globe; and, with the assistance of that knowledge, he rendered clear and comprehensive his explanations of places and local situations, and all such matters. When his recollection failed, he referred to manuscript writings in Arabic, and to persons around him from the interior. In describing his communications, no attempt will be made to adhere to his particular language, but the facts detailed will be faithfully conveyed. The information with which he furnished us was to the following effect:—

"In cutting the last crop of rice in November and December, 1828, the usual heavy tornadoes, which generally blow with great force at that season in the north-easterly direction, did not prevail. This circumstance was noticed by the natives generally; who, on the absence of those winds, at the periods above stated, always apprehend that the ensuing season will be particularly unhealthy. During the prevalence of the harmattan winds the air is impregnated, in a considerable degree, with an inpalpable sand; and, after their cessation, the leaves of trees, &c. are found covered with it. These leaves are ordinarily cleared of the sand by the succeeding tornadoes, which set in about the month of April; but, if the latter are not sufficiently strong, the sand, previously so deposited,

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remains; and this circumstance, whenever it occurs, is universally acknowledged, amongst the natives, as a certain sign that the following season will be unhealthy. This particular omen was observed by the surrounding people this year, who, in each town, consistently with their accustomed habits on such threatening occasions, contributed, according to the means of the respective individuals, a sum, or rather goods equal to a certain amount, for alleviating the anticipated necessities of their poorer brethren.

"After cutting the rice, the stubble is always left on the ground, and, of course, becomes gradually decomposed, and emits more or less extensive exhalations of vegetable *malaria*; for the grain (the rice) is generally grown in low swampy situations. The ordinary, and, indeed, necessary consequences of this occurrence is sufficiently injurious, but it was greatly aggravated this year by premature setting in of the tornadoes, and the unusually early fall of frequent showers of rain. This irregularity in the seasons, in addition to increasing the usual malaria, did not allow sufficient time for burning the bush which had been cut down on large tracks of land, for the purpose of their being sown with rice; and the bush, being left exposed to the atmosphere and the weather, the natural consequence was, that it soon became so many masses of putrid vegetable matter, constantly emitting the most noxious and fatal exhalations, which were generated by the sun and partial rains, and dispersed according to the frequency and violence of the tornadoes. The natives thus accounted for the extent and fatality of the disease; and their reasoning appears to be convincing."

"The sickness, with which the colony of Sierra Leone and the surrounding country have been so fatally afflicted, first made its appearance in Sangarrah, a country in the interior, about thirty days journey, in a north-east direction from Medina, the residence of Dalla Moodie. The fever broke out at Sangarrah about Christmas, 1828, and more chiefs

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have suffered from it there within a few months than ever before recollected to have suffered, from a similar in as many years. Sangarrah is a low marshy cou covered with jungle. Bantoe, lying to the south-we Sangarrah, is also said to have suffered exceedingly. O twelve men sent out in March to hunt elephants, onl returned alive, the others having died in the forests fro effects of the unhealthy condition of the atmosphere. tween Sangarrah and Foutah Jallon, whole villages been nearly depopulated.

"From Laheer, and down through the Mandingo cou travelling in a south-west course to Fouricaria and M corree, the number of chiefs that have died is unprecedente and, amongst the people generally, the loss has been i mense. Much sickness prevailed in the Foulah countr but, owing to its being better cultivated, and composed mo of hill and valley, it has not suffered to so great an exten as Sangarrah, where the fever broke out.

"The symptoms at the commencement of the attack were, a sensation of cold, followed by pains in the chest and region of the stomach, and sickness, with occasional vomiting; pains in the head and back, attended with loss of appetite. Matter ejected by vomiting was sometimes yellow and sometimes black. Hot skin and great thirst; state of tongue not known; no sleep; delirium and sudden starting. Fires were much used in the houses, and, as the natives believe, with great advantage. To promote perspiration appears to have been a great object. Cathartics freely administered. No other treatment for the purpose of cure was very clearly expressed, except with reference to the restoration of strength.

"The number of inhabitants at the village of Yongroo, in the neighbourhood of Medina, was not accurately known; but Dalla Moodie was himself aware of four deaths having occurred there. His own town, Medina, was, and has been, healthy."

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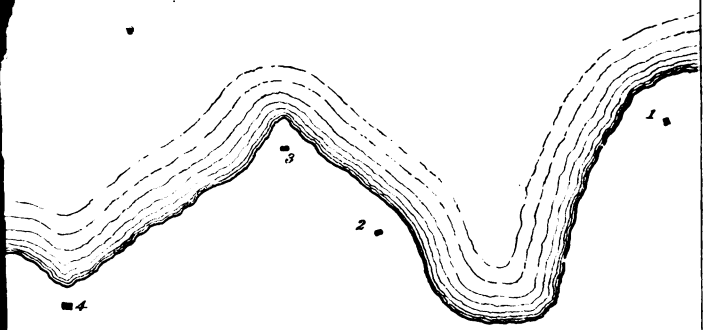

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Mr. De Paiva.
— Dougan.
— Jackson.
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Mr. Hook.
— Magnus.
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— Weston.
— Cole: "Lieu.d Adc.n Dep.t"
Gaol.
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Mr. White
— Clough.
— Reffle.
— Mc. Cormack.
— Smith.
— Christenson.
— Barber.
— Gibson.
— Nicoll.
— Emerson.
— Groves.

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Such was the result of the visit to the Bullom Shore; and, from further and rather extensive inquiries of the natives from various parts of the main land, it was fully ascertained, that a fatal epidemic fever had prevailed to great extent in the following countries amongst their respective tribes—namely, Bullom, Porto Logo, Rokelle, Scarcies, Mellacoree and Foolah. Those from whom these statements were obtained, were unanimous in the opinion, that the disease proceeded from the eastward, or, agreeably with their own account, from where the sun rises.

"From all the descriptions given, and the facts obtained, relative to the comparative mortality in the vicinity of the colony, it appears that it was greatest in the neighbourhood of Porto Logo, and down to the swampy tongue of land which separates Porto Logo from the Small Scarcies; thence along the bank of the large and small Scarcies,* and across the country to Mellacoree and Foreecarreah. The banks of the Large Scarcies and of the Mellacoree, in particular, are much intersected with creeks lined with mangrove, and generally ending in swamps, which are always overflowed in the rains; and, after their departure, emit the most offensive and most unhealthy odour.

"If the people from any of the countries named were asked what the sick persons complained of, they replied, of fever—'his skin hurt him, his head hurt him,' and 'his middle (his back and loins) hurt him.' Some supposed the disease was originated by witchcraft; the witch causing a poisonous atmosphere, the atmosphere still the immediate promoter, to rise out of the ground and to act on those whom she disliked.

"From messengers from Timbo, in the beginning of August, it was ascertained that an epidemic prevailed there

* It is important here to remind the reader it was at the Scarcies that the second and third cases of epidemic were contracted, which occurred on the 4th and 9th of May in Freetown.

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twelve months previously to that date, and that it had then ceased only four months. The complaint was described by these people as being attended with pains in the head, back, and loins, with a hot skin and black tongue. In the advanced stage of the complaint the gums and tongue exhibited the colour of blood; and, it was added, that some threw up a black fluid like a mixture of powder.

"The Timbo people believed the sickness took its origin in the attempt at clearing a swamp in the neighbourhood of Timbuctoo, and that it thence spread to Jenni, from Jenni to Foota Tauro, and thence to Footah Jallon. It was also understood to have spread in the neighbourhood of Tamassoo, Tambacca, and Kissy Kissy."

The foregoing information appears to be so conclusive, as to the origin and original nature of the disease, that further discussion upon those points must be unnecessary. That there are differences in the accounts given by the natives is true, but they do not amount to discrepancies of such a magnitude, as at all to invalidate, or shake the one leading supposition and conviction—that the epidemic fever, which raged so fatally in Freetown in 1829, was immediately caused by peculiarities in the seasons—originated in the interior—was borne to Freetown by the north-east winds—and, in its primary and true character, was not contagious.

Whether the malady became contagious subsequently or not, is another and a distinct question. It has been answered in the affirmative, and certainly it would seem justly, if the Eden be followed from Freetown to Fernando Po, where, indeed, there appears to be no doubt the disease was contagious. Many concurring statements tending to that conclusion have been disseminated, but the following official documents will, perhaps, be viewed as sufficient evidence upon the point.

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Extract from an Official Letter from Colonel Nicolls, Governor of Fernando Po, to Lieutenant Governor Ricketts of Sierra Leone:

"We arrived at Fernando Po on the 14th of June, after a tedious passage. The Sierra Leone fever broke out among us the third day after we left you. We have lost Dr. St. John, and Mr. Field, his assistant; Mr. Stewart, his other assistant, was very ill, but recovered: Mr. Birckwood, midshipman, died, and one of my detachment also: the surgeon of the ship (the Champion) was taken severely ill, as was his assistant; so that, out of five medical officers, two died and three recovered. The Eden's two assistants died, and her commander and forty-three men, from the time of her captain leaving, (Capt. Owen, who proceeded to Fernando Po by another opportunity previously.) Every man on board of her in good health on the 12th of May last, at Sierra Leone. When she got abreast Cape St. Paul, as in the Champion, the fever began to slacken: her crew were all landed when she arrived here on the 10th inst.; only four died since, and all, both her's and the Champion's crew, have been on the mend."*

Extracts from a Paper drawn up and forwarded to His Majesty's Naval Medical Commissioners, by Dr. Robert M'Kinnal, Surgeon of His Majesty's Ship Sybille.†

[Extracted from Johnson's Medico-Chirurgical Journal.]

"It appears that the crew of the Sybille had enjoyed uninterrupted health on the coast of Africa. They had been

* It was subsequently ascertained that the assistant surgeon, with others on shore, stated in the letter to have recovered, died afterwards; and that the disease continued to rage for some time longer in a contagious form.

† All lengthened comment upon this paper is studiously abstained from, as it is understood to be Dr. M'Kinnal's intention to publish more fully the result of his experience in the Sybille.

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cruizing in the bights of Benin and Biafra from December, 1828, till the 21st of June, 1829, when they arrived at Fernando Po. Here they found the Eden, which ship had lost her captain, surgeon, assistant-surgeon, and upwards of fifty men, by yellow fever, at Sierra Leone, and on her passage to Fernando Po. The disease was still continuing its ravages at Clarence Cove. The Hecla had also suffered, as well as the Champion, lately arrived from England; yet the colony of Sierra Leone was said to be healthy (it was only comparatively so as regarded the Eden) at the time the Champion sailed. All communication between the Sybille and the shore, or the Eden, was prohibited during the stay of the Sybille; excepting the purser, (who afterwards died,) and one or two superior officers. On the 22nd of June, however, they received on board a sergeant of the Royal Marine Artillery, and seven marines from the Eden, who came from England in the Champion; and on the following day they received from the establishment at Fernando Po, Charles Hall, a marine, who had also arrived in the Champion. On the 23rd, John Meaking, received from the Eden the preceding day, became affected with fever, and was quickly sent ashore. On the 26th of June, William Love, a boy, was seized with fever, though he had had no communication with the shore or Meaking. The case was mild. On the 2nd of July, Charles Hall, received from Fernando Po, was seized, and from this period the disease continued to arise in different parts of the ship, and while at sea. It soon assumed the most malignant character, and attacked individuals of every class, age, temperament, and colour. The negroes were affected with it in comparatively small numbers, and in a milder degree.

"The marines were the greatest sufferers; many, it would appear, escaped the fever who were greatly exposed.

"Two cases of fever occurred in June, twenty in July, and forty-seven in August, total sixty-nine cases; of which

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twenty-two died, or nearly one in three. The disease was evidently yellow fever, in its highest degree of intensity.

"Death was preceded, in a great number of cases, by black vomit, often accompanied by a dingy or livid hue of the countenance. A peculiar shrunk, corrugated, and livid appearance of the extremities of the fingers was not uncommon. Some died in convulsions, and others in a comatose state, without black vomit, &c.

"On the 12th of September, the ship arrived at St. Helena, without a man being on the sick-list; nor does it appear that any fresh cases occurred until the 13th of January, (1830,) when yellow fever again made its appearance off Cape Formosa; the Sybille having, in the mean time, fallen in and communicated with the Black Joke, her tender, on board which the destructive fever had prevailed.

"Dr. M'Kecknie, an assistant-surgeon, who had lately come from England, and who had been for a few minutes on board the Black Joke, was the first to take the fever. The disease soon increased in the ship; and early in February it became very alarming, producing the most dreadful havoc. The number of cases, during this visitation, amounted to eighty-seven; of which twenty-six died, with the usual symptoms of the most malignant yellow fever.

"Afterwards, in St. Helena, on the 22nd of March, the fever again broke out, and twenty-two cases occurred, of which six died. She (the Sybille) sailed from St. Helena on a cruize, and, during that time, the negroes on board were employed to give the hold and wings, &c., a thorough clearing out, succeeded by ventilation and all sorts of purification; after which, there does not appear to have been any cases of fever in the Sybille."

The immediately foregoing documents will furnish sufficient *data* whereon to found an accurate opinion of the nature of the disease, as it prevailed in the Eden at Fernando Po; and, also, as to whether the fever which appeared in the

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Sybille, the Champion, the Hecla, and the Black Joke, was communicated by the Eden, or in any way derived from that vessel.

And here all observation upon the epidemic at Freetown, in 1829, might, with propriety, be closed by a summary of the results of the inquiries which have been instituted, and of the information which has been adduced, had not some statements, touching pointedly upon the subject, and demanding investigation and correction, recently been sent forth to the world. It is at the best but a task, and an unsatisfactory and disagreeable one, to question the assertions of others, especially when the motive for so doing may, by possibility, be misconstrued; but the statements alluded to are of such a character as utterly to preclude the propriety of passing them by in silence. The rank of their author, and, still more, the high situation which he held in Sierra Leone at the period of the epidemic of 1829, that of Lieutenant-governor, render it absolutely necessary that they should not be left unnoticed, or uncontradicted. These statements appear in a work published by Major Ricketts, and entitled, "*A Narrative of the Ashantee War, and View of the present State of the Colony of Sierra Leone.*" As Major Ricketts held the chief authority at Freetown, while the late epidemic raged there, if he makes any erroneous assertions respecting it, their exposure is the more important; for a reader of his work would reasonably conclude that its author, from his station of governor of the colony, would have made himself master of all the circumstances of the prevailing disorder, either through his own observation, or through the communications of the respective medical officers of the colony, and consequently place implicit faith in its views and declared facts. This would be the natural, but a dangerous course; and, as it might even involve life, it should be at once corrected. In the first place, Major Ricketts shall speak for himself, and then the facts which apply to his

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statements shall follow as closely upon each of them as may be. He observes:—

Extract.—"The last dreadful epidemic fever, in 1829, was evidently brought to Sierra Leone, as will appear from the following account:—About the 1st of May, a new description of Fever broke out amongst the inhabitants of Freetown and the shipping lying in the harbour, previous to which, the only casualty that had for some time occurred amongst the Europeans was the death of a young writer in the Secretary's office, who died of a first attack of the fever common to this part of Africa. The casualties amongst the coloured people located in Freetown were very limited, and chiefly confined to those well advanced in years. The crews of the merchant vessels visiting the colony for timber were, (excepting one or two that were not properly attended to,) up to this period, healthy; but, from this time to September, the oldest European residents, including Mr. Kenneth Macaulay, who had been nearly twenty years in the colony, and Mr. Reffell, who had been above fourteen, and many native settlers in Freetown, fell victims to this disease, which was rapidly destroying the crews of the shipping. Of twenty Kroomen, landed from His Majesty's Ship Eden, eight died of the disease; and these people, the most hardy on the coast, died, on an average, one a day since this fever appeared, although previously healthy."

Remarks.—It is perfectly correct, that the death of the writer above alluded to was the first casualty that had occurred previously to the 1st of May, (it occurred in April,) but he died not of the common fever; his symptoms were precisely similar to those of the other fatal cases that followed. None, however, occurred upon the 1st of May. Mr. Gibson, who had been to the Scarcies, as already shewn, and where, as it was subsequently ascertained, the disease was raging amongst the natives, was attacked on the 4th of

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May, and Mr. George Barber, who contracted his fatal fever at the same place, was attacked on the 9th of May, and the Eden, the first ship in which the disease appeared, had, as already stated, "every man on board of her in good health on the 12th of May." The disease, therefore, as it occurred at Sierra Leone, was altogether independent of the Eden, and of importation, unless from the Scarcies; which positively was the fact in the two unfortunate cases just cited.

Extract.—"The fever which carried off so many of the European troops on the Gold Coast, in 1824, was, in all probability, similar to this. * * * This disease was, with a very few exceptions among the merchant seamen, unknown at Sierra Leone since the year 1823; when it broke out on board the Caroline, a merchant ship from the Mediterranean, and spread from her over the harbour, and among the inhabitants to a limited distance, from thence to Freetown."

Remarks.—That the Caroline is here, as on former occasions, improperly accused of having been the cause of the disease that prevailed at Freetown, Sierra Leone, in 1823, the following extracts from a publication of Sir W. Burnett upon the circumstance in question, will, perhaps, suffice to prove:—

"Regarding the Caroline, I have to state, that this ship sailed from Malta on the 26th of September, (extracts from Caroline's log,) and arrived at Sierra Leone on the 3rd of November in perfect health. She proceeded up the river above thirty miles from Freetown, lying the whole of the time in a low swampy situation, surrounded by mangroves. About a month after she had been at Tomboo Island she became sickly, and, according to the report of the medical officer of the army, eight men were admitted into the general hospital with the *usual remittent fever of the country*, and out of that number four died.

"Having completed her lading, she moved down on the

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8th of February to the anchorage off Freetown, and she arrived there on the 11th, having grounded, both on rocks and shoals, on her passage."

The following document, extracted from the same publication, is the colonial surgeon's report upon the state of the Caroline on her first arrival from the Mediterranean :—

"The Caroline came in on the 3rd of November, 1822; I visited her; she had a clean bill of health; her crew appeared one of the most healthy I ever saw; mostly young men; indeed, I do not believe there was a man in the ship more than thirty years of age.

"The captain, a strong, healthy, athletic man, was under the influence of mercury, in consequence of a venereal complaint contracted at Malta. The ship was particularly clean and sweet fore and aft: one man said he was sick, and, on questioning him, I found he had been drunk the night before, having, whilst the mate was sleeping, tapped a cask of rum. I gave him a strong purge, which put him to rights. I was on board several times till she went up the river, and there was not a single man complaining.

(Signed) "JOHN SHOWER, Colonial Surgeon."

Extract.—"The liberated Africans, some of whom were landed sickly, and located at the new settlements, a short distance to the westward of the town, as well as those who resided at Kissey and other villages up the river, and at the mountain settlements, with the European managers and missionaries, all enjoyed good health. The natives upon the Bullom Shore, to the north-east of Sierra Leone, were also *stated* to be healthy."

Remarks.—The state in which the natives upon the Bullom Shore actually were has already been described, and Major Ricketts was, of course, made fully acquainted with all the circumstances as soon as they were ascertained.

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Extract.—"The European deserters and discharged men from the Royal African Corps, who were allowed to proceed home in merchant vessels, nearly all returned to the shore afflicted with this malady, and died; whilst the troops in garrison at the new barracks on Tower Hill, including one hundred and twenty Europeans, remained quite well, with the exception of a few who had gone on board of some of the vessels, and were taken ill with the same fever and died; as did Lieutenant Patterson and a commissariat officer, who had not long arrived from England."

Remarks.—The immunity of the barracks and the native villages from the disease, as it prevailed amongst the ships in the harbour and some persons who had been on board, is the strongest possible proof that can be afforded of the non-contagious nature of the disease in Sierra Leone, and that it was of local origin, and not brought into the colony, except through the winds. As regards the officers named, the first, Lieutenant Patterson, had been dangerously ill of a complaint, altogether different from fever, long previous to the occurrence of the epidemic; and the commissariat officer, who was an unseasoned man, was always understood to have died of the ordinary fever. This is the natural and fair reasoning upon the circumstances, and that it was felt at the time and sanctioned, is proved by the following document, which was drawn up in the presence of the Governor, Major Ricketts, and immediately printed and posted up by his direction in various parts of Freetown. It records the opinions of the medical officers of the colony.

"Freetown, Sierra Leone, 27th of May, 1829.

"Whereas, a report has been in circulation throughout the colony, that the fever now prevailing is of a contagious character, his honour, the Lieutenant Governor, has deemed it expedient to call for the opinions of the principal medical

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officers upon this subject; and they, whose names are hereunto affixed, do declare that there is not the slightest ground for the rumour that contagion exists in the colony.

(Signed) "J. Boyle, Colonial Surgeon,
"M. Sweeny, M.D., Deputy Inspector,
"W. Ferguson, Surgeon, R.A.C.C."

Being possessed of the whole of this information, and a party to the official promulgation of the opinions which the preceding document inculcates, it certainly does seem somewhat extraordinary that Major Ricketts, treating of a subject foreign to his profession, should have adopted or arrived at the conclusions which he has published. To attempt to account for it, is hardly necessary. That great apprehensions of contagion prevailed, and that personal safety was much consulted, is beyond all question; and the attempt made to stay the fear was unfortunately ineffectual. The facts are, that, soon after the publication of the above medical opinions, the two army medical officers were reported sick; fever cases became more general; a few individuals retired from the colony; the governor went to the military barracks; and many of the inhabitants laboured under the dangerous influence of a prevailing panic. Misstatements went abroad respecting the state of the gaol; in consequence of which, the then Chief Justice declined to hold the sittings of Quarter Sessions in the court-house situate over that establishment, and exhorted the Grand Jury, in a public speech, not to enter the gaol without each juryman being supplied with a bottle of chlorate of lime, which, in procession, they were to sprinkle in all directions.

In this state of circumstances it became no easy matter to brave the besetting difficulties amongst a deserted and consequently disheartened community; for, as it is with soldiers in the field of battle, so is it with the subjects of a com-

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munity when surrounded by sickness: they will quail, fly, or sink in despair, if the chief absent himself from his post.

Conclusions as to the Epidemic of 1829.

Observations upon this frightful and devastating malady may now be closed by an enumeration of the principal conclusions naturally to be drawn upon a careful consideration of all the information collected.

In the first place, it appears that the disease originated in the interior, probably in the Sangarrah, or in the Timbo country, and was thence carried by the north-east winds through Loosoo and Bullom, across to Freetown.

In the second place, it appears that its principal cause was malaria, which was originally produced by irregularity in the seasons, and, subsequently, continued by the same means.

In the third place, it appears that in Sierra Leone the disease was not contagious; and this is evident, upon a review of the cases of fever which occurred in the shipping in the harbour, and the situation of the houses in Freetown in which fever prevailed. The ships suffering were invariably exposed to the north-east winds; and, in the town, the fever limited its course, and in a most striking manner, to those houses, between which and the north-east winds, passing over the Bullom country, there was no obstruction. It must be remembered, that no *cordon sanataire* was established in Freetown, or in the colony, and yet the only course which the disorder took was near the water's edge, and facing the Bullom Shore, and did not extend beyond the most extraordinarily limited sphere, as is represented upon the Plan given of the town. That a great many exposed persons may escape an attack of a prevailing contagious fever is a fact of easy belief; but that a fever of a contagious character should, without the adoption of some probably effective preventive measure, be so accommodating as to limit its ravages to certain houses which happened to be exposed to particular

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winds, is altogether beyond the credibility of the most common reflecting mind; and the more especially so, when it is taken into consideration, that an unlimited communication took place between the inhabitants of the different quarters of the town, and that although very many hundreds of individuals, from various parts of the colony, visited the market of Freetown every day, not one case of the disease occurred in any of the villages.

And, in the fourth place, it appears—that, there is good ground for believing, that, although the disease was not contagious in Sierra Leone, it did assume that nature on board of His Majesty's Ship Eden, while on her passage to or at Fernando Po.

The Epidemic Fever of 1823; *its Character, Progress, and Treatment.*

In the year 1823, as in that of 1829, a dreadful epidemic visited the settlement and harbour at Sierra Leone. Its ravages were also very extensive and destructive in the interior; but, there is strong reason to believe, that the mortality in the inland country was not so great as in 1829.

These epidemics appear to have sprung from like causes, and to have progressed in a like manner. Similarity between the seasons of 1823 and 1829, as shewn in the early part of this chapter, is certainly a very important feature in the history of the fevers of these two periods; and, although it would be, perhaps, impossible now to trace the course of the epidemic of 1823 with anything like the minuteness or certainty that that of 1829 has been followed out, still there is strong ground for believing that they resembled each other; and there is nothing on record calculated to produce a different impression. This is written with a perfect remembrance of the statements and arguments adduced by Sir Gilbert Blane, and intended to establish a very different opinion; but it is written, also, with as perfect a re-

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collection of the incontrovertible facts and able reasoning with which Sir William Burnett elucidated the subject. To the controversy between those distinguished writers there is now no occasion more particularly to allude; but, in a subsequent page, it will be right, in order to put the question as to the origin and the primary non-contagious nature of the disease beyond the shadow of a doubt, to make a more specific reference to the writings of Sir William Burnett.

It would be easy, and, indeed, the subject is a tempting one, to indulge in general reasoning upon this disease; but it appears more desirable not to extend the remarks already made, but at once to refer to particular facts and statements, which tend to illustrate and confirm the conclusions naturally arising out of the premises adopted. Pursuing this view, the report of Dr. Wm. Barry, Deputy-Inspector of Hospitals, is important.

Extracts from the Report of Dr. W. Barry, Deputy-Inspector of Hospitals.

"The medical events which now demand our attention have presented a series of calamities unequalled in the history of this colony. A fever, not entirely new, but extremely rare, on this part of the coast, made its appearance in the early part of the year, a period which has been denominated the healthy season.

"The military sick returns present very few traces of its ravages, and the whole of the black population were exempted from its baneful influence.

"The victims were, in general, those newly carried from Europe; the robust, the plethoric, and those that indicated unbroken constitutions. The mortality, however, was not confined to those classes, for many who were considered perfectly assimilated to the climate, have fallen sacrifices to the destructive pestilence.

"This disease, whose effects were more evident to our

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senses than its origin, was generally ushered in with pains in the loins, limbs, but more particularly in the calves of the legs. Sometimes distressing pain in the head, and at others, with great uneasiness at the præcordia, with, occasionally, vomiting and irritability of stomach. The tongue, in general, white and tremulous, in some cases, red and clear, and, in a few, an *in-grained* blackness was perceptible, but perfectly different from that collection of sordes which form a characteristic of typhus gravior—no symptom of which was present during any period of the disease. There was no great degree of heat or dryness of the surface of the body; but, on grasping the limbs or body firmly, a very peculiar sensation of stinging heat was communicated to the hand, which it retained for a considerable time. The pulse hurried and sometimes full, but seldom indicating any degree of inflammatory action. No remarkable appearance of the urine. The eyes were generally suffused, and, in most cases, there was considerable anxiety during the first stage of the disease. This train of symptoms generally lasted during the first thirty-eight or forty-eight hours, by which time the aperient medicine that had been administered had freely operated; but in vain were healthy bilious evacuations sought for. The disease now became evidently manifest in the dark fluid which was passed downwards in considerable quantities, and rendered particularly characteristic by innumerable small floating floculi, which had very much the appearance of the morbid and broken down fibre of the blood. The patient about this time felt much relieved and unconscious of his danger; and this delusive state often gave sanguine hopes to the attendants. This calm was followed by a morbid torpidity, or sometimes by low delirium, and this state continued until the fourth day, when the invariable forerunner of a fatal termination, the black vomit, made its appearance; at first in small quantities and mixed with the ingesta, but afterwards in amazing volumes and

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ejected from the stomach with a most extraordinary spasmodic force. The fluid had the appearance of broken down and diluted coagulum of blood, and frequently, with portions of coagulable lymph, assuming the appearance of the inner coat of the stomach. The fluid gave a dark stain to linen, not easily removed, and had a raw unpleasant odour, so perfectly peculiar, that on entering the chamber the state of affairs became immediately manifest. In some cases a troublesome hiccough occurred, and, in those, the matter vomited was less abundant.

"The state of the patient's mind was most peculiar in this disease. The poor sufferer seemed entirely unconscious of his hopeless state, and generally expressed himself as being much better, until the vital flame gradually receding from the surface and extremities, dissolution took place; which, in some cases, was preceded by violent straining of the eyeballs, incoherent expressions, or by some convulsive motions: some time prior to this a dingy yellow appearance took place on the body, particularly on the neck and chest.

"Whatever might have been the remote cause of the disease, it certainly appears to be an inflammation of the villous coat of the intestinal canal; and the train of symptoms confirm the opinion. The concentrated heat of the body, the obscure febrile action, its sudden cessation and delusive appearance of amendment, followed so immediately by a fatal conclusion, evidently point out the disease to be of an inflammatory nature, terminating in a profuse vitiated sanguineous exudation and formation of coagulable lymph: and the description of persons attacked, and the post-mortem examinations, are very far from militating against the assertion.

"Amongst the colonists there was in the disease a similarity, in some few points, to the inflammation of the inner membrane of the trachea; it did not appear to have been of a *contagious* nature, but to have raged *epidemically*; and was observed in the late instance, as on former occasions,

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to have been particularly prevalent on the sea-coast: one strange characteristic, however, presented itself—the females and children were entirely exempted from its ravages.*

"The origin of the late fever is certainly involved in obscurity; it therefore becomes necessary to give a detail of the first suspicious case which occurred, the date of which appears as far back as the 13th of December of the former year. As the case did not come under my observation, it is, consequently, related in the words of Mr. Shower, the colonial surgeon, under whose treatment the case devolved.

"The patient was attacked with fever on coming on shore from a merchant brig, which has been remarkable for its crew's good health during a long sojourn on the coast, and which is to be attributed, in a high degree, to the humanity and care of the master of the vessel.

"December 14th, 1822.—Henry Seymour, harbour-master and merchant, aged 34, went off to pilot the Ranger, Captain Spence: next morning on getting up complained of his head aching, with a clammy tongue, and nauseous taste. I did not see him until about three o'clock p. m., when he gave me the above account of his feeling. On examination, he said his headache was very bad, which had increased since the morning. Tongue moist and white; skin hot and parched; pulse strong and full, about 90.

"15th. On visiting him the next morning, found the aperient pill and draught, which was administered, had operated copiously: still no relief in the head; fever increased, and great irritability of stomach, which was allayed by swallowing large quantities of cold water as fast as the vomiting returned: in the evening, much the same; had taken, during the day, a saline camphorated mixture, with calomel pills, every two hours—the irritation of the stomach nearly gone.

"16th. Feels much better; still no moisture of the skin;

* This peculiarity did not exist in 1829.

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pulse full, but soft; headache less; the medicines as before continued: in the evening a cathartic was administered, the bowels being rather confined.

"17th. Bowels were well opened during the night; slight headache; tongue cleaner, and moist; skin cool, soft, and pleasant—the cinchona was now administered, with a saline draught: after its exhibition there was a little increase of heat of skin, and pain in the head, and the last dose was rejected.

"18th. Passed a restless night; fever increased; pain in the head excruciating, with considerable irritation of the stomach; bowels open—effervescent draughts were exhibited, and a blister applied to the head.

"19th. Irritation of the stomach continues; blister did not draw well; bowels free, rather too much so, and a little griped: in the evening the vomiting stopped, after repeated doses of the carbonate of magnesia.

"20th. Slept for about four hours during the night, having taken a dose of the tinct. camphor. c.; irritation of the stomach retured at intervals; a difficulty of speech, and inclination to coma; bowels free; skin soft and moist: at two p. m., the vomiting returned, which ceased in the evening.

"21st. Restless night, although not in pain: about two o'clock in the morning threw up a quantity of a dark fluid, inclined more towards a dark-green than coffee colour; in fact, is resembled spinach soup more than anything else: this was the first appearance of the kind; the other vomitings were nothing more than the fluids taken in, and at times slightly tinged with yellow; it was with difficulty he could be roused; after throwing up a large wash-hand-basin full of fluid, resembling coffee-grounds, his pulse gradually sunk; body and face covered with a cold clammy perspiration, and died about nine o'clock a. m.

"In the introductory remarks to the foregoing case, it has

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been denominated a suspicious one; for the symptoms did not perfectly agree with those of a later date, which bear to one another a most dreadful similarity, and the fluid ejected from the stomach, as far as Mr. Shower's memory aids, did not assume that very peculiar appearance, which, when once beheld, cannot easily be effaced from the recollection. About a week prior to Mr. Seymour's illness, the crews of several vessels in the river loading with timber became very unhealthy; several of the men died in hospital: the disease was the common remittent fever of the coast.

"On the 22d of February, a case was admitted from the Caroline, which assumed the more fatal type of fever, and about the same time a few of the same class of men died at Freetown. The disease, however, did not create much alarm until the middle of April, when it commenced its attack on the European residents, and pursued its steady deadly march through the colony (Freetown) during the following month, and the early part of June. Thus, as far as we can ascertain, the disease commenced with the merchant seamen employed in the river; but as those persons are more irregular in their mode of living, and exposed to greater hardships and deprivations than the rest of the community, it becomes evidently conclusive that they will be more readily subjected to the influence of any reigning epidemic. The date of the first case, which occurred on board the merchant ship Caroline, has been stated, in consequence of much suspicion having been created in consequence of her arrival from the Mediterranean, and subsequent unhealthy state of the crew. Ten days, however, prior to that case, the mate of the Lively, (a vessel likewise employed in the timber trade,) had suffered from the disease, and which case, if that of Mr. Seymour be rejected, was the first which fell under our notice of the late fatal epidemic. The disease, for a time, vanished. The last case, which occurred in June, proved fatal on the 12th of that month: the heavy rains then set in, and continued unabated

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until the middle of July, when the weather cleared up in an unusual manner."

Remarks.—The references to dates and circumstances, in the preceding report, in addition to the explanations already given, respecting the Caroline, exhibit the fact beyond the just possibility of doubt, that that ship could have nothing to do with the production of the epidemic of 1823. It cannot for a moment be supposed, that the Caroline could have been productive of a fever in the person of the mate of the Lively, and of that of Mr. Seymour on shore, whilst no such disease had then appeared amongst any of her own people.

The circumstances of the seasons of 1823 and 1829, and their attendant results, as previously observed, were strikingly similar; and, among other things, the fevers which occurred on board of the Bann and Eden have been compared. The circumstances of the Eden have already been traced, and it is only necessary, therefore, to remind the reader of them, before a detail is given of those of the Bann, for the sake of comparison. The following account of occurrences on board the Bann are taken from Sir W. Burnett's publication before alluded to.

"His Majesty's sloop Bann anchored off Freetown, Sierra Leone, on the 11th of January, 1823, and continued there until the 25th of March, her ship's company on board being in excellent health. On this day, one case of fever, having severe inflammatory symptoms, was put on the sick list, and the patient died on the 30th, the fifth day of his illness. On the 26th, the master and two seamen were attacked in the same manner, and recovered. On the 27th, the Bann sailed from Sierra Leone; but, previous to her doing so (on the 19th of March) she had sent her pinnace to assist in bringing to the anchorage the Caroline, a vessel which, having been loaded with timber in a very swampy situation about thirty miles up the river of Sierra Leone, had lost by a fever, which, at its commencement, and for many weeks afterwards,

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was the usual remittent fever of the country, at least fifteen of her crew. This ship had moved down from Freetown to Cape Sierra Leone, on the 13th of March, a distance of six or seven miles, to be ready to sail for England, before the Bann boarded her, but was obliged to return, being very leaky. Between this time and the 31st of March, three more cases occurred on board the Bann. On the 31st, one case of the same kind was added to the list; and on the 3rd of April, four more of her people were seized with the same complaint.

"From this time the sick list rapidly increased, and, according to the account of Captain Phillips, beginning forward in the ship, came gradually to the after part, till nearly all the officers and men were attacked; indeed, when it ceased, at Ascension, only about sixteen had escaped of the whole of the officers and ship's company. The total number attacked was ninety-nine, of whom thirty-four died, fifteen of them before the Bann reached Ascension. It is stated by the surgeon, that at the time of sailing from Sierra Leone, the weather was very hot and sultry, and subsequently became cloudy, with occasional heavy showers of rain, accompanied by thunder and lightning, indicating the approach of the tornado season. The thermometer stood at about 78° to 80° during the day, becoming about two degrees lower than usual in the night; but, from the dampness of the air, the impression of cold on the feelings was greater than that which was indicated by the mercury, and produced a sensation of chill in the night. The ship was ordered to St. Thomas', but, from the unhealthy state of the crew, and the bad weather, it was deemed advisable to proceed directly to the Island of Ascension; and on her arrival at that place, on the 25th of April, tents were immediately erected on shore at the distance of nearly five hundred yards from the garrison, with which all intercourse was interdicted, and the whole of the sick, amounting to forty-five, labouring under the pre-

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vailing fever, were landed, and placed in the tents provided for them.

"In this voyage to Ascension, the Bann was accompanied by a Spanish schooner, named the San Raphael, which she had detained off Whydah, in September, 1822, having on board one hundred and fifty slaves, and which arrived in the river of Sierra Leone in December following. During the interval, Captain Phillips had, at different times, put into this vessel a commissioned officer, two midshipmen, an assistant surgeon, and twenty men, all of whom returned perfectly well.

"The schooner, while lying off Freetown, was anchored very close to the Caroline, a timber ship, after that vessel, from becoming leaky, returned to be repaired. The schooner was sent up to Bance Island, in the River Sierra Leone, about fifteen miles above Freetown, to have her bottom repaired, but no sickness took place in consequence; and while the Bann lay in the river, the schooner was sent, with a lieutenant and forty men, to reconnoitre the Galinas, and was absent on this service about a fortnight, during which time four of her men suffered severe attacks of fever; none, however, died, and they returned generally in good health or convalescent, and it was after this cruize she anchored near the Caroline, and, consequently, before the fever appeared in the Bann.

"The fever, according to the testimony of the surgeon, made its appearance first on board this schooner; and this vessel suffered more in proportion to the number of her crew than the Bann, fifteen being, at different times, attacked on board of her: indeed, Captain Phillips states, that every person on board, excepting Mr. Crockat, the second master, and the Portuguese pilot, was taken ill, and removed to the Bann, and that the number taken ill on board of the schooner, in the early part of the disease, was so great, that at one time he had determined to destroy her; but that, on further con-

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sideration, he decided on taking all the Europeans out of her, except the second master, pilot, and two seamen, sending a proportionate number of blacks to assist in navigating her, and after he had so done no sickness prevailed.

"The Island of Ascension, in circumference about twenty miles, is situated in the ocean, in lat. 17° 20′ west longitude 7° 5′ south, at the distance of many leagues from any other land, with a trade wind from the S. E. constantly blowing over it; and, being of volcanic origin, nearly the whole of its surface, excepting the Green Mountain, has a corresponding appearance, being (as in the neighbourhood of the garrison) of a dry, arid, and barren nature, with volcanic stones overlaying a quantity of mouldering pumice. On some of the more elevated spots, it is composed of ashes which extend to a considerable depth; still there are a few places where a fine light mould is met with about half a foot below the surface.

"At this island, in the month of April, the thermometer in the shade stands, from noon till nearly two p. m. at from 85° to 88°, generally 87°; and as the evening advances, gradually falls to between 76° and 80°. About two o'clock in the morning, a further reduction of one or two degrees takes place, which continues till 5 a. m. when the heat progressively advances till mid-day. In May, the heat declines a little, and is commonly from 84° to 85° in the day, and from 75° to 76° at other times, which is probably owing to showers of rain, which prevail at this season.

"With respect to the heat of the Summer in general, a sensible increase takes place in December, the thermometer being at noon, towards the end of the month, at 86°; in January it advances about two degrees; and in February, and till the middle of March, it is often found at noon to have attained to 90° or 91°, sometimes 93°, and at these times the dews are heavy, and are seen in the morning. It appears, that in general the rains are not of long duration,

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though commonly heavy; pools of water are sometimes formed, but disappear in the course of a few hours: these rains, however, occurring for the most part at the turtle season, appear to have produced occasionally attacks of fever and dysentery, and it was at that period the Baan arrived.

"The posts occupied by the detachment, which consisted of thirty-five officers and men, were three in number, namely, the principal one or barrack, which is situated low, and surrounded by high grounds, about one hundred yards from the sea, is formed by several detached houses nine or ten feet square, and a large barrack-room, about forty feet long and fifteen broad: in this last there were about sixteen people residing. The several buildings are arranged in the form of a square, the smaller ones being occupied for stores, or by families, and the quarters of the officers are situated on the elevated ground to the south-east of the square, about twelve feet above it, and there the temperature was about two degrees lower."

"The post called Springs is situated at the distance of four miles and a half in a S. E. direction from the barracks, being at an elevation of about one hundred feet above them; and, with regard to the soil, corresponds, on its surface, in many places, with the neighbourhood of the barracks; there, however, the thermometer is commonly two degrees lower, and the relative variation is still greater in the twenty-four hours, being often in a ratio of 9°, 10°, and 12°. In some places the ground is covered with a superficial layer of earth, with here and there spots favouring vegetation. The same kind of volcanic ashes are also met with, but they are more compactly united; and the people lived in caves, hollowed out of this substance, in the sides of the mountain.

"The post on the Green Mountain, being about 2500 feet above the level of the sea, is situated immediately above Springs, at the distance of nearly a mile, and, on ascending

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thereto, the ground is seen completely to change its character; all trace of volcanic matter is lost, and it presents to the view a mass of calcareous rocks, covered, to a great extent, with a thin surface of earthy soil, which, throughout the year, is favourable to vegetation.

"This post is for days enveloped in clouds, occasioning catarrh and rheumatism, but the soil remains dry. The heat is from four to five degrees lower in the day than at the garrison, and at night from eight to nine.

"In July and August, the thermometer often stands at 65° in the morning, and the maximum is 80°.

"In February and March, the hottest season, the greatest height it attains is 85°."

"With respect to the period immediately preceding the fever in question, Mr. Thompson, the medical officer, who had charge, informs me, 'that though they were on the whole very healthy, yet they were by no means exempt from disease.' At the time of the Bann's arrival in 1823, the marines were in good health, and the garrison consisted of thirty-five, officers and men, independent of the women and children."

"It will be sufficient to observe, that the disease commenced with symptoms of high excitement, and a yellow appearance of the eyes, followed, in many cases, by vomiting of bilious matter, and by irritability of stomach; frequently by diarrhœa, after the first cathartic, and by great depression of strength, dark yellow suffusion, and death."

"The morbid appearances found on post-mortem examinations were chiefly confined to the mucous coat of the stomach and intestines, though many of the neighbouring parts showed marks of inflammation; the former generally contained a large quantity of a liquid of a dark colour different from bile. The villous coat, in many parts, slightly inflamed, and the whole lined with a white glairy mucus. The same appearances extended more or less to the intestines,

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and the vessels of the mesentery were enlarged. The treatment consisted, in the beginning, of liberal evacuation by the lancet, and purgatives, and, in the progress of the disease, calling in the aid of various other remedies, such as calomel, the cold affusion, blisters, &c., often without any benefit."

"The report of Mr. Thompson, the medical officer of the garrison, states, that the appearance of the fever amongst them is dated eighteen days after the arrival of the Bann, viz. on the 11th of May; but he adds, however, that one of the people was attacked, as early as the 28th of April, with symptoms of fever, which he then thought might be a mild case of the Bann's, which was scarcely above two days after the landing of the sick. The man thus attacked was a convalescent on the 7th of May. On the 11th of May, a boy (son of one of the sergeants) was violently attacked, and ultimately died; but it is neither known nor believed that he had any nearer communication with the sick of the Bann than passing daily at no great distance from the tents to feed his father's poultry, and he was never on board that ship. Up to this time, the restrictions on the intercourse between the ship herself and the garrison had not been much attended to, and certainly not at all as regards the communication of the garrison with each other; several things, such as sideboards, &c., had been landed from the Bann, which had been brought by her from Sierra Leone, and some of the officers and men had gone on board that ship (after the sick were landed), to the sale of the effects of some deceased person. From this time, however, every proper precaution was taken for preventing the extension of the disease to the outposts; notwithstanding which, six men, two women, and seven children, were taken ill at Springs, but fortunately none at the Green Mountain, though one of the men belonging to that post had been on board the Bann, at the sale before mentioned. Some days after the arrival of the Bann, Captain Phillips took up his residence at Springs; but, though he

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was much indisposed with a low fever, both the surgeon of the Bann and the assistant of the garrison are of opinion, that he did not suffer from the prevailing fever.

"About this time, the fever in the Bann had nearly ceased; but it went on, daily attacking some of the garrison; and it appears, by the official report, that twenty-eight were taken ill, of which number fifteen died, and thirteen recovered. Independently of the officers and marines above stated, two boys were attacked, both of whom died; and of six women, four died; seven children likewise suffered attacks of this fever, all of whom recovered; but, unfortunately, three younger children, the eldest being only four months old, died from want of their usual sustenance, after the demise of their mothers.

"While the Bann remained at the Island of Ascension, His Majesty's sloop Driver arrived at the same place, from the African station, in perfect health; the latter vessel had previously been in the river of Sierra Leone, subject to the same causes as the Bann, so far as Captain Phillips knows; but he is not acquainted whether she had communication with the Caroline timber-ship. Soon after her arrival at Ascension two clerks were sent on board the Bann, one of them to act as purser, and the other to make up the accounts of Captain Phillips; one died with fever, the other was seized with a bilious attack, of which he recovered; while Lieutenant King and Mr. Sinclair, who visited the Bann at the same time, both escaped. It appears, by the official returns from the Driver, however, that three in the whole were taken ill with the prevailing fever, two of whom were sent on shore, and one died on board; and the captain very properly put to sea, and used every precaution; and with these three cases the disease ceased."

General Remarks on the Epidemic Fever.

The ordinary causes of the prevailing fevers at Sierra

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Leone, and upon the western Coast of Africa generally, have been laid down, and will, perhaps, be considered sufficient to account for their occurrence and existence; and the results of the inquiries instituted respecting the epidemic serve fully to prove, that an aggravation of the causes which gave rise to endemic was the sole original cause of the epidemic. It also appears, that the operations of the great agent, malaria, may be compared with those of any of the active poisons on the human constitution, and that its influence seems to be exerted in proportion to the quantity imbibed; due allowance being made for the peculiarities of the subject, and his previous condition. After long usage, men's constitutions may undergo such a change from the natural or ordinary condition as to resist the fatal effects of very large doses of the most powerful narcotics. This is known to every practitioner; the same observation applies to the use of inebriating liquors; and a precisely similar result follows long exposure to malaria. That poison may be prevailing in a greater or less degree, and in proportion to the degree will numbers located in the neighbourhood of its formation be affected; but, as wherever there are swamps and jungle in a tropical climate there will be more or less malaria in existence, so, it may be supposed, individuals, not, apparently, so much predisposed as some of their neighbours, may be the first attacked through an accidental and irregular current of air from the acknowledged focus. This is, no doubt, the case on board of ship, when a few malignant cases only appear, and there has been no exposure on shore. When an individual has gone through the local or endemic fever, the justness of the simile, in regard to the operation of common poisons and malaria, is still more obvious. A person who is seasoned is proof against the quantity of malaria ordinarily in circulation, while the new comers, those who are unseasoned and unused to its effects upon the nervous and vascular systems, suffer from it. This is the case in ordinary

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seasons. But let the season be uncommon, let long-continued light rains, followed by a powerful sun, be supposed to prevail, malaria will then increase beyond the ordinary quantity, and the atmosphere will be so charged with it, that the individual said to be seasoned will be overpowered and die under its effects, as would the opium-eater, if he greatly multiplied his previously large dose. This increased generation of poison may be confined to a particular spot, or it may spread over a whole country, depending upon the extent of the particular cause alluded to. If confined to a particular spot, its existence can only be known by the occurrence of a few cases; whereas, if the cause be so general as to give rise to the same state of atmosphere over a whole country, the consequences will necessarily be extensive. This inference may be fairly drawn from the circumstances of 1829 and 1830 at Sierra Leone. The peculiarities of weather before referred to, respecting 1828 and 1829, prevailed, also, during the early part of the wet season of 1830, and the consequences were of a like character. In 1830, the cases of epidemic were few, but they were equally well marked with those of 1829.

Distinctive Peculiarities of the Epidemic Fever.

From all that has been recorded, it appears that, in cases of epidemic fever, an affection of the biliary organs was almost always simultaneous with, if it did not precede, the other symptoms of constitutional derangement; and, from all the *post-mortem* examinations, the corroding and destructive nature of the bile, in a deranged and vitiated condition, was most obvious on those parts with which it came in contact, chiefly around the entrance of the common duct into the duodenum, and extending back through the pyloric orifice of the stomach; other parts of the alimentary canal being, for the most part, affected only, if affected at all, in a degree proportionate with their relative distance from the entrance of

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the biliary duct into the intestine. These circumstances, added to the bile, towards the termination of the fatal cases, almost always becoming dark, thick, and tenacious, the ducts being generally obstructed, if not impervious, when examined after death, and the frequent occurrence of collapse, at an early period of the complaint, afford a most striking similarity between this disease and the epidemic cholera of India.* The latter, indeed, is more severe in kind, and runs its fatal course more rapidly; the force of its shock is more overpowering upon the nervous system, and re-action and inflammatory symptoms less frequently succeed, than in the case of fever; but they both seem to be derived from malaria, at least originally, making its first attack upon the nervous system; through which the biliary ducts become deranged; bile, of an altered and vitiated quality, is secreted and conveyed into the intestine; it irritates its mucous coat, and thereby causes contraction in that part of the intestine, and regurgitation into the stomach, which it excites to vomiting or violent retching; and, although these symptoms may disappear, local changes of structure too often take place, which, with the consequent continuous exhaustion, destroys the unfortunate patient.

It may here be inquired, perhaps, how this similarity is reconciled, if, in the worst cases of the Indian epidemic cholera no bile is seen. The fact appears to be this; that in the worst cases of yellow fever, as in the species of cholera alluded to, very little, if any, bile makes its appearance. A sudden collapse of all the vital powers follow or attend the operation of the hidden cause. Vomiting at first takes place, followed by retching or ineffectual efforts to vomit, and the patient in this case, though not so

* It is right here to observe, that the above opinion, which the author has entertained for a considerable time past, has also struck other medical practitioners of tropical experience with whom he has lately conversed upon the subject.

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suddenly as in cholera, sinks similarly within the space of from twenty-four to forty-eight hours. When, on the contrary, bile and feeble vomiting occur, death, as in cholera, is never so sudden. Re-action commonly follows, and a fatal termination, or recovery, then depends more upon contingent circumstances than upon the specific intensity of the malady. The event will chiefly depend upon the original powers of the individual constitution attacked, and the advantage or disadvantage consequent upon a judicious or injudicious practice.

Mode of Treatment.

The statements and the arguments which have been adduced, render it evident, that no fixed or unvarying rule of practice should be laid down in the treatment of epidemic or yellow fevers; for, whilst the author feels fully assured of the facts recorded by contemporary writers upon a similar subject, arising out of their own individual experience or general observation, he reserves to himself the right of confidently asserting that general blood-letting, the practice so frequently successful at the onset of this malady, would, and did, prove to be the most pernicious in the epidemic of 1829, at Sierra Leone. Such might be very different on board of ship, wherein no epidemical character really existed; it being lost and that of contagion having taken its place. In the cases of epidemic in 1829, not one of recovery is known to have occurred, on shore, wherein blood-letting from the arm was adopted; whilst very many recovered under a different mode of treatment. The state and nature of the complaint, in fact, as shewn by the dissections, was this, that more or less inflammation in the stomach, or alimentary canal, or in both, existed, and was apparently attributable to an acrid condition of the bile, however induced, and evidently attended with great *prostration of strength*, except under the rare occurrence of delirium, when a false

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show of physical power might appear: add to these considerations the fact, that salivation, when it occurred, was an indication of cure, and the *modus medendi* adopted, and recommended, though not always so successful of its object as could be wished, will appear, it is hoped, appropriate and founded on a just principle. That treatment consisted, at the commencement, as already stated in detail, in leeching, cupping, and blistering the parts affected; in opening the bowels by purgatives and enemata; in the employment of warm bath and *pediluvia;* in the administration of mercury, whether internally or externally; and in the occasional use of absorbents, or alkalies, and such medicines as were of an antispasmodic and sedative nature, without combining stimulating qualities.

It is highly important to remark here, that mercury must be given with much more caution than in the endemic fever; for, as the stomach is still more irritable in this than in that fever, an unguarded perseverance in the internal use of the remedy would frequently be attended with the most mischievous consequences. If there be pain of stomach and vomiting it will be wise to confine the use of mercury to copious frictions, with the mercurial ointment combined with camphor; and if the pains extend to the region of the liver, the generally existing obstruction in the biliary ducts may, by these means, be removed. Should the bowels become constipated under the above circumstances, or should there be any symptom of irritation, a mild evacuant or laxative enema should be had recourse to, rather than a powerful purgative; for the latter, if not rejected, would increase the inflammatory process in case such existed in the mucous membrane of the stomach or intestines. Let it be remembered, that *enemeta,* when called for and employed, are to be frequently repeated, until the desired effect be produced. If the existence of spasm be apprehended, a due proportion of tinct. asafœtidæ may be added to each enema,

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and if, even from spasmodic obstruction, the intestines should at first resist, they will, when full, give way, and thus, in general, freely expel their contents.

Concluding Observations.

Looking at the very melancholy and extraordinary deaths which occurred amongst the old standers during the season of 1829, they seem to be entirely attributable to the circumstance of the light rains having set in much earlier that year, and continued longer than in former years generally. The year 1823 is an exception affording similar results. The epidemics appear, indeed, to have resulted from an aggravation of the general or common cause of disease in this climate. The protracted duration and the increased power of the ordinary cause of malaria operating on the low swampy land of the Bullom country, impregnates the atmosphere gradually more and more with poisoned matter, which, by degrees, acquires qualities of an increased subtlety and a worse nature than it originally possessed. Thus strengthened, it naturally enough directs its envenomed influence to those whose nervous systems are most shaken and relaxed; and those, of course, are the "old standers," the men who have resided longest in the climate.

In illustration of this opinion, it appears very important to add, that almost every patient, labouring under debility, became more or less affected with the symptoms of the epidemic; and some of them, circumstanced as stated, died of that disorder.

In the gaol, many of the foreign prisoners, detained as pirates, had the formidable red tongue, with pain, and a sensation of tightness across the chest, the pulse being under the natural standard; but other bad symptoms were wanting, and they recovered. Four idiots in the above establishment, before alluded to, were all so affected, and two died.

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A few cases of debilitated drunkards, Europeans, residing in different quarters of the town, and labouring under other diseases, were attacked by the fatal symptoms of the epidemic, the red tongue, without fur, and always died. This symptom of red tongue was at one time so formidable and fatal, that it was looked upon as being symptomatic of the existence of a destructive disorder in the nervous system, and in itself demonstrative of certain death, although unaccompanied by any other alarming symptom. The universally fatal result could not be attributed to any other direct cause.*

These circumstances strongly support the opinion offered respecting the manner in which "old standers," more particularly, were attacked and carried off; they lead to the conviction, that the disorder was one of the nervous system, rather than one of the circulatory; for the succeeding reaction (which, however, did not always take place), when it did occur, invariably appeared to be in proportion to the previous apparent stamina of the subject; and when pain of head or other local pain was once removed, it very rarely occurred again: if it did return, the application of four or six leeches generally completely subdued it, nor was there any fever after. In many of the cases which appeared, not the slightest inflammatory symptom existed. On the contrary, the pulse and the temperature of the body were considerably below par; the pulse generally, in these cases, had a peculiar sluggish, but steady action, which is known to be demonstrative of debility; and, under such circumstances, no pain whatever was felt, except what, perhaps, would be

* Of these cases one was attended with very curious circumstances; a man, about nine months previously, had returned to Sierra Leone, with very bad ulcers upon him, from Fernando Po. His ulcers getting better, he was employed up the river, from which he eventually returned with diarrhœa: of this he soon recovered; but, in a state of extreme debility, he was afterwards attacked by the epidemic. His Fernando Po ulcers again broke out, attended with repeated hæmorrhages, and the patient died.

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better termed a sensation of stiffness across the loins than actual pain.*

"Old standers," who had lately been in England for the benefit of their health, and who, consequently, were not so debilitated as the others, were not so generally attacked; and, in such of them as were attacked, the reaction was more marked and less dangerous in character. Many were threatened with the epidemic, who fortunately escaped without even confinement to bed. These were affected with an unusual degree of languor, a partially red tongue, and pain in the chest; which yielded to a combination of blue-pill and sulphate of quinine and the application of tartarized antimonial ointment to the chest. This symptom of pain in the chest, as it was generally the first symptom, is to be looked upon as the immediate effect of the prevailing cause in the atmosphere upon the highly sensative mucous membrane of the bronchial tubes, as the inhaled air passes to the lungs and thence to the system.

Thus the remote causes of the epidemic must be considered to be altogether of local origin, and solely depending upon aggravation of the common causes of Sierra Leone fever, and that that aggravation of common causes entirely arose out of the peculiarities of season which exhibited themselves in 1829, as they did also in 1823. That excessive indulgence in eating or drinking, or in any of the passions, and exposure to the night air, may be considered predisposing causes, whilst grief, fear or anxiety, hard labour or violent exercise, may, on the other hand, be looked on as exciting, is unquestionably the fact.

It appears, also, that the disease never was contagious in Freetown, and that the villages owed their exemption from it to the protection afforded by the ridge of mountains running behind Freetown, and between them and the Bullom

* During the height of the epidemic, abscesses and sloughing sores about the parts of generation were very common, as well with debilitated Europeans as amongst the natives.

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Shore. Had the disease been contagious, it must have spread itself in the mountains by means of an extensive daily intercourse between the Europeans and natives in the villages with those in Freetown, and still more from the circumstance of convalescents retiring to the mountains. One patient relapsed while in the mountains, and was nursed by his European friends, who slept in his room whilst there was danger, during the protracted period of nine nights, and yet caught nothing of the disorder as it prevailed in Freetown and on the Bullom Main.

The observations as to the fatal character of the symptom of "red tongue," must be understood to apply particularly to the period when the disease was at its height. In the decline of the epidemic, red tongue was by no means a fatal symptom; and, in confirmation of that fact, in the middle of August, all the cases then under care of the epidemic, thirteen in number, and having the red tongue, recovered. This certainly may be attributed to a gradual decline in the virulence of the disorder, rather than to the results of improvements in the practice adopted. A favourable change in the virulence of all epidemic disorders, it is believed, takes place as they approach their termination, though, perhaps, that is not always allowed by practitioners who may have then been successful.

Those familiar with the history of disease on the western coast of Africa, may express some astonishment and dissatisfaction that the mortality which occurred among the troops in 1825 has not been remarked upon. That omission, however, has not arisen from forgetfulness, but from a conviction that the two cases are entirely distinct. In confirmation of this opinion, the official reports upon the subject have been referred to, and sufficient extracts for its justification are made.

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Extract from the Report of Dr. Barry, Deputy Inspector of Hospitals, to the Director-General.

"In 1824 the head quarters of the Royal African Corps were stationed at Chatham, in order to complete their establishment prior to their embarkation for the western coast of Africa. The ranks were soon augmented by recruits and volunteers, and, subsequently, their full establishment, formed by detachments of men from the Isle of Wight, transported from their native country, in commutation of other, but not severe punishments.

"Those acquainted with the climate they were destined for, had no difficulty in predicting, in some degree, the fatal events which succeeded.

"The greater number of those who escaped death during the last season, are, in a greater or lesser degree, affected with visceral disease, in consequence of which many of the recruits and volunteers have invalided. By a peremptory order the commuted men are debarred from this, their only chance of recovery.

"The regiment sailed from Portsmouth on the 4th of January, and, after a month's voyage, arrived at Sierra Leone at that period of the year, which, from its comparative salubrity, is denominated the healthy season.

"The whole of the artificers were left at Sierra Leone to assist in erecting the new barracks; the remainder sailed for the Gold Coast, and arrived in good health off Cape Coast Castle.

"The Ashantees having retired, however, into the interior, such a large force was not required; part, therefore, returned to windward, and the soldiers were subsequently distributed to the garrisons of Sierra Leone, Gambia, and Isles de Los."

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Report of Mr. William Ferguson, Surgeon to the Royal African Colonial Corps.

"Nearly twelve months have elapsed since a large body of European troops arrived on the western coast of Africa; although this was not the first time that the African settlements were garrisoned by European troops, yet the circumstance was so far novel, that the number of white soldiers on the station at any previous period did not amount to half of those that arrived during the early part of the last year.

"The settlements having been for several years garrisoned by native troops, among whom acute diseases are rare, medical duties then, though sufficiently arduous, were light, compared with the harrassing and melancholy work which has fallen to the lot of every medical officer on the station during the last year.

"The extent of sickness and mortality has been great beyond all former experience, but not greater than was expected, considering the habits and description of the men; who, not deterred by the dangers arising out of natural causes, seemed to court destruction by perseverance in excessive intemperance and debauchery, and by fearless exposure to sun, rain, and dew, by day and night. Notwithstanding all this, during the first quarter there was but little sickness that could be directly ascribed to climatorial influence.

"The dry season was then at its height, the weather was genial, but the season was marked by the endurance of the dry easterly wind, called the harmattan, for a longer period than the oldest residents remembered, and the thermometer fell at one time to 72°. The troops, during this period, were very healthy; they were, however, but recently arrived.

"The civil and military officers, and the European population in town (merchants, &c.) were very healthy. The mer-

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chant seamen were very unhealthy, and many fatal cases of fever occurred among them.

"Remittent fever has been throughout the period the greatest source of fatality; the periodical rains were ushered in, as usual, by tornadoes, about the commencement of May. About this time, also, the troops, hitherto healthy, began to feel the effects of the climate and of their own folly; eighteen fatal cases occurred in May and June, and these were but the commencement of a series of disease and death unparalleled (as regarded the troops) in the previous history of the colony. There was great similarity in the symptoms in nearly all the cases; the accession was accompanied by great debility, generally with pain of back and loins, more rarely with pain of head, and in a few instances pain of epigastrium. Pulse generally about 96, extending rarely to 110, and of moderate strength; tongue white, light-brown, or yellow, more rarely greenish: this last not a good symptom. For the first day, sometimes the first two days, the dejections were of a natural colour; in the progress of the disease they always became black, sometimes dark and pitchy, at other times green; and, where they assumed a dysenteric appearance, the case was generally unfavourable. In a few cases partial suppression of urine occurred, with pain in voiding it, similar to the scalding sensation in gonorrhœa. High delirium was a rare occurrence, and did not cause an unfavourable prognostic when it appeared; it was, in fact, most difficult at any time to hazard a prognostic. Cases, which have, apparently, run a smooth course for four or five days, have taken a sudden turn, collapse has ensued, and the patient has been carried off in twelve hours. The occurrence of yellow suffusion has been uniformly fatal amongst the troops, and only two such cases have terminated favourably amongst the merchant seamen. There yellow cases have not presented in any instance that test of malignity, the coffee-ground or black vomit; in some, however, bleeding

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from the gums has taken place before dissolution, yet nothing of a contagious nature has appeared among us.

"The most unhealthy periods of the year have not been simultaneous at this place and the Gambia, although the experience of both places has clearly shewn the correctness of the general opinion, that the rains is the unhealthy, and the drys the healthy season. The following abstract of the number of cases of remittent fever treated, with the proportion of deaths to this particular disease, and to the whole strength, will shew the progressive increase and diminution of sickness to correspond with the commencement, maturity, and abatement of the rainy season.

Stations.	First Quarter.					Second Quarter.				
	Strength.	Treated.	Died.	Deaths to Cases treated.	Deaths to Strength.	Strength.	Treated.	Died.	Deaths to Cases treated.	Deaths to Strength.
Sierra Leone	138	..	..	..	..	289	46	13	1 to 3·61	1 to 22·2
Gambia....	..	..	..	..	..	140	3	..	..	..
Isles de Los	108	..	..	..	..	106	5	2	1 to 2·5	1 to 53

Stations.	Third Quarter.					Fourth Quarter.				
	Strength.	Treated.	Died.	Deaths to Cases treated.	Deaths to Strength.	Strength.	Treated.	Died.	Deaths to Cases treated.	Deaths to Strength.
Sierra Leone	585	386	161	1 to 2·39	1 to 3·63	522	146	37	1 to 3·94	1 to 14·1
Gambia....	108	92	74	1 to 1·24	1 to 1·45	112	89	60	1 to 1·47	1 to 1·86
Isles de Los	103	99	23	1 to 4·3	1 to 4·47	75	120	7	1 to 17·1	1 to 10·7

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"The above calculations are reduced in decimals to the $\frac{1}{100}$th part, and shew, that, in the course of the year, the bilious remittent fever of the country has been fatal in the proportion of,

At Sierra Leone, 1 to 2.73 of the cases treated.
Gambia, 1 to 1.57 ditto.
Isles de Los 1 to 7.00 ditto.

"It appears from this abstract, that the Isles de Los has been the healthiest station on the windward coast during the year; but it may be proper to state, that all the recruits were picked out and sent to that station in the early part of the year. They were young men of sound constitutions, and not addicted to the debauchery, intemperance, and consequent nocturnal exposure, which so fatally marked the garrisons of Sierra Leone and the Gambia.*

"On the whole, there has been more uniform sickness at Sierra Leone during the dry season, and greater mortality at the Gambia during the rains; leaving, however, the general balance of health between the two stations in favour of Sierra Leone.

* Unfortunately, youth and sound constitutions are not safeguards against bilious remittent fever. The superior salubrity of Isles de Los seems to have been the real cause of superior health.

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CHAPTER VI.

MEDICAL TOPOGRAPHY OF THE BRITISH SETTLEMENTS ON THE SOUTHERN OR LEEWARD PORTION OF THE WESTERN COAST OF AFRICA; ALSO OF THAT COAST, EXTENDING FROM THE BAY OF SHERBRO TO CAPE LOPEZ, BOTH INCLUSIVE; THE CLIMATE AND SEASONS OF THE WHOLE LINE OF COAST; TOGETHER WITH A SIMILAR ACCOUNT OF THE ISLAND OF FERNANDO PO.

The Coast, Rivers, &c. from Cape Sierra Leone to Cape St. Anne.

LEAVING Cape Sierra Leone on the larboard or left hand, the coast runs about S. by E. ½ E. for thirty miles, when Cape Shilling occurs. The shore is shelving, and in the rainy months, and when the wind is to the southward of S. W. or S. E., there is a considerable swell. The beach is sandy, and its inland termination is marked by thick underwood. The back ground is occupied by high land, the chain of Leone mountains stretching nearly from the one cape to the other, with a graduated descent toward Shilling, which is low, but from being covered with lofty trees, looks like an island at a distance of ten or twelve miles. As in the immediate neighbourhood of Freetown, so in this district, the Leone mountains are covered with wood and vegetation to their summits. Opposite to Cape Shilling, lie the Bananas, at a distance of ten miles, S. W. Immediately to the southward and eastward of Cape Shilling, is Yawry Bay, the one extremity being formed by the Cape, and the other by Tassa Point, which is about twenty miles S. S. E. of Shilling. The bay is semicircular, and peculiarly shelving, there being

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but a few feet water for miles from the shore. It contains some productive oyster-beds. The beach is of fine white sand, and is bordered by groves of palms, which luxuriate in a heavy rich absorbent soil. Three inconsiderable and unnavigable streams merge into this bay. Six miles W. S. W. from Tassa Point are the Plantain Islands, which, for the purposes of navigation, there being no passage for vessels of any burthen between them and the main, form the northern extremity of the Bay of Sherbro. The western side of that bay is formed by the great shoals of St. Anne, which extend from Cape St. Anne between thirty and forty miles in a N. W. direction. The N. W. entrance to Sherbro Bay is fifteen miles across, and the greatest breadth of it is about eighteen miles. The soundings all over the Bay are extremely irregular. The general place of resort for large trading vessels is opposite to Jenkin's-town, which is on the main in the southern extremity of the Bay, and near the river Bagroo, a small river, accessible only to vessels of inferior size and mergring into the mouth of the River Sherbro.

The River Sherbro, or Sherburg, is also called Bomba Jong, and Palmas Selboba. Its mouth is situated in the depth of the Bay of Sherbro, and is considered by some writers to be formed by Tassa-Point and the Turtle Islands, five or six intrinsically insignificant patches rising in the midst of the St. Anne Shoals, at a distance of twelve or fifteen miles from the Cape. That, however, is giving too great an extent to the river, which terminates between the N. E. point of Sherbro Island, Cape St. Anne being the N. W. point, and the opposite coast on the main-land. The Sherbro is navigable by large ships twenty-five miles inland, as far as Bagos, a native village, where the English had formerly a factory, and by small vessels for upwards of one hundred and fifty miles further, as far as Kedham, where the channel becomes narrower, and is soon rendered altogether impracticable. Even in the lower part of the Sherbro the chan-

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nel is confined, owing to several islands, which divide it into branches. On two of those islands, York and Jamaica, the British formely had settlements, but they have retired from both. The Island of Sherbro is a low level fertile tract, extending twenty-two miles from S. E. to N. W., and yielding rice, maize, water-melons, and other fruits. The distance between its S. E. extremity and the main land is inconsiderable, and the channel is only sufficiently deep for the passage of small craft. In all their leading features and characteristics, the Sherbro and its vicinity resemble those of the Sierra Leone and the Gambia, and their adjacent country, in so remarkable a degree, that it would be a mere work of supererogation to do more than to mention the fact: they are also equally inimical to the constitution of Europeans, and from precisely similar reasons. In the year 1825, General Turner, then Governor of Sierra Leone, took possession of the mouth of the Sherbro, in the name of the British Government, but it has since been resigned to France. This is, perhaps, unfortunate, as African teak, which has become scarce in the Sierra Leone, is abundant on its banks, and the slave-trade has been revived on its waters. The inhabitants of this district are not numerous, but they are tolerably industrious, and inclined to trade and agriculture. They are noted for the manufacture of matting made out of stained grass.

The Coast, Rivers, &c., from Cape St. Anne to Cape Mesurada.

From Cape St. Anne to Cape Mesurada the distance is about one hundred and thirty miles, and the coast is nearly south-east. The shore continues to be shelving, and soundings are generally to be obtained long before the land is made. With the exception of Cape Mount and Cape Mesurada, the coast is low, marshy, and much intersected by streams. There is a fine sandy beach, but it forms an edge only to the land, the soil of which is of a deep and heavy

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clay, and is covered with bush and wood. Cape Mount lies in lat. 6° 15′ N. and long. 10° 34′ W. It is distant from Cape St. Anne between eighty and ninety miles, and is a peninsula stretching into the sea, E. S. E. and W. N. W., with two bays on the north-west side, affording good secure anchorage, excepting when violent south or south-west winds prevail. Cape Mount may be seen nearly forty miles off in fine weather, and when seen from the sea, at a distance of ten or twelve miles, it has the appearance of a great mountain, with a superior and an inferior summit, rising out of the ocean. What was formerly commonly called the windward coast, and is so designated still by traders, commences at Cape Mount. This name, though inappropriate on general principles, is natural enough considering its origin. Up to a recent period, the British had little or no barter trade, excepting in slaves, to the westward of Cape Mount, and in consequence of the strong south-east current, which prevails along this coast, traders of course most commonly commenced their operations here, and progressively ran down the shore to their last place of destination, which was generally the River Danger. They, therefore, named the weathermost part of the coast they visited the windward; but, in doing so, they had no thought at all of the world without the immediate sphere of their own labours. From Cape Mount to Cape Mesurada the distance is forty-four miles. The latter cape is also called Cape Cortese, and is easily distinguished from the former. It is a lofty headland, with a flat summit of a fertile soil, and shaded with trees, and is almost surrounded by water. The declivity on the south side, towards the sea, is gradual, but the descent on the north side is abrupt and almost perpendicular. When Cape Mesurada is distant a few miles, and bears N. E., it assumes the appearance of an island with groves of trees on the northern part.

After leaving Cape St. Anne, the first river that occurs is Boom Kittam, which disembogues partly into the sea, off

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Manna Point, the southern extremity of Sherbro' Island, and partly into the Sherbro. This river is altogether unimportant. In the interior the land is high, but the banks of the Boom Kittam and the neighbouring coast are low, and covered with underwood. At a distance of about thirty miles further to the S. E. is the river Gallinas, which is accessible only to small vessels, in consequence of a spit of sand and shoals at its mouth. Formerly, the Portuguese had a fort and colony there; but now the spot, on which the fort stood, is six miles from the land, and has several fathoms of water upon it: ships sometimes lose their anchors among the ruins, or bring up fragments of the old walls. The Gallinas is celebrated for the cam-wood which grows upon its borders, and which is considered by many to surpass that of Guinea. A few miles to the S. E. of the Gallinas are the Manna and Sagury, two unimportant streams, which unite into one at a short distance from the coast. On the N. W. side of Cape Mount is a cognominal river. It is not very considerable in size, but it is noted for the activity of its trade. On its banks are fertile plains, bordered with trees, verdent throughout the year; and to the northward is an extensive forest. Rice, maize, millet, and fruit, are the chief products of the soil. The only other river within this district of coast is the St. Paul, which is also called Rio Duro and the Mesurada, its mouth being a short distance to the westward of the cape of that name. The Mesurada originates far inland, and its banks are covered with ever-verdant trees, which have a fine appearance. In a commercial point of view, this river is of some importance, and the products of the neighbouring soil are cam-wood, sugar, rice, palm oil and wine, indigo, cotton, tobacco, and an abundance of fruits.

From Cape St. Anne to near Cape Mesurada, the country is but thinly peopled, and the whole of the inhabitants are comprised in two tribes, the Veys Berkomas, and the Quojas Berkomas. The Veys are descendants from the

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ancient inhabitant, and are now a scanty, weak, and dependant race. The Quojas are more numerous and powerful. They live in huts of a circular form, surrounded by fences of wood, cultivate their fields and subsist chiefly on rice. Excepting in the vicinity of Cape Mount and Cape Mesurada the inhabitants have but little trade with strangers. In dealing with these people the utmost patience and forbearance are necessary, for they will immediately break off a negociation on the slightest disposition to violence or direct opposition being manifested. The system of trade, from Cape Mount to the River Danger, consists entirely of barter, money and every other mode of commerce being disregarded or unknown. What is called the bar trade is practised from Cape Mount to Cape Mesurada, and the appellation has originated in the value of all merchandise being estimated at so many bars of iron. At Cape Mount the natives are treacherous, and it is dangerous for boats to land there unless well armed. Cam-wood and ivory are the principal articles of trade, which the natives readily bring off in their canoes.

The Coast, Rivers, &c., from Cape Mesurada to Cape Palmas, including the Grain Coast.

This district forms the westernmost of Upper Guinea, and embraces about two hundred miles of sea-coast. It is also called the Pepper Coast, and Malaguetta, in consequence of the long pod pepper and the grain of Paradise with which it abounds. Cape Palmas bears about south-east from Cape Mesurada, and so gradually shelving is the shore, that it may be coasted down in the night with the greatest safety, if care be taken not to approach within from four to six miles of the land, and the distance may easily be judged by not shoaling on twenty fathoms. It would be safer to run in much closer with the land if due precautions were taken to prevent all

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accidents, but it is not desirable or advisable to do so, unless some particular object is to be accomplished. There is, however, mostly, a heavy swell rolling against the beach from the Atlantic, especially during the rains; and as there is but little or no shelter along the coast, and very few safe bays or spots for anchorage, it is most prudent to keep at a considerable distance from the shore. Generally speaking, in fine weather, the land may be seen from the deck of a moderate-sized ship at a distance of twenty miles, when there will be soundings of from fifty to fifty-five fathoms, and that circumstance may serve as a guide to the navigation on approaching this coast in the night.

There are no striking headlands, capes, or promontories, and so monotonous is the formation of the coast, that the mariner generally finds his beacon to consist of a tree, or a clump of trees, or some more trifling or artificial object. The land is almost uniformly low, without variety in appearance; and the coast, considering its extent, diverges but little from a right line. There is a beach, generally narrow, of fine white sand, which is skirted by a deep, heavy earthy soil, naturally overgrown with jungle and underwood, interspersed occasionally with palms and trees of the nobler growth, and, at some little distance further inland, dense forests are seen to commence. The soil is naturally absorbent, and being watered by many streams, (in the whole district there is scarcely a run of water worthy of the name of river,) as well as by the rains, it is excellently adapted to the growth of rice and other farinaceous grasses or roots. The mode of culture pursued with reference to such productions is extremely simple. A patch of ground is cleared of the underwood, principally by burning in the dry season, and with little or no other preparation of the land, just previous to the commencement of the rains, the seed is sown. It springs up with the rains, and ripens with the returning drys, when it is gathered or cut, and, towards the close of

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the drys, the withered stubble is burned, and that being accomplished, without the land being manured or otherwise prepared, fresh grain is thrown in.

Although there is not a single English settlement on this coast, and the rivers and native towns are but of little importance, still it may be desirable to give a brief sketch of them. At twenty-four miles S. E. by E. from cape Mesurada is the river Junk, or Junco, which is a shallow stream, with a rocky entrance, of about 500 paces broad. It flows slowly through a level and fertile country, and its banks, in many places, are shaded by fruit-trees and flowers. The inhabitants of the neighbourhood are a tolerably well-proportioned, peaceable, industrious tribe of negroes. Their principal employments are to cultivate rice and make salt, and to collect their articles for trade; the chief of which are sea-horse teeth, skins of wild beasts, and a species of cotton-cloth. Between the Junk and Mesurada the natives are noted for speaking the most elegant language in use in this part of Africa. Some writers consider the Junk as the western boundary of the Grain Coast, but the more reasonable limit appears to be that already assigned. From this river to Bassa point the distance is about twenty-two miles, and within it are the trading villages, Piccanini Bassa and Grande Bassa, and a small river, called the St. John. Bassa point is low and known by nine large trees. In the interior of the Bassas are large forests, which are frequented by immense droves of elephants, and the trader rarely finds those towns, especially the larger one, without a supply of ivory. At Grande Bassa the bar trade terminates, and another system of barter, called the round trade, commences. A round is an arbitrary mode of valuation, and consists of one, or an equivalent for it, of every article employed in this traffic. Seven miles S. E. by S. of Bassa point is the river Tobaccouce, which has four or five immense trees, and a large rock at its entrance. There is a small trading town here. From Bassa point to cape Palmas

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the ground is throughout foul and rocky. Continuing in a south-east direction from the river Tobaccouce to the river Cestos is a distance of thirty miles. A small stream, the Young Cesters, and five trading villages, Young Cesters, Piccanini Cesters, Grand Currow, Timbo, and Manna, occur between those rivers. The river Cestos, when approached from the sea, may be recognised by three hills inland, one of which is much smaller than the others. The entrance to this river is rough, with strong currents, and is interrupted by blind rocks, most of which have six feet water over them. The river is, however, navigable by small craft for a distance of several leagues. Its source is unknown. Rice and millet form the common food of the natives, and long-pepper, ivory, gold-dust, and skins, are their staple commodities of barter. From the river Cestos to cape Palmas the distance is about one hundred and twenty miles south-east. On this part of the coast the natives evince a greater familiarity with commerce than they do further to the westward. Many of them willingly engage themselves in gangs to assist ships in the more laborious of their duties, and they are highly serviceable from their ability to bear exposure to the climate. They are, in general, strong, willing, faithful, hard-working people, and are content with a small dash, or present, as a remuneration for their labours, over and above their keep, when they are discharged, which is, for the most part, at Prince's island, or St. Thomas', from whence they find conveyance back to their homes. There are two or three small rivers and a number of trading villages on this line of coast, but the only places which are at all considerable, are Sanguin, Settra Krow, and Grande Cestos. Sanguin, or Zanwign, is nearly eighteen miles S.E. of the Cestos, and is situated on the western bank of a narrow river of the same name, which is navigable by small craft for several leagues. The trade of this place was long engrossed by the Portuguese, and consists of long pepper and ivory. A little to

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the westward of the river is a clump, bushy on the top, half a league from the shore: it is called the Devil's Rock. From Sanguin to Settra Krow the coast lies S. E. ½ S. and the distance is thirty-six miles. Settra Krow is a large town, but the anchorage off it is extremely unsafe, owing to the foulness of the ground and the rapidity of the current. Between Settra Krow and the Grande Cestos, twenty-four miles from the former, is the Rio Das Escravas, an inconsiderable river, so denominated from the great number of slaves which used formerly to be shipped from within its precincts. From the Rio Das Escravas to cape Palmas, the distance is about forty-five miles S. E. by S. The cape is formed by two little hills, which are covered with palms, and lies in lat. 4° 22′ N. and long. 7° 39′ W. It is the southernmost point of Guinea, and is moderately high land, thickly wooded, and intersected with red clay fissures, which, at a short distance, look like tracks or roads. There is a large mud-walled town on the easternmost elevation; on the N. W. side there is a small gulf wherein vessels are sheltered from the south wind; on the west side the current is strong to the S. E.; and off the southern extremity there is a sunken rock and some dangerous shoals.

Although ivoy is to be procured in considerable quantities upon the Grain Coast, Malaguetta pepper and rice seem by nature intended for its chief staple articles of trade. They may be grown to almost any extent, though they are now comparatively but little cultivated, owing to the limited character of the demand. The pepper is excellent, but it appears to great disadvantage, in consequence of the natives not possessing the art of properly cleansing it.

The Coast, Rivers, &c. from Cape Palmas to Cape Lahou: The Ivory or Teeth Coast.

The shore to the eastward of cape Palmas, for between

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one hundred and eighty and one hundred and ninety miles, is designated the Ivory or Teeth Coast. Some geographers extend the term to the coast as far as cape Appolonia, which is upwards of one hundred miles to the eastward of cape Lahou, but the best practical writers and authorities, those who have visited that region, agree in fixing the eastward boundary of the Ivory Coast at cape Lahou. That cape is distant from cape Palmas about one hundred and eighty miles E. N. E. This coast throughout has no important projections, and is but little indented; and when deleniated on paper, apparently forms two shallow bays of unequal dimensions; the inferior or lesser one laying between cape Palmas and point Tabou, which are distant from each other about thirty three miles, and the larger one extending from point Tabou to cape Lahou, a distance of one hundred and forty eight miles. On approaching the shore the bottom is generally shelving, but in most parts extremely foul, and there are very few spots affording safe anchorage to be found. The beach is sandy, but so much pervaded by a high surf, as to render landing impracticable, with any thing like security, in European boats. The land is mostly low and marshy, but not invariably so, and presents much the same appearance, as to character, as the Grain Coast. Within the beach the soil is of a deep clay, and where it has been removed rocks of the primary formation are exposed. In several places patches of clay-slate, and micaceous schistus are to be seen, and there are also some masses of granite. The land is much intersected by rivulets, but there is not a single river of importance or considerable extent. By nature the country is thickly wooded. The palm-tree abounds, and where the larger vegetable productions do not occur, the mangrove and other shrubs, which luxuriate in a moist and warm region, prevail, even to the beach; and so rapid is vegetation, that it is difficult to keep the ground clear for cultivation, or to preserve paths through the underwood.

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The products of the soil are cotton, indigo, rice, and other farinaceous grains, and fruits. A great variety of tame animals abound in the lower part of the country, and the forests, which commence at a short distance from the coast, furnish shelter and sustenance to an immense number of elephants. This district is far from being numerously peopled, and its present inhabitants are deceitful, suspicious, and cruel. The old inhabitants are reported to have been honest, kind, and well-disposed, and the change is attributed to the corruption arising from an intercourse with slavers and other unprincipled Europeans. They are not, however, altogether destitute of trade, and the principal articles which they barter are teeth, gold, cotton, palm oil and wine, grain and salt. Much the same mode of traffic is pursued as on the Grain Coast. The most considerable stations for trade are at the rivers Cavally, St. Andrew, Lagos, and Lahou. The Cavally is fifteen miles from cape Palmas, and has generally a plentiful supply of rice and grain of all sorts, and a considerable quantity of ivory. From point Tabou to the river St. Andrew the distance is sixty-six miles. The neighbourhood of the St. Andrew is recognizable from some high land, named Drewin, which stretches along nine miles towards the river, and has two large round-topped trees on its summit. From a peninsula running a considerable distance into the sea, the land abreast of the river forms a sort of bight or bay which presents a safe roadsted. The whole of that peninsula is a high level rock, having a platform of four hundred feet in circuit, and commanding the neighbouring district. On every side it is steep, and it is inaccessible, except by a narrow neck of land which connects it with the main. East of the river is a line of red cliffs, extending twelve miles, which enable the navigator to distinguish this place with facility. The river, near its mouth, is augmented by another stream, and is navigable by boats for six or seven miles. At its entrance, the country is extremely pretty, it being rich in

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lofty trees, fertile fields, and verdant meadows. Two miles and a half from the mouth, on the eastern or right hand side, there is an abundance of good water. Caution, however, is necessary; for the natives, who have several villages on the banks, are treacherous to cruelty. The river Lagos is thirty-three miles from the St. Andrew. It is insignificant in its dimensions, but the villages in its neighbourhood are generally well stocked with articles for barter. The Lahou is a small river near the cape of the same name, which is a low point of land, and lies lat. 5° 17′ N., and long. 4° 30′ W. The neighbourhood is far more populous than the generality of the coast, and immediately to the westward of the river is a large native town, which extends nearly three miles along the beach, which is of fine yellow sand. The adjacent territory affords all kinds of provisions, and the town, which is much frequented by European traders, is generally able to supply a large quantity of the staple articles of trade.

Of this country generally it may be remarked, that the quantity of palm oil, which might be collected in it, is great, almost beyond credibility; but the natives have little acquaintance with the benefits arising from industry or from commerce.

The Coast, Rivers, &c. from Cape Lahou to the River Assinee—The Quaqua or Adou Coast.

The extent of coast comprised in this division is about eighty miles, and it runs irregularly; but, on the whole, something to the northward of east. It presents no novel features, whether in the approach to it, its appearance, or its productions. The natives, however, prosecute their barter by a different system to those which have been noticed, and it is termed the ounce or ackey trade. Those names originated in the practice of every article of merchandize being estimated at so many ounces or ackeys of gold, the latter being the sixteenth part of an ounce troy, and the former

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the full ounce troy. From Cape Lahou to Jack Lahou, a small native trading town, the distance is thirteen miles east; and thence to Piccanini Bassam the distance is twenty-four miles E. by N. ½-N. Opposite the latter place the shore is steep, there being one hundred and forty fathoms two miles from the beach; and from that circumstance the bay, which occurs here, has received the name of the Bottomless Pit. Twenty-four miles E. S. E. of Piccanini Bassam is the town of Grand Bassam, standing on the eastern bank of the river Cesta. The coast here is unusually low, but the town is a considerable place for trade, and is also well supplied with refreshment, and water. The anchorage is good, the bottom being mud and clay. The river Assinee is nineteen miles E. ½ S. from Grand Bassam. It is a difficult river to make out at any distance, in consequence of its mouth being shut in by immense high bushy trees. The river is navigable by trade boats for many leagues. About twenty miles from its mouth it extends into a considerable lake, and, again contracting itself, it has its rise far in the interior, among the Gold Country. The French had formerly a fort on this river, but the natives compelled them to abandon it in 1706, and demolished the fortifications. Nor does time appear to have removed their dislike to strangers; for, in the year 1814, the neighbouring hordes destroyed a town which stood on the beach, and possessed considerable trade. Whether this arose from jealousy of the benefits the inhabitants of the town received, or from fear or dislike of European commerce, it is difficult to say. The Assinee at present is seldom visited by the trader, but it nevertheless possesses many capabilities for commerce, although healthiness of situation certainly cannot be reckoned among the number. Palm oil is most plentiful immediately after the catoon custom or harvest home, which generally happens in September. What is usually termed the windward coast terminates at this river.

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The Climate and Seasons from the Bay of Sherbro to the River Assinee, embracing part of the Coast of Sierra Leone, the Grain Coast, the Ivory Coast, and the Quaqua Coast.

The climate of the whole of this line of coast strictly resembles that of the Gambia and the portion of Sierra Leone already treated of, in the one great leading particular of being most unfavourable to the European constitution. In the temperature there is but little difference, but in the character and periods of the seasons there is sufficient variety to call for notice.

During the months of December, January, and February, which constitute the dry season, the average height of the thermometer, Fahrnheit, on board of ship, at half-past 2, p. m., which is the hottest period of the day, is about 86°; at 8 p. m. 84°, and at 8 a. m. 81°. The weather, during these months, is dry, it being very seldom that any rain falls; but the night dews are generally heavy. There are regular, but mostly very light, land and sea breezes, and frequent and long continued calms. Occasionally the harmattan wind prevails for several days at a time. Its qualities are precisely the same as at Sierra Leone; but, on the lower portions of this line of coast, its power is the greatest. It blows from the eastward, and is supposed to pass over the Tarsha deserts. It is remarkable for its dryness and peculiar influence, both on the animal and vegetable kingdoms. The lips of the human species become parched and shrivelled, the whole of the body feels unusually dry, and there is a degree of languor and lassitude experienced, principally by the natives and Europeans sometime in the climate, that is very oppressive. It drys and heals ulcers with rapidity, and frequently brings a favourable termination to remittent fever and ague, and is considered to be decidedly beneficial to all cutaneous dis-

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eases. Its action on the vegetable world is equally powerful. The foliage becomes dry and shrunk, blossoms fade and wither, pools lose their water as if by magic, and every thing exposed to it dries with extraordinary rapidity, and becomes loaded with a very fine reddish sand. When the harmattan is strong it frequently extends fifty or sixty miles to seaward, blowing a strong top-gallant breeze, and maintaining its character, even to covering with fine sand the rigging and the sails of ships; it is also accompanied by a thick haze, which increases as the shore is approached. It is contended that, upon a strict analysis, the harmattan will be found to be the syroc of the Mediterranean, only in a modified form; and it has been remarked that, in years when there has been but little or none of this wind, as in 1823, there is much and fatal disease, especially amongst the Europeans.

During the months of March, April, and May, and the early part of June, the thermometer averages, at half-past 2 p. m. about 83°, at 8 p. m. 81°, and at 8 a. m. 80°. It is, however, far more irregular than in the preceding months, owing to the fluctuations in the quantity of water in the atmosphere. This period embraces what is called the tornado season. Partial showers of rain of brief continuance occur frequently throughout March, and these are almost invariably experienced, and in an increased degree, during April and May, and the early part of June. Tornadoes are of frequent occurrence, but they are rarely so violent as in the neighbourhood of the Sierra Leone. The approach of one of these furious storms is always indicated by a rapid fall in the thermometer: in a quarter of an hour it will decline from 86° to 74°, and sometimes even to 69°, beginning to lower with the first drop of rain. After the elementary commotion has terminated the thermometer rises speedily to its former height, but the cuticular sensations are cooler and fresher for about three hours, than are indicated by its range. After that period a yellowish haze generally appears in the horizon; the atmosphere

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becomes again oppressive; and inactivity of mind and disinclination to bodily exertion are commonly experienced, until they are dispelled for the moment by another tornado.

The latter part of June, July, August, September, and the early part of October, are comprised in the rainy or wet season. The rains commence on the Quaqua Coast about a fortnight earlier than they do at the Sierra Leone, and they do not fall with so much violence at the former place as they do at the latter. They are ushered in by strong winds from S. W. and S. S. W., which prevail during their continuance. The intervals between the falls of rain are, to the European novice in the climate, delightfully cool, and, indeed, the most pleasant moments in the year; but the natives look chilly and complain of the cold, and the "old standers" among the Europeans wisely have recourse to fires. During this season the thermometer averages, at half-past 2 p. m. 76°, at 8 p. m. 73°, and at 8 a. m. 70°. The height of the rainy season passed, storms and partial showers are again of frequent occurrence, though more especially in Sierra Leone, and continue during the latter part of October and part of November, when the drys return. But for the tumultuous sweep of the tornado dissipating the generated malaria, which, after the rains, fills the atmosphere, the greater part of this division of the coast would be uninhabitable by the human species, if not by all the superior classes of animals. The quantity of rain which falls in the course of a year has been averaged, at the Gambia, from ninety to one hundred and fifteen inches; at Sierra Leone, from one hundred to one hundred and twenty inches; and on the Grain and Ivory Coasts, from ninety-five to one hundred and ten inches. The following register of a pluviameter kept at Sierra Leone, will serve to shew the progress of the rainy months in that region.

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Register of Pluviameter, from the 8th of June to the 31st of August, 1829, kept at Sierra Leone.

Date.	Morn. Inches.	Even. Inches.	Total. Inches.	Remarks.	Date.	Morn. Inches.	Even. Inches.	Total. Inches.	Remarks.	Date.	Morn. Inches.	Even. Inches.	Total. Inches.	Remarks.
June 8	..	1·10	1·10		July 7	1·	3·	4·	Tornado.	Aug. 5	3·	1·	4·	
.. 9	1·	1·10	2·10		.. 8	2·25	2·	4·25		.. 6	..	..	..	
.. 10	1·	1·	2·		.. 9	3·	3·	6·		.. 7	2·15	..	2·15	
.. 11	2·20	2·20	4·40		.. 10	7·10	7·5	14·10		.. 8	..	..	..	
.. 12	·10	1·	1·10		.. 11	7·5	3·	10·5		.. 9	2·10	..	2·10	
.. 13	3·	..	3·		.. 12	3·	1·	4·		.. 10	3·	..	3·	
.. 14	1·10	1·	2·10		.. 13	2·25	2·	4·25		.. 11	3·25	..	3·25	
.. 15	..	1·10	1·10		.. 14	3·10	2·	5·10		.. 12	3·10	1·	4·10	
.. 16	1·	2·	3·		.. 15	7·5	2·	9·5		.. 13	5·	1·	6·	
.. 17	2·10	1·	3·10		.. 16	..	1·	1·		.. 14	3·	..	3·	
.. 18	3·	..	3·		.. 17	..	1·25	1·25		.. 15	1·10	2·	3·10	
.. 19	1·10	2·	3·10	Tornado.	.. 18	2·10	4·	6·10		.. 16	2·25	4·	6·25	
.. 20	2·75	1·	3·75		.. 19	1·	1·	2·		.. 17	7·	..	7·	
.. 21	1·10	1·	2·10		.. 20	2·25	..	2·25		.. 18	..	..	..	
.. 22	1·25	1·	2·25		.. 21	..	..	..		.. 19	2·25	1·	3·25	
.. 23	1·10	2·	3·10		.. 22	3·25	1·	4·25		.. 20	3·	1·	4·	
.. 24	2·	2·25	4·25		.. 23	1·	1·	2·		.. 21	4·10	1·	5·10	
.. 25	1·25	1·	2·25		.. 24	2·25	1·	3·25		.. 22	3·	7·	10·	
.. 26	1·	2·25	3·25		.. 25	2·	4 25	6·25		.. 23	7·	9·	16·	
.. 27	2·	2·	4·		.. 26	1·10	..	1·10		.. 24	6·10	2·	8·10	
.. 28	3·25	1·	4·25		.. 27	2·	..	2·		.. 25	2·15	..	2·15	
.. 29	2·25	1·	3·25		.. 28	1·	2·	3·		.. 26	..	3·10	3·10	
.. 30	1·	2·	3·	Tornado.	.. 29	2·25	..	2·25		.. 27	1·10	..	1·10	
Juy 1	3·25	1·10	4·35		.. 30	2·	1·	3·		.. 28	1·10	..	1·10	
.. 2	2·	1·	3·		.. 31	2·	1·	3·		.. 29	1·	..	1·	
.. 3	1·25	2·	3·25		Aug. 1	1·25	3·	4·25		.. 30	2·10	..	2·10	
.. 4	..	4·	4·		.. 2	1·25	3·	4·25		.. 31	1·	5·	6·	
.. 5	2·	3·	5·	Tornado.	.. 3	3·25	1·	4·25						
.. 6	..	1·25	1·25		.. 4	2·	2·10	4·10						

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The Coast, Rivers, &c. from the River Assinee to Cape St. Paul—The Gold Coast.

The coast from the river Assinee to cape St. Paul, viewed as a whole, forms a considerable projection into the sea, with two very unequal sides; that nearest to the Quaqua Coast comprising a distance of only sixty-six miles, and extending in an E. S. E. direction from the river Assinee to cape Three Points, and the other extending in an E. N. E. direction from cape Three Points to cape St. Paul, and comprehending a distance of about two hundred and twenty miles. This district has been denominated the Gold Coast in consequence of the considerable quantities of that metal which are obtained by washing the alluvial soil, and are also borne from the inland hills by the rains, and found in the channels of rivers and the tracts of the torrents. This circumstance, for a long series of years, made it by far the most attractive part of the western Coast of Africa to the legitimate trader; and, not a great many years ago, the English had nine factories within its imits, the Dutch had twelve, and the Danes had five. Unfortunately, it must not be understood that none of the factories participated in the slave trade, as the contrary is the fact. The legitimate trade, however, was considerable, and the shew and appearance of the different establishments gave to the coast an air of civilization, which that of the neighbouring countries did not possess. Its reputation is now greatly diminished, for the dangers of braving the climate have not decreased, while the recompense, even if the venture be successful, is less valued than formerly. There is, nevertheless, considerable trade, and it is carried on purely by the medium of barter, which is practised in the manner described on the Quaqua Coast.

The approach from this shore from seaward resembles that to the Ivory and Grain Coasts. The land, however, is

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generally visible at a somewhat greater distance, and is not, for the most part, of so monotonous and flat a character when first made. The beach is sandy, with occasional rocky prominences; and, when the wind blows from the southward and westward, which it does in the rainy season especially, attempts at landing are rendered dangerous by an excessively heavy swell and high surf. The shore is generally unsheltered with bad anchorage, and there is an utter want of navigable rivers and a great dearth of harbours, good roadsteds and creeks, which is a great inconvenience to the navigator, and is injuriously felt by the merchant. These are serious detriments to the prosecution of commerce, and they also operate most unfavourably upon the health of those engaged in its pursuit, by increasing the necessity of exposure and augmenting the worst influences of the climate. There is also another grievous inconvenience to be encountered, which arises from a scarcity of wholesome fresh water, and is particularly felt in the dry season. For nearly two hundred miles, from the river Assince to Accarah, the coast country consists of gentle elevations, with occasional conical hills, which rise from one hundred to five hundred feet above the level of the ocean; it is thickly wooded, but the trees are seldom of large dimensions, either with respect to height or circumference; and it is much intersected by small rivers and rivulets. The soil in this part of the coast is mostly of a deep rich clay in the lower parts, and of a light dry character on the eminences. In the vicinity of the rivers and the streams of water there are many marshy spots, and there are also numerous salt lakes; which are mostly dry during the months of December, January, and February, increase with the commencement of the rains, spread to a considerable extent during their continuance, and are again exhausted by the returning drys. At the eastern extremity of this district, especially about Accarah, the country is level, and the soil is of a light dry and sandy character, resting upon hori-

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zontal strata of primary sandstone. Throughout this district vegetation is exuberant, and, where the slightest attention has been paid to cultivation, the soil is tolerably fertile, producing a large return in Indian corn, maize, (zea mays), rice, millet, sweet cassada (jatropha janipha), malignant cassada (l. manihat), ammoum grana paradisii, yams (dioscorea bulbifera), sweet potatoes (convolvulus batatas), and ground nuts (arachis hypogea). Tropical fruits in general are abundant, especially the plantain, banana, orange, lemon, lime, cocoa-nut, papaw, soursop, guayana, water-melon, together with a variety of the tamarind. Domestic animals are rather numerous on this coast, especially on the eastern part of it, and comprise among their number cattle, sheep, goats, and dogs. Birds are common, many of them of the finest plumage, and they embrace an abundant number of Guinea-fowl and partridge. The population is rather more numerous than on the Grain or Ivory Coasts, and the tribes of negroes are, in most respects, superior to the natives of those districts. They are tolerably proportioned, and are lively, fickle, jealous, and covetous; they are honest in their dealings with each other; but the European must be guarded and firm to escape their roguery. They are divided into five classes, kings, petty chiefs, or magistrates, proprietors, artists, and slaves; and this line of coast comprehends ten or twelve different states or communities. The native towns upon the coast are generally seen close to the walls of the European forts. The houses are principally built with clay and covered with grass. There is no design, order, or regularity, in the construction of the villages, but the huts are so much crowded together as to render it almost impracticable to pass between them. Ventilation is altogether out of the question; and, as the inhabitants are filthy beyond the possibility of description, the towns are often productive of disease to the natives themselves, as well as to Europeans. Interior of the coast-country the land frequently rises into lofty mountains, and

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the inferior part of it is mostly covered with unexplored forests, which are the resort of elephants, tigers, and jackals, and are infested by a great many species of venomous reptiles.

Connected with the natural history of this region, the late Mr. Tedlie made many judicious remarks. That gentleman possessed considerable opportunities for acquiring accurate information, and abilities and inclination to turn them to the best advantage.

Extracts from the Report of the late Mr. Tedlie, Acting Staff Surgeon on the Gold Coast in 1823, *to Dr. Nicoll, Deputy Inspector of Hospitals.*

"To the geologist and botanist this part of Africa presents an extensive field for investigation; and, from its wealthy resources, is no less worthy the notice of the statesman. There is very little difference in the soil along the sea-coast from Cape Palmas to the River Volta. Within four or five miles from the shore it is of a silicious nature; the clumps 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 feldspar and mica, are rapidly passing into decomposition, such more especially as are exposed to the influence of the air, rain, and 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 micaceous rocks intervene: it is in the valleys that the rich alluvial soil is to be found, formed of decomposed materials of the surrounding hills, washed down by the heavy torrents of rain, which are deposited with the matters of vegetable decomposition, and afford great richness

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to the original mould. Although the natives are ignorant of the true cause of the unproductiveness of the soil of the sea-coast, yet they are well acquainted with its fruitfulness in the interior; and, convinced that the sea-breeze is not genial to their plantations, they invariably form them ten or twelve miles inland.

"There are no mountains within several miles of Cape Coast, the highest land not being above two hundred feet above the beat of the sea; nor are there plains of great extent. The country, however, is not without beautiful scenery: clumps of hills are to be seen everywhere, 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 forest, until you reach the boundaries of the Wrinebah and Accra countries. Here extensive plains with clumps of trees and brush 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 watery surface for the action of the powerful rays of a vertical sun.

"The principal productions of the country, which the natives use as food, are yams, plantains, bananas, Indian corn, ground nuts, and cassada. Species of hebescus and lolaniem afford vegetables for soup, as well to natives as Europeans.

"Water, unfortunately, is not plentiful on the Gold Coast during the dry season."

Sketch of the Coast, Rivers, Settlements, &c.

Leaving Assinee, the coast lies E. ½ S. for thirty miles, when cape Appolonia occurs. Within this distance is the

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Gold River, eighteen miles from Assinee, with the negro town of Tabo on its west side, which is sometimes a place of much commercial activity, but the river is inaccessible to navigation, and the shore is excessively shoal for two leagues, with an indraught and heavy surf. From the Gold river to cape Appolonia the land undulates considerably, and forms a variety of hills and hummocks, of which four are remarkable on coming from the westward: they run in a line along the coast, and are interspersed with various clumps of palm trees. Cape Appolonia lies in lat. 5° 10′ N. and long. 2° 36′ W. The land is low, with a soil of a deep loamy clay, and much intersected by streams. In most places near the coast it is thickly wooded, but at a short distance in the interior large tracts of long rank grass present themselves, which are much frequented by elephants. The spot is an unhealthy one from its low and moist character and exhuberant vegetation, and also from a lake of some miles in circumference, with marshy banks, and which, even during the dry season, cannot fail to impregnate the atmosphere with miasmata. Near the cape, and between the sea and the lake, is a small British fort and settlement, which belonged to the African Company, when that establishment was in existence. The anchorage is bad and landing impracticable in European boats. The trade of this place is not extensive, and it is hardly possible that it ever could be rendered so: certainly not without immense and monstrous sacrifices; for the situation is full of defects. Six leagues and a half E. ½ N. of Appolonia lies the river Cobre, with the town of Axim and a Dutch fort and factory on the eastern side of it. The fort stands on a rock, which runs into the sea in the form of a peninsula, and is accessible only from the land side. There is a good landing-place, but the town is contemptible, and the tract of country unhealthy. The river is insignificant, being navigable only by canoes, but it is rich in gold-dust, which is borne by its current from the interior.

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The negroes here are industrious, and have cleared considerable patches of the low wet land, which are devoted to the production of rice and maize. The coast lies E. by S. ½ S. for about fifteen miles from Axim, when the western side of cape Three Points occurs. The coast here is more elevated and hilly, and near the cape is another, but less considerable, Dutch fort, called Brandenburg Castle. Cape Three Points derives its name from being a promontory of land presenting to the sea, on the south side, three points, which lie in nearly the same latitude. Between the west and east point the distance is about ten miles. The land is moderately high and even. Towards the surface the soil is light and sandy, but at a little depth it is of a deep fine red earth. It is tolerably productive, and by nature thickly wooded. Between the extreme points the coast forms two bays, which have a sandy bottom, and afford good anchorage and landing. Off the points the coast is bold, but excessively rocky, and there is a rapid current, which runs with a marked rippling, and frequently sets immediately on the land. The middle cape lies in lat. 4° 50′ N. and in long. 2° W. In the western bay is the native town of Tacramah, and in the eastern bay is the Dutch fort of Arquidah. On the eastern side of cape Three Points, and at a distance of twelve miles from Arquidah, is a British fort and settlement, named Dix Cove, which is far better situated for commercial purposes than any of the stations before noticed. The anchorage and landing-place are safe and sufficiently convenient, and there is an abundant supply of refreshments, and of wood and water. The fort is built on an elevated prominence that forms the extremity of a considerable creek, which is inaccessible to vessels larger than trade-boats, owing to there being considerable coral reefs at its mouth. This place derives its importance principally from being within an easy distance of the great path to Tuffero and Warsaw. From Dix Cove the coast runs irregularly to the northward of east until the river St. John

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is reached, which lies in lat. 5° 10′ N. and long. 1° 28′ W. Between Dix Cove and the river St. John are five commercial stations: Bautry, a considerable village, built on the banks of a stream, navigable by small craft for several miles, and where the Dutch have a fort, called Badenstein, and which was formerly a place of considerable importance; Tacararee, a large village, erected on a hill that projects into the sea, and is almost environed by rocks; Seccondee, where there are two small forts, the one to the westward belonging to the Dutch, and that to the eastward belonging to the English; and Chama, which stands about four miles from the river. In this district, the soil adjoining the beach is mostly of a deep absorbent clay, but in some places of a dark and rich earth. Insects and reptiles are numerous, especially where the redundant underwood has been left in its native luxuriance. The coast is fretted with petty creeks. The river St. John is navigable by small trading vessels nearly twenty miles, and a considerable trade in gold and some other articles is carried on, although the neighbouring districts are but thinly populated. Immediately to the eastward of the river is the district of Commendo, or Kommani, which extends about fifteen miles along the coast, and but little more inland. About the centre of the coast is a British and a Dutch fort. The British fort is a square building, and stands in a low marshy situation; but the inland country is more elevated, and there is a little mount on the left, which is known by the name of Gold Hill. The Dutch fort is near the British one; its name is Wedenbourg, and it was erected in 1688. At a distance of about eight miles to the eastward of Gold Hill stands the fort of St. George del Mina, which is situated on the east bank of a small river, running a south-east course, and affording considerable accommodation for coasting craft. This is the chief settlement of the Dutch, and the fortress is the best upon the coast; but it has been greatly neglected, and even left in a state of dependence upon the neighbouring

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settlements. The principal fortification is a handsome, well-constructed, and powerful building, standing upon the beach, and is supported by a second fort on a commanding eminence, which is further to the westward. Between these forts there is a bridge of communication, and the whole works present a very formidable and beautiful appearance from the sea. The town is long, irregularly built, and thinly inhabited, and stands on a low and flat peninsula, which has the ocean on the south, the river Benja on the north, the castle, Mina, on the east, and Commendo on the west. In the latter part of the seventeenth century, about 1684, this settlement was so populous, powerful, and tyrannical, as to be the terror of the whole coast; but since that period its fortunes have greatly retrograded, and, instead of being powerful and commanding, it is now weak and dependant. The immediate vicinity is well cultivated for the coast of Africa, and even horticulture has not been altogether neglected. In many places the land is of a deep clay character, and, in some, the lower soil is covered by a light earth.

Cape Coast Castle, the principal British settlement on this coast, stands about ten miles to the eastward of del Mina. The Portuguese originated this settlement, and built a citadel there in 1610. A few years after they were dislodged by the Dutch, and in 1672, by the treaty of Breda, the British were definitively put in possession of it. At that time it had four bastions, an efficient battery, convenient barracks, and other public buildings, and a garrison of two hundred men. At a distance were two redoubts to repel any attacks of the natives. Such is the general account given of Cape Coast Castle by passed writers, and without being inaccurate, it is likely to excite anticipations of far too favorable a nature. The outline of the picture may be well enough, but the details are loathsome and fearful. Cape Coast, or cape Corso, 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

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the country inland consists of sandy hills, with occasional narrow, swampy, but productive, vallies. The anchorage is but indifferent, and there is no river, either for the purposes of navigation or for supplying the garrison and town with water. These are serious disadvantages; but this settlement was long the principal seat of the British government, and the residence of the chief governor on the coast during the sovereignty of the late African Company, and it may still be considered as the centre capital between Sierra Leone and the Bight of Biaffra, as well as the great emporium of the Gold Coast, into which British merchants pour their articles of commerce, and obtain in return for them, from the natives of the coast and those of the interior, gold-dust, palm-oil, and ivory, although the settlement at Accarah possesses many greater advantages. The castle stands upon an insignificant prominence, composed of gneiss and mica slate, about twenty feet above the level of the sea, in lat. 5° 6′ N. and long. 1° 5′ W. It is an irregular figure of four sides, with bastions at each angle, mounting about eighty pieces of cannon. An extensive line of buildings, three stories high, runs from the north angle direct to the south, dividing the fort into nearly equal parts; while another of equal height runs at a right-angle to the east, forming a triangular space of considerable extent. Upon the upper story of the former building are the government hall, the governor-general's apartments, and the officers' mess-room. The lower stories are occupied by the military officers. The rooms are spacious, but, on account of the high-walls of the fort, the sea and land-breezes are in a great measure obstructed. The barracks occupied by the soldiers are comfortable and airy, and as the extensive warehouses which were used as depositories of commerce during the African Company's government, are now in a state of preparation for the occupation of the troops, their accommodations are good. There are some tanks in the fort for the supply of water for the garrison, and they are so con-

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structed as to receive all that falls on the different roofs of the buildings in the castle. The water thus obtained is, of course, free from all vegetable matter and animalculæ, and is, consequently, infinitely preferable to the ordinary river water, which must necessarily be impregnated with the noxious qualities generated in the course of decomposition of vegetable and other matter. It is unfortunately, however, not a rare circumstance for these tanks not to afford a sufficient supply. As the castle is upon a rock which juts into the sea, two-thirds of its walls are washed by the very heavy surf which invariably runs upon the whole line of coast, and the atmosphere is consequently highly impregnated with saline matter; but how far this adds to the salubrity or insalubrity of the station is matter of speculation. At a distance of about two miles to the eastward, a chain of hills, forming an irregular amphitheatre a hundred and sixty feet above the level of the ocean, commences, and runs in a convex semicircular direction, approaching to within a quarter of a mile of the castle at the nearest part, and terminating about a mile to the westward of it. Towards the north-west, distant about a mile from the castle, is a sheet of salt water, more than a mile in length and half that distance in breadth. As the surface of the pond is below the level of the ocean, it receives a constant supply of salt-water through the mounds of sand which divide it from the sea; and as it is in other directions surrounded by hills, it becomes the receptacle of the water which falls in its vicinity during the rains, and overflows its limits in the height of that season to the extent of a quarter of a mile in length and breadth.

There is some variety in the soil at Cape Coast. In many places it is black rich earth, and in others a heavy clay of a brown colour, with occasional petty patches of quartz or mica. Throughout the inland soil is unusually deep, and covered by nature with luxuriant vegetation, which is beautiful in colour, but inimical to health when considered in conjunc-

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tion with the seasons, and utterly useless to man. The country, indeed, is in almost every part impassable, from wood and bush, excepting where it is under cultivation, which is to no very considerable extent, and by the narrow paths of the natives; and vegetation is so rapid, that if these paths are not constantly used, they soon become impenetrable. The town is a miserable unhealthy place: the walls of the native houses are formed of clay; the apartments small, badly ventilated, and very filthy; and, in the rainy season, every habitation looks like a mound of miry clay or mud. The streets, or rather the spaces between the huts, are narrow and irregular, with hardly sufficient room for one person to pass: they are half-filled with combustible matter, and every sort of filth is strewed about, and allowed to rot or be devoured by the turkey-buzzards; and, to preserve this brood of natural scavengers, a fine is imposed on every person who is known to kill one or destroy their eggs. Recently, however, some attempts have been made to improve this deplorable and disgusting place. Immense masses of filth have been entirely removed, the immediate vicinity of the huts has been made tolerably clean, and a slight progress has been made in the formation of regular streets. The immediate neighbourhood also has been attended to: several of the surrounding hillocks have been cleared of their rank underwood, and a description of roads, not a very perfect one, has been cut through countries which were once considered impassable. Cape Coast Town, therefore, though bad enough, no longer stands pre-eminent in every thing that could add to the production of disease, but is now comparatively clean and ventilated; and, if its appearance promises not happiness to its inhabitants, it no longer presents a loathsome conductor to the grave.

The natives pay much more attention to personal cleanliness than to the order or decency of their habitations or streets. Their food consists of Indian corn pounded and

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made into a cake with water, which they call cunkey, and salted fish, which they prefer half putrid, and fowls, and the various vegetables and fruits already mentioned. Their water is provided from stagnant pools; it is muddy, abounding with slime, animal and vegetable matter, nauseous and disagreeable to the taste, so much so that nothing but extreme thirst can induce the European to drink it, and it is but common sense to avoid it altogether, if possible.

The trade at Cape Coast is extremely variable, depending greatly upon the condition of the natives in the inland countries. When they are in a state of war there is but little supply of gold, with which they abound; but when they are at peace the contrary is generally the case. Some years ago strong hope was indulged that a direct intercourse with the Ashantees, a powerful nation in the interior, would lead to extensive commercial advantages, and also to an acquaintance with at least the localities and capabilities of this unexplored and impenetrable country. Hitherto, however, these anticipations have not been realized, but on the contrary, the horrid barbarity of the Ashantees seems to have fixed the seal of separation even more firmly than it was stamped before.

Continuing still to the eastward, the next place which deserves attention is the British fort of Anamaboo, which is twelve miles from Cape Coast. There is tolerable anchorage abreast of it, and it stands in a very low situation, with a considerable native town between its walls and the inland country, which rises into hills, and is densely covered with underwood, and also produces trees of large dimensions. The Dutch have also a fort here, about six miles to the eastward of the English one; and the small river of the Cormantin lies between them. An important traffic in slaves, gold, fine cotton, and other valuable articles, was formerly carried on in this neighbourhood, both by the British and the Dutch; but of late years, especially since the abolition of the slave-trade, Anamaboo has received but little attention,

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excepting from the British. The coast is bold, and runs east for fifteen miles from Dutch Anamaboo or fort Amsterdam, to Tantumquerry point. One league round the point is Apam, where there is a British fort, and a deserted Dutch one, erected in 1691, and it is generally considered a good place of trade. The country and natives vary nothing from those noticed in the immediately preceding descriptions. At a short distance eastward of Apam is a moderately-sized hill which serves to denote the vicinity of that place, and has been named the Devil's Mount, from the negroes sacrificing on it to a malevolent spirit. At a similar distance eastward of the hill is the town of Whinebah, where the British had a strong fort, which was destroyed in 1812, in consequence of the repeated acts of treachery and violence perpetrated by the natives on the garrison and settlers. The town stands on the banks of a river, which furnishes good water at some distance from the sea, but caution is necessary in procuring it. From Whinebah to Accarah the coast is irregular, and the distance along it about nineteen miles.

The Accarah country consists of a fertile and extensive plain, running for several miles along the coast, and stretching inland as far as the eye can reach, excepting, perhaps, on peculiarly clear days, when the high land of the interior may sometimes be made out. There is but little good anchorage, and the beach is frequently covered by a high and heavy surf. The country presents an agreeable and enticing prospect. The great body of the immense plain is by nature a meadow of rank grass, and the appearance of sameness is prevented by the occurrence of occasional clumps of bush and trees. The soil rests upon strata of primary sandstone. It is light and of three kinds, sandy, red, and a black rich mould; and, when properly cultivated, produces yams, cassada, corn, plantains, ground nuts, and pulse. The cotton-tree grows spontaneously, and there can be no doubt, if plantations were made in the neighbourhood, they might

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be brought to great perfection. The sugar-cane for instance, if properly and extensively tried, would be almost sure to succeed, as large quantities of it are brought from the interior. As the western side of the plain is approached, towards the river Succamo, the prospect becomes more pleasing still, and ultimately terminates in high land, on the face of which is good pasturage for sheep. An abundance of antelopes and deer, hares, and other game, are to be found here. Water-fowl are numerous on the coast and about the pools, as ducks, teel, and widgeons; and there is likewise a plentiful supply of guinea-fowl, pigeon, partridges, wild turkeys, and other land fowl; together with a great variety of birds of handsome plumage. On the coast of this plain the British, the Dutch, and the Danes, have settlements: British Accarah is the westernmost. It is the most healthy of the British settlements on this coast, and has been called, par excellence, the Montpelier of Western Africa. The atmosphere is generally comparatively very cool, which gives Accarah a superiority over the other settlements of the Gold Coast; and, indeed, it is the coolness of the air, and the openness of the country combined, that makes it more healthy to Europeans than is either Cape Coast or Dix Cove, where the jungle is so very thick, that it is in many places impenetrable. The openness of the country allows a sufficiency of exercise, either pedestrian or equestrian, to be taken, which is a thing not practicable on any other part of the Gold Coast, where exercise is of the utmost consequence and benefit, provided it be taken at an early hour in the morning, or during the coolest part of the evening. British Accarah lies in lat. 5° 30′ N., and the meridian of Greenwich. The town is protected by a fortification, which is named James's fort, and is sufficient for the accomplishment of its contemplated objects. Viewed from the sea the town is rather pleasing. Several of the houses look white and tasteful, and are regularly built. The generality of the habitations, however, are constructed of clay, and built

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in the negro country fashion, consisting of one story with two apartments. They are, however, much cleaner than those of Cape Coast, and present a much more cheerful and satisfactory appearance. In the town stock is plentiful; sheep, pigs, turkeys, ducks, and fowls, are easily to be procured, and by their sale many of the inhabitants make a livelihood. Accarah carries on a considerable trade with the Ashantees, who bring ivory, gold dust, horses, &c. to exchange for romals, silks, tobacco, rum, and sundry other articles: this communication creates considerable activity amongst all classes of the people, and likewise tends to amend the manners of the natives. The Ashantees known at Accarah are, apparently, better acquainted with the rules of decency and morality than the generality of people who inhabit the interior of the Gold Coast. Some valuable improvements have been commenced in Accarah during the last few years. The formation of regular streets has been successfully commenced, a school has been established, and agriculture has been prosecuted on a far more extensive scale than formerly. This last important and desirable change was introduced by Mr. Hanson, whose laudable example is worthy of great praise; and, it is to be hoped, will stimulate the natives to exert themselves for their own benefit and that of their families. An object of this nature should be cherished, as the extension of it will add to the salubrity of this place, as it does in all other countries where cultivation is carried to any extent. The greater the pitch of excellence agriculture is brought to the greater will be the health of the inhabitants. It is greatly to be regretted, that in Accarah there is a scarcity of good water. The garrison is supplied chiefly by tanks constructed in the fort, but the natives depend upon the pools, which form but a sorry reservoir. Large quantities of ivory are frequently procured here, as well as an abundance of gold, which the natives manufacture, with the rudest implements, into a variety of beautiful trinkets, with

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infinite taste and ingenuity. The Dutch fortification is called Greve Cœur, and is now in charge of a Dutch serjeant only. The walls are in a state of dilapidation, and have been so, apparently, for some years past. The fort lies not quite a cannon-shot to seaward of James's fort, and the town is situated at the back of it; the streets are narrow; the houses small, filthy, and so closely connected, that the free circulation of air is much impeded, and the residents, apparently in consequence of that and stagnant pools in the vicinity, are greatly afflicted with Guinea-worm and craw-craws. About two miles and a half distant from James's Fort is Christianburgh Castle, which is built on a promontory, and is the principal fort on the coast, belonging to his Danish Majesty, where, it appears, natives and Europeans are subject to the same diseases as at English and Dutch Accarah.

From Accarah the coast runs nearly E. N. E. for thirty miles, when the river Ningo occurs. Seven or eight miles to the westward of the river is an inconsiderable British station, named Prampram. There is a fort, but the place has no attractions. In the vicinity of the Ningo are the celebrated Crobo mountains. They stand far inland, and Ningo Grande, which towers above the rest in the form of a sugar-loaf, is easily distinguishable. On the east bank of the river the Danes have a good fort and rather a large settlement. The anchorage and the country is much similar in character and productions with that of Accarah, but it is rather of an inferior quality and less cultivated. From Ningo the coast runs nearly east, and is very low to the river Volta, a distance of thirty miles. Rio Volta lies in lat. 5° 46′ N. and long. 55′ E. To the westward of it the land, in the vicinity of the shore, is open; but, as the river is approached, it becomes more thickly wooded, and many streams of water intersect it. This part of the coast is fertile, producing many fruits and abounding in cattle and game

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of various sorts, as antelopes, hares, guinea-fowls, partridges, &c. In the immediate neighbourhood of the river Volta the country is thickly wooded and much intersected by water, there being many marshy portions, as well as stagnant pools left by the rains. The river, at its entrance into the ocean, is deep and narrow, and at a short distance within it spreads into a large lake, containing some extensive islands. During the rains, the body of fresh water that rushes into the ocean is so great as to be perceptible at the distance of several miles; and this circumstance gave rise to the name of the river, and a belief that it was the Niger. Like those of all other large rivers in Western Africa the banks are low, and of thick black mud; in most parts they are swampy, and densely overgrown with the mangrove bush and other aquatic plants and shrubs; and, in common with much of the adjacent country, they are overflowed during the rains. As the waters subside many extensive stagnant pools are left, which are evaporated by the sun's rays in the dry season, at which period their muddy bottoms are seen covered with a saline incrustation. Around these pools there is much wet marshy ground, in the most rank state of vegetation and teeming with insect animal life. The Danes have a fort on an island at a little distance up the river; it is seldom frequented by any but slaving vessels, and those are under the French or Portuguese flags. Formerly, the trade in this river was great, but the staple article produced by the natives was slaves; and since the abolition of that atrocious traffic there has been no inducement to attempt the prosecution of a more legitimate commerce. By many geographers the Volta is considered the eastern boundary of the Gold Coast, but others extend that distract to cape St. Paul, which is fifteen miles further to the eastward. The cape is a very low projecting point, with an extreme shoal shore, and is utterly destitute of interest.

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The Climate and Seasons of the Gold Coast; together with the Comparative Character of its Principal Settlements as to Health.

As on the Ivory and the other Coasts treated of, the seasons on the Gold Coast may be divided into two; wet and dry. The dry season commences in October, and continues during the months of November, December, January, and February; but there are occasional showers in the latter months, particularly in the evening, with thunder and lightning, but not in violence at all approaching to the tornado of Sierra Leone. The thermometer in the shade, at half-past 2 p. m., on board of ship, averages 86° (on shore, it is nearly 3° higher from radiation); at 8 p. m. it is about 84°, and at 8 a. m. 83°. The range of the thermometer is hardly affected by the strength of the breeze, although, when it is strong to cuticular sensation the atmosphere is much cooler. Dews in the calm nights are heavy, but seldom producing a chill. The inhabitants suffer much, during this period, from the want of water and from dracunculis. The Europeans, who have slept on the damp ground, or used the pool water to wash, are also affected with the same disease. Calms are very frequent, and, in the dry months, the prevalent winds are light land and sea-breezes. The harmattan, when it blows here, is very light and of shorter duration than nearer the Arab country. In the months of March, April, and the early part of May, tornadoes prevail, and the sea-breezes become stronger. The thermometer, on board of ship, at half-past 2 p. m., averages about 85½°, at 8 p. m. 83°, and at 8 a. m. 80½°. In clear nights there are dews which create a chilling in the air, which, however, is felt more severely towards the morning, when the land breeze commonly springs up. About the middle of May the rains set in, and, continuing through June, terminate early in July. During this period there are fre-

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quent cessations from rain for a day or so; and, from the account given by the natives, it falls heavier about thirty miles from the sea-coast. This cannot proceed from the land becoming more elevated, for the most intelligent, both of natives and of Europeans assert that it is, if any thing, more flat. The quantity of rain that falls in the course of a year varies from eighty to one hundred inches. The thermometer, during the rainy season, averages, on board of ship, about 78° at ½-past 2 p. m.; at 8 p. m. it is about 73°; and in the morning 70½°. In this season the nights feel chilly and raw, but as far as temperature is concerned, they are pleasant to the European, whilst the native looks chilled and complains of cold, and is also at this time liable to pulmonic and catarrhal affections. The Europeans chiefly suffer at this season from remittent fever, but in those who have by residence been in some degree seasoned to the clime, the type is intermittent. In July the rains cease on this part of the coast, and are followed by what has been emphatically termed the smoke. This is a dense, thick, watery vapour, which loads the atmosphere. The sun is frequently so obscured as not to appear for many days, and in the evening this watery deposition is so much increased as nearly to become small rain. The night is chilly, and the degree of cold sensibly greater than the thermometer indicates, which at this time is seldom above 81°, and is, in day or night, rarely, if ever, under 69°. This is the most uncomfortable period of the year, and requires the utmost attention to clothing; every thing so soon gets damp, and the process of decomposition proceeds so rapidly, that cloth and animal matter become putrid in a period hardly credible. The best dresses for seamen are of blankets made in the form of a waggoner's frock. At this season hepatitis and dysenteric affections are commonly prevalent. Fever is also prevalent on shore; which is, indeed, never free from it during the whole year. In those cases where the fever has the intermit-

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tent type, there is almost always an enlargement of the spleen, which uniformly increases in size during the paroxysm, and diminishes, in some degree, after it is over; but frequently after a few years residence, with repeated attacks of fever, the spleen becomes so large that when the patient stands up he must support it with his hand, or on the edge of a table. Amongst the natives on the shore, as well as the Kroomen and liberated Africans, who may be serving on board of ship, there is much dysentery, catarrhs, and not unfrequently pneumonia; fevers are seldom met with. There are some cases of hepatic derangement combined with the dysenteric affection. Towards the latter end of September the sun appears at intervals; the fogs are less dense during the day, but still the deposition of moisture is heavy at night. Towards and during the commencement of October the fogs daily diminish, and the wind, which during the height of the smoke has been very light, becomes fresher, and by the middle of October the steady land and sea-breezes totally disperse the moisture for about ten days or a fortnight, when there are heavy showers, styled the after-rains, which fall chiefly during the night, and are of brief continuance.

The late Mr. Tedlie, and Mr. Whitelaw, who was employed on this coast as a naval surgeon, have both of them made some valuable reports to the superiors of their respective departments upon the character and climate of the Gold Coast. Those reports are, however, to the medical world in general as sealed books, and, therefore, no apology can be necessary for making such extracts from them as appear to merit particular attention.

Extracts from Mr. Tedlie's Reports.

" Although the Gold Coast is, perhaps, the most unfriendly to man of any country on the face of the globe, yet there is not that extraordinary range of temperature (in the shade)

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which might be expected, from its situation being so near to the equator. The thermometer in 1819 did not rise higher than 85°, and did not fall lower throughout the year than 76°, making a range of temperature of only nine degrees. In 1820, the maximum was 84° and minimum 74°, making a difference only of ten degrees throughout the year. In 1821, the maximum was 86°, and minimum 66°, (during the harmattan in December,) making a difference of twenty degrees. In 1822, the maximum was 89°, and minimum 74°, making a difference of fifteen degrees.

"In taking a retrospective view of diseases which came under my observation during the period of the four preceding years, I cannot bring to my recollection that there was a greater proportion of disease in one year more than in the other, except in the last, that of 1822.

"It is generally remarked, that in the months of January, February, and March, Europeans recruit, after having suffered from the effects of the deleterious fogs of the previous months.

"Sudden transitions from heat to cold, and *vice versa*, must take place at Cape Coast Castle, closely situated as it is to the sea, and surrounded by a moist atmosphere in consequence. In the morning the thermometer stands at 78°, 79°, or 80°; at noon it rises to 84° in the shade, and at this hour the direct solar heat is found to be not less than 136, making a difference of fifty-two degrees between *sun* and *shade*. Thus a stranger, arriving here and exposing himself to the direct rays of the sun, must soon acquire a predisposition favourable to the action of miasma, which is always floating in the air.

"In the East and West Indies, and many other tropical countries, I believe it is well known that many, very many Europeans pass years without sickness, or without having the endemic of those places—not so in Africa; there is scarcely one solitary instance of an European arriving here

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(at Cape Coast) who is not attacked with the endemic, either immediately on his arrival or within four months: men of the most regular habits, of the best constitutions, and possessed of well-regulated minds, are as liable as the drunkard or debauchee to attacks. No residence on the coast, in fact, however long, is sufficient to secure the constitution from the endemic fever.

"Intermittent fever is a disease common to every European who has had an attack of the remittent fever of the country, or, as it is usually called, the seasoning: during a residence of three years upon the coast, I have never known an instance of one who recovered from the remittent, but had either a relapse of the same disease or an attack of the one in question, which was seldom removed before twelve months elapsed. The intermittent never observes any peculiar season of the year, nor have I observed it to arise from change of atmosphere, but from change of system, produced by the remittent fever: derangement and obstruction in the liver, indigestion, and enlargement of the spleen, seem to be the cause of the complaint. However, I should observe, I am now confining my remarks to new comers who have been seized with the remittent of the country. As I am well aware that, during the rainy and foggy season, old remittents are seized with ague (perhaps arising from atmospheric vicissitudes), whose constitutions are predisposed from enlargement of the liver, and obstruction in the abdominal viscera; indeed it is very difficult to find any gentleman in the service either at Cape Coast, Dix Cove, Anamaboo, or Accarah, to pass twelve months without an attack of ague, remittent fever, or some hepatic affection. There are, however, some few exceptions; I have myself passed twenty-one months at Accarah without a headache, after I recovered from the remittent and intermittent fevers of the country, with which I had been afflicted for the period of nine months.

"These remarks lead me to speak of Accarah, with respect

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to the comparative health enjoyed there by Europeans, and at the Cape Coast, Dix Cove, and Anamaboo.

"It is with a conviction founded upon two years' residence at Accarah, that I state it is highly superior in point of salubrity to every other part of the Gold Coast, with which I am acquainted. Accarah fort and native town are situated close to the sea, at the back of which there is an *open and extensive country;* the soil there, as it is along the whole line of coast, is light and sandy, and stagnant water is not to be found for many miles from the fort; nor is there the effluvia arising from vegetable putrid matter which is always to be met with at our other settlements, from the whole face of the country being covered with impenetrable underwood, the never-failing principal source of disease to Europeans. Europeans who fix their residence at Accarah will have less sickness (the true distinction of a healthy country) than at any other part of the coast; and although they will not be exempt from the diseases common to those who reside at our other settlements, still I can, with confidence state, that those diseases will be modified by a residence at Accarah, even under the same mode of treatment. As a spot for invalids, it affords very many advantages; the cool breeze, which one invariably breathes there, never fails to brace up the enervated constitutions of those who are obliged to live in the confined castle of Cape Coast. During my residence there, I always observed, that convalescents recovered rapidly, even in the course of a month."*

Extracts from the Report of Mr. Whitelaw, Surgeon, R. N.

"Cape Coast.—Fever prevails here after the commencement of the rains and during the fogs, which last for some

* Mr. Tedlie is to be understood as writing with reference to the other settlements on the Gold Coast, and not with reference to the western coast of Africa in general.

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months, and are frequently so thick as to have the appearance of what has been called a Scotch mist. Hepatic disease, and of a most violent form, is very prevalent, both on shore and on ship-board: so is dysentery. The natives frequently suffer from the two latter diseases, but seldom from the former.

"Fever is always sure to prevail amongst a body of troops who may have marched any distance, and who sleep in the woods, or, as they are called, the bush. They are remittent, and so apt to return on the slightest irregularity, that they commonly prove fatal. The fever so prevalent here may arise in some degree from the exhalation from the salt pool to windward of the castle, from the filthy state of the streets, but chiefly owing to the exhalation, I think, from the vegeto-animal matter, which is a never-failing source of this disease in so thickly a wooded country: the great cause of hepatitis and dysentery must be, I think, ascribed to high temperature, irregularities in diet, but particularly to intemperance, that bane of health. The troops sent to Cape Coast Castle* are reckless men, generally expatriated for their crimes, who look upon themselves as sent here to die; they drink to excess, and often have I heard them wish each other a speedy death; nothing could be more distressing to the human mind than to witness the rapidity with which they were cut off in 1823 and 1824: with the officers it is different, yet they equally suffered, owing to the depressing passions. They had little society, and if once unwell they were thrown on their own resources; and how many there are whom care has driven to the bottle. At that time, too, the population of the adjacent country had been driven into the town on the coast. Famine, the precursor of disease, was general, and I believe thousands of the natives died from hunger; which,

* This melancholy and degrading picture refers to the European troops who used to be employed at this station. The soldiers now are all native Africans.

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combined with fever, dysentery, and small-pox, the latter of which diseases was introduced from Sierra Leone by the Owen Glendower, rapidly thinned the population.

"ACCARAH.—From the dryness of the soil, the shorter duration of the rains, and more open state of the country, fever is less frequent than at Cape Coast; but, from the high and constantly increased temperature, there is more hepatic derangement, which is in almost all instances managed with more ease than fever, excepting the cases of free-livers, or of men who have served long in India."

The Coast, Rivers, Towns, &c., in the Bight of Benin, which extends from Cape St. Paul to Cape Formosa.

From cape St. Paul to cape Formosa the coast lies rather in the form of a bay than of a bight, although the latter designation has been affixed to it, the concavity being towards the N. N. E. Cape St. Paul is in lat. 5° 44′ N. and long. 1° 10′ E., and cape Formosa in lat. 4° 19′ N. and long. 5° 49′ E. The distance from the one cape to the other is somewhat less than three hundred miles E. by S. ½ S., and that along the shore is upwards of three hundred and eighty miles. The particular course of the coast will best be traced in the sketch of the leading places of commerce, the rivers, and the land-marks. The shore shoals gradually and regularly, indeed, so much so, that a vessel might run along it from cape St. Paul for a distance of two hundred and twenty miles, with no other guide than the lead; and, keeping in soundings of from seven to nine fathoms throughout, she would be about four miles distant from the beach. The whole of the coast may justly be termed a low, sandy, marshy flat, intersected by numerous creeks, lakes, and rivers. The swampy character of the ground extends at some places to upwards of fifty miles inland of the beach. In most parts it is thickly wooded by mangroves and other aquatic plants, and, in the wet season, large tracts are inundated. It is exceedingly unhealthy to

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the European who resides any time on shore, or even is domiciled in a vessel for a lengthened period that is anchored close to the land. Formerly an immense trade in slaves was carried on within the boundaries of this bight, and even now the French, the Brazilians, and the Portuguese, struggle hard and venture much to keep up their old connexion with the natives on the banks of the Niger. This district is altogether a wretched one. The natives are in a miserable state, and the animal and vegetable worlds are almost totally neglected. In one or two spots a meagre sign of civilization may be discovered, but, for the most part, a climate noxious by nature, is rendered altogether insupportable for a continuance by the utter helplessness or the barbarity of man.

In the neighbourhood of cape St. Paul the country and the natives are alike poor and miserable in appearance and productions. From the cape, for two and forty miles, the coast runs nearly N. E. The villages of Quitta, where there is a Danish fort, thirteen miles from St. Paul, Acquijah, nine miles from Quitta, and Paurey, eight miles from Acquijah, and Gugligou, thirteen miles from Paurey, are situated within this distance. This is a low and unattractive district. Immediately to the eastward of Gugligou the coast lies a little to the northward of east for one hundred and forty-seven miles to the river Lagos. Within this distance there are some objects worthy of notice. The westernmost part, for forty or fifty miles, is called the Popoe country, and is divided into two petty states, Little and Great Popoe. The town of the former is distant from Gugligou twenty miles, and that of the latter is thirty miles further. At Great Popoe, the English, Portuguese, and Dutch, formerly had factories, and the natives now speak the different languages, and are ruled by caboceers, or chiefs, who style themselves of the country to which the factory belonged in whose vicinity they live. Many of the houses are well constructed, and are two stories high, with stone steps. There is a market, with a plentiful

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supply of live stock, some delicious fruits, and an abundance of Indian wheat. The natives are tolerably honest and desirous of trade, and have, in general, a large quantity of ivory for traffic. The mode of barter pursued here is the ounce, or ackey system, and the goods must be taken on shore, as the negroes will not leave the beach. The soil of this part of the coast is, in many places, light and sandy. The country of Juidah, or Wydah, adjoins that of Popoe, and extends along the coast for several leagues. The coast is low and marshy, with the exception of a small hill, called mount Palaver. The residence of the chief is about fifteen miles from Popoe, and stands on the banks of a small river, a few miles from the coast. At the entrance of the river, the English, French, and Portuguese, have factories. Thirty miles E. by S. is Porto Novo, which is the sea-port of the kingdom of Ardrah, and is capable of supporting considerable trade. The coast continues low and swampy, and runs E. ½ S. for about fifty miles, when the river Lagos occurs, and forms the entrance to lake Cradoo, which extends upwards of forty miles to the eastward. The river is navigable for a considerable distance by small craft, and the lake is six miles across in the widest part. There are several towns on the banks of the river and the lake, the principal of which are called Cradoo and Lagos. At Cradoo fine Jaboo cloths may be procured in abundance, and at Lagos an extensive commerce is carried on, principally with the Portuguese. From the mouth of the Lagos the coast runs, with a slight concave curve, S. E. to the river Benin, or Formosa, a distance of about sixty miles. This is a bar river, but a considerable one, and navigable by trade boats and tolerably large vessels for many leagues. It has an abundance of creeks, some of which communicate with the Lagos lake. During the dry months the river is tolerably healthy, being completely open to the sea-breeze, which is regular. The principal chief lives at Lobou, or Bobee, which is situated on

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the south bank of the river, and is a short distance within the entrance. On the northern shore, about eighteen miles from the bar, the king of Benin has a commercial station, which is called Reggio town, and opposite, on the southern bank, is a town belonging to the king of Warree, named Newtown. Up the larger creeks there are also some other native villages. Since the abolition of the slave traffic this river has been nearly deserted by the European trader, but it is well deserving of attention. A considerable quantity of ivory, pod-pepper, and an abundance of palm-oil, is to be procured here; the latter especially at Newtown. The mode of barter is by pawns, which is an ideal standard, and its origin unknown. The currency of the country resembles that of India, the inferior denomination being constituted by the cowry, a small shell. Coral beads form the chief treasures of the rich, and are sought after with the greatest avidity. The natives are treacherous, and are to be prevented from committing crime upon the trader only by the dread of punishment. No ship should enter the river that is not well armed, and no boat should be allowed to leave a ship without great precaution being taken to enable the crew to resist any foul conduct on the part of the natives. Vessels have been more than once seized by the chiefs, who appropriated the cargoes to their own purposes, and, in one instance, murdered a mate. The condition of these people is deplorable and repulsive in the extreme. They are ruled by despots, who are the victims of superstition: in 1818, a town was burnt, it being represented to the king by his fettish men, or necromancers, that the sacrifice would induce trade. In one point, however, the chiefs appear to be conversant with the habits of civilized nations, for, from every vessel that enters the river to trade, they demand ample customs. The Benin lies in lat. 5° 48′ N. and long. 5° 5′ E., with a rise of water of five or six feet. The variation is 19° 1′ W. The coast lies S. S. E. ½ E. to cape Formosa, which is distant from the Benin nearly eighty miles. It is

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low, swampy, and intersected by several rivers, resembling those already described. The natives are even more barbarous and treacherous than at the Benin, and their brutality and the deleterious character of the climate have almost utterly banished commerce from their shores. From the Lagos to cape Formosa the country is badly supplied with fresh water; there is a sufficient quantity, but the quality is most indifferent. Cape Formosa is excessively low and thickly wooded; it can be descried but little more than twelve miles off, and at that distance the trees appear to be standing in the water. The shore is very shoal, so much so, that a ship in sixteen fathoms water is out of sight of land.

The Coast, Rivers, &c. from Cape Formosa to Cape Lopez: The Bight of Biaffra.

The coast from cape Formosa to cape Lopez presents an irregular figure of three unequal sides. Cape Formosa and the Old Callebar river are the limits of the north-western side, and the distance from the former to the latter is about one hundred and seventy miles E. by N. The Old Callebar river and the S. W. point of the gulf of Pannavia are the boundaries of the north-eastern side, the distance between the two being a hundred miles, and Pannavia bearing S. E. by S. from the Old Callebar. The third side extends from the S. W. limit of the gulf of Pannavia to cape Lopez, and the distance between the two places is about two hundred and eighty miles, Lopez bearing from Pannavia S. by W. $\frac{1}{2}$ W. Cape Lopez is distant in a right line from cape Formosa about three hundred and twenty miles, and coastwise rather more than five hundred and sixty miles. To give more than a very cursory sketch of this coast must be unnecessary: it contains not one British settlement or factory, and it is barely possible that it should ever have an intimate connexion with Europe. Throughout, with one single exception, it is uninviting when first descried; repulsive

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when approached; dangerous when examined, and horrible and loathsome when its qualities and its inhabitants are known. The soil adjoining the beach is of a muddy clay, and is thickly overgrown with underwood. On the north-west coast, from cape Formosa to the Old Callebar, there are no less than nine rivers, exclusive of the Old Callebar. The Bonny and New Callebar are the most important. They have a common estuary, which is distant from cape Formosa rather more than one hundred miles, and is seven miles across. The others are bar-rivers, with the exception of the Nunn, which is eighteen miles from the cape. They are mostly three or four miles wide at the entrances, but the bars are so shoal, that even boats can scarcely pass them. Within the bars there is an abundance of water, from five to ten fathoms, and the rivers maintain their breadth, depth, and saltness, for many miles up. All these rivers communicate with each other by creeks, which, in some places, swell into lakes, and thus many internal water-communications exist between the Bonny and the Benin. Cape Formosa, which forms the southern extreme of the bight of Benin, and the north-western of the bight of Biaffra, is so intersected by these rivers and the various creeks which branch out from them, that it is little more than a cluster of islands formed of alluvial soil. The whole of the country is low, marshy, and densely wooded, and the marks seen on the mangroves in the dry season, show how extensive must be the inundations during the rains. From the Bonny to the Old Callebar, a distance of sixty-three miles, the coast is of a similar character: low, of a deep clay, and mud soil, and thickly wooded. The Old Callebar is an extensive river, and was a notorious mart for slaves during the legalized existence of that traffic. Immediately within the entrance there are several islands, and at a short distance up the river there are some native villages, with which a very moderate trade in palm oil, ivory, pod-pepper, and red wood, is carried on. The chiefs are

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extortionate, demand much formal respect, and are worthy of very little credit; and the lower classes of traders and natives are full of villainy. At a distance of twelve or thirteen miles from the Old Callebar is the Rey river, which, since the abolition of the slave-trade, has sunk into insignificance. This country, the banks of the rivers and the creeks especially, is inhabited by a bold and savage race of men; many of them are of a deep reddish-brown, with dark-reddish hair, and their lower extremities are particularly hairy, a circumstance not common amongst the negroes. The chief occupation of these people is catching and curing fish for the slave-markets in the interior. Their habitations are built on the borders of the creeks, and are so concealed by the woody nature of the country as scarcely to be perceptible when close to them. No part of the country is cleared, except the spot on which these huts stand. They are of an oblong form, framed of bamboo, or straight portions of the mangrove, and thatched with the leaves of the palm-tree. Many of them are plastered inside and outside of the frame with the mud of the rivers, and when dry they form very durable habitations. Those not done in this manner, have grass mats, which are let down inside. The towns are very irregularly built, and their streets, if they can be called so, are narrow, crooked, and dirty. Near every hut there is a dunghill, where all refuse, filth, stinking fish, &c. is thrown. Each hut contains a great number of individuals, so that, although the towns are small, the population is very great. No provision is grown in this part of the country, which is totally uncultivated; but there are a few goats and plenty of poultry, and corn, yams, palm-oil, and other necessaries are procured from the interior. Mr. Whitelaw, whose report has often furnished interesting matter, gives the following particulars respecting the neighbourhood of this portion of the coast.

"Thomas Barber, a native merchant and slave trader, resident in one of King Acquis' towns of the New Callebar

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river, an intelligent man, informed me, that no provisions grew, or were to be procured nearer to the town we were then at, upwards of twenty-five miles from the ocean, than a distance of two days journey up the river per canoe; that where the provision grew, the country had large trees, but no bush; was full of little hills, and had plenty of people, who had cattle, oxen, goats, horses, with a sufficiency of corn, yams, honey and palms, wine and oil; that the inhabitants had no salt, and that salt and salt-fish were the commodities by which their slaves were purchased; that it took them eight days to reach Benin through the creeks; that they traded with a town far up one of the rivers; and, from his account of the form of government, it must be a republic. This country revolted from the King of Benin, and is now very powerful; twenty-five days journey from the Callebar by a canoe. This merchant also informed me, that the town carried on trade with the towns on the Niger; that the Niger was ten days journey from this town, at the rate, which is styled messengers, of twenty-five miles per diem; that there is a nearer route to this town through what is called the Brass or Brass-pan country; but it is unsafe, in consequence of the treacherous disposition of the natives, and the people who live immediately behind cape Formosa. The native canoes on the rivers are of two kinds, the one for fishing and the other for war; the latter are of great size, and many of them carry in their prows a four of six-pound gun, which are placed on thick beds of mud, are secured down by a netting of bullock's hide, and can be elevated a little by means of a rude wedge, something in the nature of a coyne. They carry from sixty to a hundred and forty men, are pulled by as many paddles, and they skim over the surface of the immense unruffled rivers and lakes with a velocity far surpassing that of our swiftest pulling gallies."

From the eastern side of the entrance to del Rey the coast lies nearly south for twenty-four miles, and abreast of it,

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and at a little distance in the interior, are the Camaroons mountains, some of which have an elevation of thirteen thousand feet above the level of the sea. The coast then stretches to the S. E. for nearly forty miles, when a large river, named the Camaroons, occurs. It resembles the Bonny and the Old Callebar, and the bar system of traffic is pursued. The supply of ivory and palm-oil is great, and the mode adopted by the natives for procuring the former, is different from what is practised in any other part. At two hundred miles inland, S. E. from the Camaroons, there is an immense tract of desert with a neighbouring morass, which the elephants frequent in droves to allay their thirst; and so eager is their desire for water that they plunge into the marsh, and, being unable to extricate themselves, die there. Many are also found dead in the desert, where they expire from exhaustion. A number of the natives employ themselves in searching for them; and so poisonous is the stench arising from putrefaction, that they never attempt to approach the carcasses while the sun is acting upon them; they make all their excursions by night, and even notwithstanding that precaution they frequently prove fatal. The river is ruled by two chiefs, who give the preference to English traders. From the Camaroons to the bight of Pannavia inclusive, the coast is low and swampy, and the natives few and barbarous. From the S. W. point of the gulph of Pannavia to cape Lopez the coast is of a like character. The principal rivers are the Benito, the Danger, the Gaboon, and the Nazareth. These rivers are chiefly frequented by the Portuguese. The Benito lies in lat. 1° 33′ N., and long. 9° 34′ E. The mouth of the river Danger, or rio d'Angra, is situated in the northern point of a large bay, which is formed by cape St. John, a bluff steep projection, in lat. 1° 8′ N., and long. 9° 17′ E., and cape Esteiras, in lat. 41′, N. and long. 9° 17′ E. The variation is 20° 5′ W. The Gaboon has a large long estuary, which lies a few miles to the southward of cape Esteiras. The natives on this part of the coast are even more brutalized than on any other: they are

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savage and cruel to an extreme. Their houses and burial-places, particularly those of the chief men, are ornamented with the skulls of innumerable victims of their brutal folly and superstition. If one of the chiefs sleep badly, or is disturbed by dreams, often the effects of debauchery, the priests interpret it as a punishment inflicted by the gods, for neglecting to sacrifice to them, and to the memory of their father, mother, uncle, aunt, or some of their relations, a number of human victims, in order that their spirits might become attendants upon those of the deceased, and so appease the gods and soothe the troubled spirits of their friends. Pursuing this view, the priest will occasionally order a number of helpless wretches to be cruelly butchered. The extent and atrocity of the sacrifice is regulated in proportion to the wealth of the dreamer, and the rank and nearness of kin of the individual whose spirit is supposed to be disturbed. The heads of those sacrificed are added to the heaps of skulls of persons previously murdered in a like manner, and the whole are regularly collected around the habitation, or they are stuck on pegs on the roof of the hut by way of ornament. If a representation is made to them on the monstrous wickedness and folly of so wanton a waste of human life, their ordinary reply is, "They are ours. It is the best use we can make of them—you have stopped slaving as much as you can, and they are of no other use—let slave ships come; they wont be killed: we will sell them for rum." Mr. Whitelaw says, "on the southern side of the Camaroons, and from that to cape Lopez, the natives are reported to be cannibals. This I doubt; but I have observed, that slaves from that part of the coast are exceedingly partial to, and devour with avidity, raw flesh. I have seen them fight like dogs for the raw entrails of cattle, and tear the entrails to pieces with their teeth whilst still smoking, full of excrement, and hardly separated from the animal; and they would gorge with raw meat until they could not move."

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The Island of Fernando Po.

In the bight of Biaffra there are three islands; Fernando Po, Prince, and St. Thomas. Prince and St. Thomas are in the hands of the Portuguese, and are insignificant, especially the former. Fernando Po belongs to Spain, and is larger than the others, and nearer to the main land. An attempt is making to colonize it by the English, and, therefore, some particulars respecting it are desirable. It is from fifty to sixty miles in length, and about thirty miles broad. It lies N. N. E. and S. S. W., the N. E. end being from twenty-five to thirty miles from the main coast, near the high land of Camaroons. Fernando Po is formed of two lofty mountains, which are separated by a deep valley. The easternmost part is mostly lofty; and, from the appearance of the rocks, and from the quantity of pumice-stone on the beach, they appear to have been of volcanic origin. On the east and southern part, extending from the base of the eastern hill, an extensive table projects. The bases of both of the mountains are covered with lofty forest trees, some of them of an immense size. The wood of these trees is of a dusky yellow, hard, heavy, and very tough. The ascent from the beach is steep; the soil a red clay, covered by a thick layer of vegetable mould. The sides of the mountain, nearly half way up, are intersected with clumps of palm trees, and much of the open portion is laid out, and cultivated in ridges, in a style far superior to any thing of the kind on the opposite mainland. Above this region, the mountain becomes again thickly wooded, and so continues to the summits. The table land has been partially cultivated, and a number of palm trees are growing there. Before any attempt to form a settlement here was made, the natives used to come to the beach to barter their yams and fowls for iron hoops. Mr. Whitelaw, who made his remarks at that period, thus de-

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scribes them: "They are in the rudest state of nature, both sexes being without any covering whatever. The males were at all times armed, their weapon being a barbed spear, about the thickness of a man's thumb, and from seven to nine feet in length. Their bodies were smeared with palm oil and real clay mixed together; and that practice is thought to arise from a desire to preserve their bodies from the sudden and violent showers which prevail at all seasons, through the clouds being attracted by the lofty land. Their hair is twisted in little rolls, and so covered with palm oil and clay that it hangs dangling about their ears like a bunch of candles. They wear on their heads an osier-basket, firmly secured to their matted hair by skewers made of the small bone of the monkey's leg; they wear, as ornaments in their caps, the red feathers from the tail of the parrot, and the tail feathers of the dunghill-cock; many of them have, over their foreheads, a pair of horns, apparently those of the goat; but a set of ornaments, in the possession of Captain Filmore, R. N., were carved out of wood. Round their necks they hang a gourd, open at the lower end, and, having a small hole in the side; they blow on this, and it answers for a trumpet. The skulls of monkeys, leg-bones of various animals, back-bones of snakes, and small white beads, are their other ornaments. Towards the upper part of the arm, and immediately under the knee, they wear a band of skin: in the one at the upper part of the arm, they carry a small knife, or piece of iron hoop. I saw no use for the one below the knee. Amongst those assembled to barter on the beach I discovered a man with European features, and learned from him that his name was Sam Dixon, that he was a creole, and that when a boy he sailed from Philadelphia, in the brig Mary—a Captain Anderson, or Handerson—that, on leaving the Bonny with a cargo of palm-oil and ivory, they were wrecked on the north side of this island; that he and two other white lads reached the shore; that his two companions died in about three years

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afterwards; he had two wives and several children; he refused to leave the island; he spoke only a few words of English, but more of French; and was only to be known by the lightness of his complexion. Many of the natives were much marked in the face. They are a muscular and well made race of men." Speaking of the island, Mr. Whitelaw has these observations: "This is the best watering-place on the whole coast of Africa. In the north-west bay, in the deep valley betwixt the two mountains, there is a small lake of fresh water; it opens into the bay by two or three streams, one of them large enough to admit a small gig. This lake is supplied with water by springs and rills. From both mountains there are many streams of water tumbling from the table land, but none of any great size. The natives barter yams, fowls, goats, &c. &c. with the men-of-war. For pieces of iron hoop they gave four large yams, or a fowl; and for a knife they gave a goat. Some few tomatoes and palm nuts were brought for barter. The yams were very excellent, and in great quantities: in the Owen Glendower, in about three days, we procured by barter about 10,000, at a time when we were nearly without biscuit. These did much towards preserving the health of our crew. Baboons, monkeys, and a species of green snake, were common; the snakes were from six to nine feet in length; but I never could procure from the natives one with a head; they were always cut off. This prevented me from ascertaining whether the snake was of a poisonous description or not."

Several other favourable reports were made respecting Fernando Po, and at length, in 1827, their accuracy was put to the test. Captain W. F. W. Owen, of the R. N., proceeded, with a number of officers, artificers, and a quantity of stores, and founded a settlement on the north-east coast. Unhappily, this island has, hitherto, proved no garden of Eden—no oasis of the desert; but, from the first moment of the British flag waving over its soil up to the last advices, it has been rapidly

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declining in reputation. Bulam island, at the mouth of rio Grande, was thought a paradise, till it was proved, by sad experience, to be a grave; and as Fernando Po becomes better known, and its situation better considered, the folly of expecting to find it a healthful station becomes more and more apparent. It lies at no remote distance from the estuaries of the Old Callebar, the Rey, and the Camaroons; and, although it may therefore be convenient for checking slaving in those rivers, its north-east coast is exposed to much of the bad influences arising from them at the commencement and at the close of the rains. In addition to that circumstance, it appears that Fernando Po is seldom free from showers, owing to its elevated land, and the injurious results from partial rains, operating in conjunction with a vertical sun, have before been pointed out. But the mortality which has occurred among the European settlers is the most decisive proof of the insalubrity of the island. Colonel Nicholls took out thirty, and of that number nineteen died; the colonel himself had remittent fever once, and intermittent fever eleven times, the latter depriving him of speech; and six of the thirty were unaccounted for.* Captain Owen had previously lost the far greater part of the persons who accompanied him. These are important facts; but it is equally important to observe the gradual, but decisive falling off in the favourable anticipations of those whose duty it has been to report with reference to this island, and may fairly be supposed to be unprejudiced. A few extracts from two or three of those reports may be sufficient at the present moment, as the island has no trade whatever, and it is understood to be no longer the intention of Government to make it the chief station for the suppression of the slave-trade.

* These facts appear in evidence given by Colonel Nicholls before a select committee of the House of Commons.

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Extracts from the Journal of Mr. Andrew Douglas Wilson, Surgeon of His Majesty's Ship, Primrose, bearing Date 5th of August, 1828.

"The settlement of Clarence town, Fernando Po, being in its infancy, is, of course, not the most desirable place in the world, although wonders have been done by the persevering and assiduous settlers there. A considerable space of ground is cleared, houses and huts are erected, so that they may now be considered as protected against the worst effects of climate and season.* It is to be lamented, however, that very many have been affected with ulcers of a phagedænic nature, which seem to be almost incurable in that climate. In one case in which, amongst others, I was called upon to survey where amputation had become necessary, the stump had assumed the same sloughing character as before the operation, to such extent that there was little hope of recovery from such deplorable condition. I learn that the bite of an insect, or the slightest abrasion of cuticle may be the incipient cause of this destroying ulcer at Fernando Po. It is difficult to say what is the latent cause of this rapidly spreading gangrene: it seems as if it must be of a specific nature, as it is a fact well ascertained, that the first adventurers who went out to Bulam under the protection of the Sierra Leone Company, suffered precisely the same martyrdom. It has been suggested, that a certain peculiarity of atmosphere is engendered by the smoke arising from the extensive conflagration of leaves and of green wood, which is productive of these de-

* Such was the case in 1829, but, according to the latest accounts, the only frame houses existing in the whole of the island were three of one hundred feet by fifty feet, three of fifty feet by twenty-five feet, and one large building used as a barrack. The only stone building in the island was used as the blacksmith's shop. There is so little ground cleared that the Europeans produce nothing.

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leterious effects upon the human body; but how its influence is directed remains, like the modus operandi of other mysterious agents or exhalations, a point not yet ascertained. The natives are certainly the lowest and most ignorant race of human beings I have ever beheld. They appear to me to be wayward and troublesome, although not malicious. Indeed, from their imbecility, both of body and mind, as well as their almost total want of artificial means of violence, (their principal weapon of attack being a wooden spear, of a very rude description,) they dare scarcely evince any other than a peaceable disposition.

"Their food is, of necessity, of the vegetable kind. Yams are abundant, and may be procured for pieces of iron-hoop, or iron of any shape.* Their luxurious drink is palm-wine (called, in the East-Indies, 'toddy') in a half-fermented state, a state which the heat soon produces after the liquor is taken from the tree. The manners and customs of the people are filthy in the extreme. They divide the hair of the head into locks, which they afterwards roll in a dirty-coloured red clay, mixed with palm-oil, and the body is smeared all over with this mixture. They are certainly severe sufferers from syphilis, as it is not at all uncommon to see persons of both sexes having suffered the destruction of the nasal bones; and instances of foul, apparently venereal, ulcers are not at all unusual."

Extract from a Report made by Mr. Boyle, Colonial Surgeon of Sierra Leone.

"It is altogether at variance with experience or reason to suppose that the site selected for the British settlement at Fernando Po, situated as that is, in respect to a necessarily unhealthy part of the mainland, can ever become salubrious,

* By late accounts, yams are to be procured only with great difficulty, and not at all in sufficient quantities. There are no fowls, goats, or sheep, to be had, and the settlers have to procure all their fresh provisions from the natives on the banks of the neighbouring rivers.

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can ever do more than vie with her sickly sister to windward; and, as regards the advantages expected to be derived from landing sick slaves at the new colony for the purpose of improving their condition, previous to forwarding them to the place intended for their final location, they must be far distant, since those who were landed there, in good health, have suffered lamentably. The actual and probable continuance of sickness in Fernando Po gives the strongest grounds for apprehension, as to its future prosperity; and, it is probable, that the inconvenience attending the forwarding the captured slave-vessels to Fernando Po for adjudication from any of the rivers to windward of Sierra Leone, has not yet been represented. The multiplied miseries and sacrifices of life that would attend the return of the unfortunate liberated people to Sierra Leone for location, after adjudication in the Courts of Mixed Commission at Fernando Po, can scarcely be conceived. Certainly the situation for adjudication should be as central as possible, as well for the sake of convenience as for the suppression of the slave-trade, if such be possible; for it is not to be supposed that the slavers would not immediately change the situation of their operations on the establishment of the head-quarters and the courts for condemnation at Fernando Po. The windward coast, as the leeward one now is, would then become infested with slave-dealers and piratical depredators.*

The Climate and Seasons in the Bights of Benin and Biaffra.

The coast of the bights of Benin and Biaffra may be considered to be the most unhealthy portion of western Africa. The dry season begins near the equator in July, and not in the bight of Benin until August; it continues during September

* The above opinions were not hastily or theoretically formed as has been more recently too fully proved.

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October, November, December, and part of January. Heavy showers, and often storms of thunder and lightning, occur during these months, especially in the bight of Biaffra, on which account the thermometer is more variable, but it seldom, at any period of the day, rises above 89° in the shade, or falls below 71°, except in days when there is little or no wind, or when during the previous night there had been a fall of rain, which, for a time, clears the atmosphere of the dense watery vapour that in general loads and renders it oppressive and obscure. In calms, or after a night of rain, the thermometer often stands for some hours about the middle of the day at 100°, and sometimes it has been observed to be 105° in the shade; but, as soon as the atmosphere becomes clouded with vapour, which is mostly in a few hours, the thermometer falls to 89°. During the showers of rain, the thermometer will fall, in the period of from a quarter to half an hour, from 89° to 74°. The breezes are more regular and stronger than on other parts of the coast; there is no harmattan wind whatever in the bights; and these circumstances render the temperature, in a considerable degree, more supportable than on some other parts of the coast. In the months of February and March tornadoes are frequent and violent; they continue longer and blow harder than on any other part of the coast, except near the high land of Sierra Leone. Calm and light breezes occur alternately with these storms. When the morning is fine the thermometer will range from 84° to 87°, at times 100°.

Near cape Lopez the rains begin in April, and towards cape Formosa they continue until the early part of July, but are more irregular, and the interruptions are longer than on any other portion of this coast. During the cessation the density of the watery vapours in the atmosphere is very distressing; indeed even more so than the rains. The breezes are strong, and calms not frequent. During the night, but particularly towards the morning, the air is chill to the feelings, yet the

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thermometer stands higher than cutaneous sensation indicates; and this seems to be caused by the very rapid evaporation that then takes place. The thermometer ranges at this season of the year from 69° to 81°.

Sometimes in July and August there are fogs, which are less dense than those on the Gold Coast; in the early part of September there are, for a few days, heavy showers, called the after-rains.

Near to the islands in the bight, rains occur during all the year in showers from day to day. The proper seasons of these islands are esteemed to be the same as those of the main land: in point of temperature they are much the same with the main.

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CHAPTER VII.

ON DISEASES, MORE ESPECIALLY TROPICAL: UNDER WHICH HEAD ARE CONSIDERED HEPATITIS AND HEPATIC DISORDERS; INTESTINAL AFFECTIONS ARISING OUT OF LOCAL EXPOSURE; AND DYSENTERY, MORE PARTICULARLY AS IT OCCURS ON THE COAST: ALSO, LEPRA, FRAMBŒSIA, CRAW-CRAW, AND DRACUNCULUS.

Hepatitis and Hepatic Diseases.

HEPATITIS, or inflammation of the liver, is a disease which occurs in all countries, the temperate, the torrid, and the frigid; it, however, does occur much more frequently in the higher latitudes than in the lower; and thus, out of a vast number of causes to which the disease has been ascribed, a high range of temperature has been supposed, by many, to be that which is genuine. This cannot, however, be the exclusive, or even most common cause; since, upon different parts of the coasts of all hot countries, and without any cognizable or important variation of thermometrical range, the prevalence of the disease will vary in the most unaccountable manner. This is found to be peculiarly the case on the western coast of Africa, as upon the leeward portion of this coast, it is rather a common complaint; whereas, upon the windward or northern portion, on the contrary, it is so uncommon, that the author, whilst serving at Sierra Leone, never saw one genuine case in its acute form, and unaccompanied by other disease. He has, indeed, seen it succeed an attack of irregular fever, and become formidable in its course. He has also seen and treated a great many cases of chronic

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hepatitis whilst at Sierra Leone, but, with but few exceptions, they were imported from the leeward coast, and occurred generally in the persons of foreigners brought into the colony in detained slave-vessels.

Causes of Hepatitis.

Sudden vicissitudes in the weather, and in the seasons, or any sudden check to the natural cuticular discharge, are common causes of this disease, whether at home or abroad; and to these changes are hepatic attacks frequently attributed, when it has been ascertained that the subjects of such attacks had been previously exposed to the supposed causes now under consideration. But there must be something beyond all this and high range of temperature, to render a particular part of the world more prolific in the production of this disorder than even its immediate neighbourhood, possessing, perhaps, to all appearances, the like supposed exciting attributes in temperature and localities.

The above-enumerated causes may certainly produce liver-complaint, or inflammatory, or other deranged action, in any of the viscera; but since it so happens in some parts of the world wherein the causes in question abound, and wherein the disease hardly ever makes its appearance as an original disease, there must be something more hidden and mysterious in its production as a prevalent disease; something decidedly more positive and specific than exists in those causes to which it has been usually assigned.

On the western coast of Africa, at least, hepatitis would appear more to depend upon the quality of the water than upon any of the foregoing causes. At Cape Coast and Accarah, for instance, the water is acknowledgedly bad, and there, hepatic and dysenteric affections (the latter generally, perhaps, if not always depending upon the former) very frequently occur; whereas, at Sierra Leone, where the water is peculiarly good, these diseases hardly ever originate. Functional

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derangement of the liver, though a more frequent concomitant to a residence in a tropical country is known to occur amongst the inhabitants of all countries; and that frequently without any premonitory symptoms whatever.

Symptoms of Acute Hepatitis.

The symptoms of this disorder are a frequent hard pulse, with acute pain in the right side, particularly at the margin of the lower ribs, extending sometimes to the left side of the abdomen, immediately under the stomach, and also high in the chest in the right side; difficulty in lying on the left side; dry cough and painful respiration; with stiffness and pain at the top of the right shoulder: the countenance is sallow, and sometimes the skin and eyes have a yellow tinge: the urine is high-coloured, generally depositing a sediment, and either costiveness or frequent purging commonly sets in, the evacuations being of a dark or clay-colour; sometimes, but rarely, bile is passed in large quantity: the skin is always hot, sometimes its temperature is very high; the tongue is always more or less furred, and thirst is a general attendant.

As it is not the object here to review or reprint the various observations and speculations which are extant upon the causes and nature of this complaint, but to give a brief description of its more obvious causes, its nature and its treatment, sufficient has been said to precede a consideration of the latter, under the form described—the acute character of the disorder.

Treatment of Hepatitis.

The treatment of acute *hepatitis*, as in acute affections of any of the internal organs, must consist in prompt sanguineous depletion, whether general, or local, or both; and in free intestinal evacuations followed up by the continued use of such internal remedies as will prevent congestion; and in the external application of such excitants as are calculated to effect

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counter-irritation, and divert the afflux of blood from the affected part. These measures, in a climate like that of western Africa, should not be conditional and temporizing; they should, on the contrary, be positive, immediate, and successive, and continued until not only urgent symptoms are subdued, but until all symptoms of the complaint are entirely removed. A contrary practice is dangerous; for, if acute or violent pain only be removed, sub-acute inflammation will continue its secret inroads in the highly susceptible organ that is affected, and may be disregarded probably by the patient, and not unnaturally unobserved by the practitioner, until some part of the structure of the hepatic apparatus is destroyed by abscess, and the unfortunate victim, unless from a miracle in the bursting of that abscess, suddenly sinks. In carrying the necessary measures into effect, discretion must be exercised as to the extent of their employment; and, on the western coast of Africa especially, the debility consequent to acute diseases and their necessary treatment, demands a jealous eye. It were almost unnecessary to state, that in the young, the athletic, and the sanguineous, the depletory measures, are to be conducted with a bolder hand, than in cases occurring in advanced life, under circumstances of partial decrepitude and comparative debility. It is of infinite importance, however, to urge the fact, with these precautions in view, regarding the respective physical powers of the patient, that a powerful impression made upon the system directly, by co-operative measures, will prove greatly more advantageous in the cure, and generally less debilitating in the end, than if the same measures were more slowly adopted from absolute palpable necessity, as it were, rather than from anticipation. If the patient be young and powerful, from thirty to forty ounces of blood should be taken from the arm *instanter*, and a purgative of calomel and extract of colocynth, or of calomel and jalap, should be given, followed, a few hours after, by a seidlitz, or other saline or

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purgative draught, the strength of which is to be regulated by the effect of the previous medicine. If, after the free operation of these medicines, pain still remain to the same extent, blood-letting from the arm is to be repeated, yet limited to the strength and feelings of the patient; but should the pain complained of be only in degree of what it was at first, and the other pyrexial symptoms in the same proportion, the application of leeches over the affected part will be more appropriate than the more general and copious abstraction of blood from the arm; and if pain, or even the slightest feeling of uneasiness yet remain, a large blister is to be applied over the region of the disordered organ, and the discharge and irritation arising therefrom should be kept up, in a mild degree, for some time after, (if even pain should, in the meantime, be removed,) by means of some mildly stimulating ointment, the patient taking the following medicine: viz. calomel, three grains, antimonial, or James's powder, one grain, and opium, one-eighth of a grain, made into a pill, and repeated every two or three hours; a purgative of castor oil, or of any of the aperient salts, being administered when required, until slight soreness of the mouth appear. The internal use of the medicine is then to be discontinued; but if the blister be healed, and the patient tired of that species of permanent irritation, which, in most cases, will soon occur, a small portion of camphorated mercurial ointment is to be rubbed over the previously excited surface every night, going to bed; and the slower the performance of this process, without exposure of the patient to chill or draft, the better. In the early part of the treatment, the strictest adoption of the antiphlogistic regimen is to be adhered to; but when the case arrives at the stage upon which we are now remarking, a modified indulgence must be granted. A farinaceous diet, consisting of plain bread, arrow-root, sago, or tapioca puddings, with mild soups, will constitute the safest approach to the patient's ordinary habits of living, which

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should be prudent. In order to promote the appetite, and keep up the action of the bowels, the following medicine will be found highly serviceable :—Infus. quassiæ, ℔ j., Sulph. mag. ʒss. M. Of this tonic purgative mixture, as it may be called, the patient may take three-fourths of a wine-glass full three times a day; five grains of blue-pill may be given every third or fourth night, should the state of the alvine evacuations appear to call for such alterative, until good health and strength be, by means of these and gradually increased exercise, restored.

Having thus given an account of the disease and its treatment, in its acute form, it may be well to draw particular attention to those fatal terminations which have been alluded to, as attendant upon the suppurative process establishing itself in the liver, whether arising out of the patient's situation from necessity, in respect to exposure and to absence from medical advice, or from inadvertency on the part of the patient or practitioner, or that of both. The cases which have been selected as most illustrative of the object in view, it will be seen, were either attended with extremely obscure symptoms, or were not seen by the medical attendant until the precious moment for the salutary interposition of art had escaped—until, in fact, in all probability, the mischief had so far advanced as to amount to suppuration; to be thereby unattended with pain, and thus to give rise to a deceptive feeling of security to patients ignorant of the consequences of such apparently harmless change.

Fatal Case of Hepatitis, with Post-mortem Appearances; from a Report accompanying the Quarterly Nosological Return of Mr. Jeffery, when Surgeon of His Majesty's Ship, Maidstone, 18th of January, 1827.

"William Turnbull, ætat 40, seaman, of irregular habits, had been doing duty in a detained slave vessel since October last, and was received on board the Maidstone 22nd Decem-

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ber. Had not felt unwell till within two or three days of his coming on board, when he complained of pain across the umbilical region, and of headache. Pulse 80; bowels confined; tongue foul. Was ordered to take submur. hyd. gr. v., followed by cathartic solution.* In the evening, he complained of the pain in his head being increased. Skin hot; pulse sharp; bowels opened by the medicine; the stools dark and bilious. He was bled, and fainted on losing ℥x. at bed time. Hyd. submur. gr. v., Pulv. antim. gr. iij.

23rd. Pulse 80 and soft; skin cool; headache relieved; bowels freely opened; stools as before. Complained of dull pain in the region of the liver increased on pressure; and there appeared one uniform fulness over the whole of the upper part of the abdomen, and rather an indurated feel on the right side. The patient was ordered the internal use of the submur. hyd., mercurial frictions, purgatives, and a blister over the region of the liver. The mercurial treatment was continued until the 28th, at which time the system was under its influence, and the patient appeared to be gradually getting worse. He complained of pain in the right and left hypochondriac regions, as also at the situation of the caput coli. Oppressed respiration and pain under the sternum when pressure was made over the hepatic region. The external boundaries of the liver were repeatedly and carefully examined, but no fulness or pointing could be detected in any particular part; but there appeared the same uniform fulness over the whole of the upper region of the abdomen. Eyes sunk; countenance thin and sharp looking, with an evening exacerbation of fever and debility. On the 29th the patient had a severe rigor, from which time he gradually got worse, and died on the 1st of January.

* The mixture which bears this name on board ships of war is commonly composed of infusion of senna and sulphate of magnesia.

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"*Post-mortem examination.*—The contents of the thorax healthy. On opening the abdomen a large quantity of feculent matter was seen floating amongst the intestines. The liver was much enlarged, and extended so far over the epigastric and left hypochondriac regions as to give the feeling described of uniform fulness to the upper part of the abdomen—a similar enlargement also extended upwards, as far as the seventh rib, pointing opposite the cartilages from an abscess in the right side, which contained about twenty ounces of matter; that found amongst the intestines was discovered to have escaped from an abscess in the left lobe. The left side of the stomach had formed an adhesion to the liver; and, on the right side, the caput coli adhered to the lower portion of the right lobe. The whole surface of the organ had a pale greyish appearance; and that portion not occupied by matter felt indurated and diseased. Gall-bladder filled with dark-coloured bile. Spleen healthy."

From the Journal of Mr. Whitelaw, Surgeon of the Owen Glendower, Cape Coast Roads, 17th of October, 1823.

"Mr. R. M. aged 19, midshipman, arrived this morning in the schooner Hope, in which he had been for six weeks, having been discharged into her for a passage to England, shortly after recovering from a severe attack of hepatitis; the second day after parting from the ship he felt some slight pain in the epigastric region: he took a little purgative medicine, which removed the pain. In the course of a day or two, from the first feeling of uneasiness, he had a shivering fit; a tumor then rose in the epigastrium; he quickly lost strength and flesh; the appetite failed, and he passed his nights in anxiety and restlessness.

"On examining the tumor it was found to be about the size of a papaw apple (double the size of a clenched fist), soft, and evidently containing fluid; and it had a slight degree of pul-

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sation, the most prominent point having a reddish purple hue; it was punctured with a lancet, and a large quantity of bloody matter was evacuated: this considerably relieved his difficulty of breathing: in the evening, as much more matter was evacuated, and, his bowels being constipated, a pill containing Submur. hyd., Ext. colocynth. comp. āā gr. iij. was given.

"18th. Discharges copious and bloody; no natural evacuation; rested well.—Rept. med. ut heri. Vespere. One small evacuation. Pulv. jalap. c. ℈j., Aq. font. ℥j. M. ft. haust.

"19th. Discharge less in quantity, of a dark reddish brown colour, viscid and very fetid; had three evacuations; appetite improves; tongue clean; pulse 100; hectic symptoms in the evening.—Pil. hyd. gr. v. ter in die.

"20th. A slight degree of inflammation round the edge of the orifice, from the lancet; appetite good; no stool since the 19th; sleep disturbed.—Submur. hyd. gr. ij., Ext. colocynth. c. gr. vj. M. ft. pil.

"21st. One scanty evacuation; no other change.

"22nd. No stool since yesterday.—Infus. sennæ, Sol. sulph. magnes. āā gr. ℥j. M. ft. haust.

"23rd. Three evacuations; feculent discharge less in quantity, but still more fetid; loses his strength and flesh; appetite continues good.—Rep. Pil. hyd. gr. v. et Infus. calumb. ℥ij. ter in die.

"26th. Belly rather costive; edges of the sore ulcerating; it discharges daily about ½ a pint of tough reddish fetid matter, occasionally streaked with white and green.—Sol. sulph. magnes. ℥ij., Infus. sennæ ℥j. M. ft. haust. st. sumend. Vespere, freely purged.—Tr. opii., gt. xij., Aq. font. ℥j. M. ft. haust. hori somni sumend.

"27th. Rept. Pil. hyd. et Infus. calumb.

"29th. Had three stools in the night, attended with some griping; pulse 105; no alteration in the discharge.—Cont. haustus anodyne, &c.

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"Nov. 1st. Sore enlarges by ulceration, it is now the size of a shilling; washed with tr. myrrh, and dressed simply.

"2nd. Passed a very restless night; mouth tender.—Omit Pil. hyd., cont. Infus. calumbæ. Discharge excessively fetid, of every shade of colour; belly free; appetite good; hectic symptoms continue; ulceration spreads; strength gradually fails; pulse varies from 96 to 115; tongue brownish at the root; and the patient is troubled with flatulency.—℞. Tr. opii, gr. xv., Aq. ℥j., hori somna sumend.

"5th. Ulcer still progressively enlarging, and the strength failing; appetite moderate: has sago for breakfast; eats part of a chicken; at times a little mutton, with rice-pudding, for dinner; fruit, and three wine-glasses of port in the course of the day in his drink.

"9th. The ulcer is now larger than a dollar, and extends deep into the substance of the liver, part of which can be seen of a deep green colour, when the tough white pus covering it is removed: the cavity is washed with care morning and evening, with a little luke-warm water and tr. myrrhæ, or tr. opii; afterwards dressed simply.—Continues the use of infus. calumbæ.

"12th. Ulcer enlarges with rapidity, and the patient becomes more and more emaciated; pulse 100 and weak; discharge excessively fetid and of various shades of colour; appetite fails; takes occasionally a little ext. colocynth. comp. to keep the bowels open; and takes an anodyne every evening to procure sleep.

"15th. Ulcer still enlarging; it now occupies the greater part of the epigastrium; pulsation of descending aorta very strong.—Cont. medicamentæ.

"25th. The opening is now as large as a hand, and appears to have ceased spreading; pulse exceedingly weak; no pain, except on the moment of dressing.—Cont. med. &c.

"29th. No perceptible difference in the state of the sore, but the debility is increasing.

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"Dec. 1st. Had hardly the power of turning in bed; pulse very weak; discharge very fetid; appetite nearly gone.—Cont. omnia.

"2nd. Can observe the transverse arch of the colon; the discharge now finds its way amongst the intestines; pulse hardly perceptible; hiccup. He continued in this state until the noon of the fifth, when he expired."

From the same Journal.

"Nov. 4th, 1823. Thomas Eveline was brought on board from the Concheta Tender, as a convalescent from hepatic disease: his mouth was slightly affected with calomel; pulse 100, rather hard; had no pain, but complained of fulness in the epigastrium; considerable enlargement of the hepatic viscus easily ascertained on pressure; says that, three days ago, he had rigors; general debility; belly free; stools bilious.—Pil. hyd. gr. v. omni nocte, et habeat infus. calumbæ cum quassiæ, ℥ij. ter in die; half diet. From this date until the 10th, there was little alteration to be observed; the pulse became firmer; the tongue brown, with thirst; and, on examining the epigastrium, a prominency was felt, which rapidly increased; and, on the 13th, I made an incision through the integuments over its most conspicuous part, then through the thick fleshy belly of the rectus abdominis, to which the left lobe of the liver adhered firmly; the fluctuation of matter could be easily observed: the abscess was opened with a lancet, and about a quart of pus flowed from the opening; this did not relieve any of the symptoms. Vespere. On removing the dressings, a small quantity of bloody matter flowed from the wound—dressed it simply.

14th. Pulse 120 and small; some difficulty of breathing and tendency to delirium; discharge purulent, and rather copious; hiccups; countenance anxious and contracted; tongue brown and dry; thirst urgent; belly open; considerable tumefaction of the right hypochondrium—opening

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dressed simply.—Habt. emuls. comp. ℥j. secunda quaque hora.

"15th. Cold clammy perspiration; is constantly muttering to himself; moans deeply at intervals; pulse flags, and there is convulsive hiccup: he continued in this state until about 10 p. m., when he expired."

"*Appearances on dissection.* Hepatic viscus very large, of a pale colour; the edges of the abscess that had been opened firmly adhering to the abdominal parietes—the abscess was situated on the convex surface of the left lobe; there was another on the concave surface, containing about two ounces of thick white pus. The whole of the right lobe was nearly converted into a bag, containing thin fetid greenish matter. Gall-bladder filled with dark-green bile; stomach, intestines, spleen, &c. healthy: so were the thoracic viscera."

Remarks upon Hepatitis, from the Journal of Mr. Mackey, whilst Surgeon of His Majesty's Ship Esk, during the years 1826 *and* 1827.

"The acute species of hepatitis, which but seldom occurred to me, came on with a sense of chilliness, preceding pain in the right hypochondrium, sometimes dull and sometimes sharp, extending up to the clavicle and shoulder, and much increased by pressing upon the part affected; accompanied with cough, painful respiration, and difficulty of lying except upon the side affected, together with nauseau, and sometimes vomiting of a bilious matter. The urine was high-coloured, and small in quantity; there was loss of appetite, great thirst, and costiveness, with a full and frequent pulse, from 90 to 100 in a minute; sometimes intermitting. The skin was hot and dry at the same time, and the tongue covered with a white or yellowish fur; and, when the disease had continued for some days, the skin and eyes became tinged of a yellow colour.

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"The above was the manner in which acute hepatitis made its appearance. To these symptoms, nevertheless, there were exceptions; and what constitutes some danger and great difficulty in the management of hepatitis in this climate, is that in many cases the symptoms, which are primary and indicative of inflammatory action, are very slightly marked, even when it is to such a degree as to run with readiness into suppuration. In such cases, the pain in the side is not constant or acute; the patient himself takes but little notice of it; seldom, in fact, mentions it, unless he is asked about it; and, when questioned, he only, perhaps, tells you, that he has felt, at times, slight pains at the pit of the stomach, or in the right side. It is only by observing the secondary symptoms, such as a diarrhœa, or a short dry cough, and pain felt at the tip of the shoulder, or that there is a fulness or tenderness on pressing over the region of the liver, with some yellowness of the eyes and countenance, that the true state and nature of the disorder is to be ascertained in such cases. During the inflammatory stage of acute hepatitis, I always found it necessary to adopt blood-letting, proportioning the quantity taken away to the severity of the pain and the degree of fever present, and repeating the operation very soon again if the inflammatory symptoms run high. Opening the bowels freely with calomel and the extract of colocynth, and the application of blisters to the right hypochondriac region, seldom failed to afford relief. After this I put the system under the influence of mercury, and kept it in that state for the space of a month or six weeks, which, in most cases, effected a cure."

Case of Hepatitis from the same Journal.

"Nov. 2, 1826. Mr. J. T., aged 26, has been subject to chronic hepatitis for several years; his system had also been frequently laid under the influence of mercury. On the 2nd day of Nov., 1826, he complained of pain in the right hypo-

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chondriac region and top of the right shoulder; pain and uneasiness when lying on the left side; bowels obstinately costive, seldom or ever having a passage through them without the aid of medicine.—Capiat Calomel. gr. vj., postea Solut. sulph. magnes. ℥ij.

"3rd. Pulse 86, full and soft; tongue white; two loose stools; pain of the right hypochondriac region, and top of the right shoulder, continuing.—℞. Calomel, ʒi., Opii purificat. gr. iv. M. fiat. pil. No. xxx., capiat unam ter in die. Applicet. emplast. lyttæ partes affectes.

"4th. Blister rose well; pain of the right hypochondriac region somewhat relieved; one stool.—Cont. Pil. ter in die.

"5th. Pulse about 84, hard and small; tongue white and moist; skin rather hot, but moist; no stool; pain of the right hypochondriac region and top of the right shoulder continue.—Capiat Sol. sulph. mag. ℥iij., cont. Pil. hyd. ter in die.

"6th. The mercury was continued until the 18th instant, when his gums became much inflamed, without the least alteration in the above symptoms. His habit of body being very delicate, and wishing himself particularly to return to England, he was invalided on the 23rd of November."

Remarks.—In the treatment of the preceding fatal cases, but little more seems to have been available beyond the measures adopted. It may be proper, however, to observe, that when hectic fever sets in, and there is a sudden cessation of pain, the actual formation of matter may be presumed to have taken place; and its evacuation externally, or by means of an accidental opening into one of the intestines only, are to be contemplated as the very distant prospects of the patient's recovery. Successful instances have been known under such circumstances; and, therefore, however rare recovery, and however faint the prospect, such cases are not to be given up in absolute despair. In them, the patient's

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stamina should be supported by appropriate food and medicine, cautiously avoiding repletion or other excitement; and the bowels should be kept very moderately open, only by the mildest medicine, such as castor oil. The matter formed should be solicited, if possible, to the surface, by means of warm local applications; as, by the timely employment of such applications, absorption of the matter of a small superficial abscess may take place. Many instances have occurred in which the matter of large buboes has been quickly dispersed and absorbed through the prompt application of heat. The nearer the approach of this application to permanency the greater the chance of absorption; but, if the course of nature, in the suppurative process, be irresistible, the heat will at least contribute to expedite that process, and may, in some measure, occasion a tendency to point at the surface, before the rallying powers of the constitution are entirely worn out. These cases of abscess in the liver are frequently so exceedingly rapid in their approach and termination, that time for the beneficial influence of change of climate but rarely occurs; not so in cases of chronic hepatitis, wherein there is no immediate danger.

Chronic Hepatitis.

In this form of the complaint, a well-informed patient may be so instructed as to be able to treat himself successfully, or at least to prevent an increase of the evil, should he be proceeding to a more auspicious and temperate part of the world, and without the advantage of daily medical advice. A change of climate alone will very frequently effect a cure, and if not, general instructions may be laid down regarding convalescents from hepatitis, which merit attention. Exercise, is of the first importance in chronic affections of the liver, and its kind and degree must be determined in a great measure by the circumstances of the patient, and the particular state of his general health at the time; for it will

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happen in one case of chronic hepatitis, that the patient will have considerable physical power, and will, with propriety, take proportionate exercise, whereas, in another, the sufferer may be so extremely reduced in strength, though without threatening symptoms, that the greatest prudence and delicacy must be observed in directing his first movements towards exercise.

As already stated, functional derangement of the liver occurs in all countries. Such deranged action presents itself more frequently between the tropics than elsewhere; and, of these parts of the world, not the least rarely upon the western coast of Africa. A deranged action of the liver is frequently so masked and obscure, that it is not easy to ascertain the nature of the complaint. In general, persons suffering from functional derangement of this organ, will be, as it is vaguely called, "out of sorts:" the countenance will assume a pale dark, or leaden hue; the eye will be dull and less expressive than when in good health; there will be a deficiency of natural perspiration, and the skin will have a dry harsh feel; the bowels will be generally costive, the evacuations being dark, or of a light brown, or ash colour; the appetite may be tolerably good, but the spirits will be low, and easily agitated; sleep will be of short duration, although there may be great drowsiness, the melancholy sufferer being frequently aroused from his harassing slumbers by the most frightful dreams. Generally there will be a deficiency of biliary secretion; at times, this fluid will be secreted, but will be thrown by regurgitation into the stomach, greatly deranging that viscus, and causing, in the morning more especially, nausea, or vomiting. Under these circumstances, the patient will experience the greatest degree of lassitude and languor, and, although he may be still possessed of great bodily strength, as might appear if accidentally excited to trial, when unexcited, he will feel or fancy himself so much debilitated that he could not raise a few pounds.

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To remove this dreadful train of symptoms, more trying to the feelings than the most painful sufferings from acute disease, agreeable society and active purgatives have been urged. These measures are not only questionable, but very generally objectionable. The pleasantries occurring in agreeable society are generally too much for his agitated and unhappy state, and remind him of it, and greatly add to the horrors of the all-absorbing, and, it may be said, overwhelming malady; and strong purgatives are generally objectionable, because of their tendency to increase that degree of nervous debility, which is almost always one of the dread accompaniments of the complaint, and also of the increased predisposition which the too free use of powerful purgatives give to debility in the organs operated upon, whether the intestines or liver, or both, and, consequently, to constipation. It is, notwithstanding, true, that if there be pain, fulness, or tension in the abdomen, it will be expedient to evacuate freely with active medicine; but this done, the action of the bowels should be rather solicited than powerfully excited. And to effect this purpose and an amelioration of suffering, soda, rhubarb, and blue-pill, in such respective proportions as to meet the peculiarity or irregularity of each case, forms the most happy combination with which I am acquainted. Should the patient get tired of the use of the pills, or should they, after a time, seem to be less effectual than when first given, they may be superseded by any of the bitter infusions, combined with some of the purging salts; and, as the patient improves, he will then do well to substitute moderately increased exercise and agreeable and suitable society for medicine.

On Intestinal Affections arising out of local Exposure on Shore, amongst the Crew of His Majesty's Ship Owen Glendower, when lying off Cape Coast; by Mr. Whitelaw, then Surgeon of that Ship.

It appears that in the early part of February, 1823, a certain number of the marines and seamen of the ship were

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ordered on shore to do garrison-duty, arising out of an apprehension of the establishment there being about to be surprized by some of the native tribes, the Ashantees more particularly, with whom war or misunderstanding, which had for sometime gone on, was still pending; and that, from the circumstance of spirits of inferior quality being easily procurable, these men very frequently got drunk, notwithstanding the most strenuous efforts on the part of the officers in charge. The people became sickly in consequence, and were ordered to re-embark. After this they suffered much from irregular visceral disease, the chief of which having been derangement of the liver, and, what appeared to be much more intractable, an inflammatory affection of the cæcum, transverse arch and sigmoid flexure of the colon, answering (Mr. Whitelaw says), in symptoms and appearances on dissection, to the "*colonitis*" of East India writers. In immediate reference to the disease, Mr. Whitelaw observes:—"The patients were generally unwell for three or four days, frequently longer, before they complained. Their first complaints were of uneasiness and dull pain, extending from the right superior spinous process of the ilium along the course of the colon to the epigastrium, their appetite continuing good; but there was much thirst, and the bowels were inactive: those that complained in the early stage of the complaint had a whitish tongue, a moist skin, and a natural pulse: the pain in the abdomen, in general, gradually removed to the hypogastric region, and the evacuations became relaxed, with much pain and straining on going to stool, the discharges being of mucus or a reddish serum: the urine became scanty, and of a deep colour, attended with painful strangury; frequently the patient would be harassed all day with pain and inclination to go to stool without being able to pass anything; towards evening, these sensations would disappear; his thirst would become increased, and he would pass a restless night in broken slumbers till about

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4 a. m., when, in the course of three hours, he would have eight or ten copious loose stools, with either the reddish serum matter, such as was very fetid, with shreddy portions of matter swimming on it, or the stools would consist of blood and a mucous matter. Much pain preceding the evacuation; the pulse would be rather quick, and perspiration would stand in large drops on the forehead; the tongue about this time being brown and red at the edges. The patient, under these circumstances, became emaciated, and the eyes became hollow, with a turn of countenance expressive of internal agnony: when questioned, he would say he had no pain, but a feeling of soreness, drawing his hand, perhaps, across the bottom of the belly, showing its direction; his thirst being unquenchable, and there being anxiety depicted in the countenance that had not been expressed. The complaint is attended with vomiting; the rectum is very irritable; the sphincter ani becomes relaxed, and the excretions pass uncontrolled; the pulse exceeds a hundred and is small, with a thrilling beat; hiccup takes place, and death closes the melancholy scene of suffering.

"On dissection, in these cases, the omentum is found adhering to the surface of the intestines, the points of adhesion frequently containing a little matter, and commonly there is a sanguinous-like serum effused into the cavity of the abdomen; the cæcum is, in almost every instance, gangrenous; where the liver overlays the arch of the colon there is inflammation in all its stages to gangrene, and the sigmoid flexure is highly inflamed; but I have never seen that particular part gangrenous. The mesenteric glands are hardened and enlarged. On opening the colon its inner surface is ulcerated; and on examining the rectum near the anus, it is found much excoriated and inflamed: not unfrequently there are some small abscesses in the liver, evidently caused by the inflammation spreading from the affected intestine to the hepatic region; the other viscera are healthy.

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"It very frequently happens that *nondescript* disorders of this kind, verging between hepatitis and dysentery, partaking perhaps of both, cause more difficulty on the part of the practitioner, and more distress on the part of the sufferer, than if the disease were defined to be either the one or the other, and attended with great severity. To lay down any fixed rule of treatment, in such cases, would be out-stepping the bounds of prudence. The symptoms, and the symptoms only, are to be met and treated according to their tendency to hepatitis or dysentery, their intensity or otherwise.

Dysentery.

This disease, like hepatitis, is not the local enemy of the inhabitants of any particular part of the world; but, like the latter disease, is to be met with occasionally in all countries; hot climates being the most generative of its existence, and the most propitious to its fatal career. It seldom occurs but as a secondary affection on the northern part of the coast; to leeward, perhaps, depending upon the same causes as hepatic disorders—it is of very frequent occurrence, but if closely enquired into, it will generally prove to be secondary, and very rarely attended with pyrexial symptoms to the same extent as are commonly observed to accompany the malady in other hot countries. On the western coast of Africa, in fact, it would seem to be less an idiopathic disease than it is elsewhere, and this is an important point to be acquainted with as regards the treatment; for, as in fevers, in the abstract sense of the word, dysentery may be produced by a variety of causes; but, owing to the existence of localities in certain situations, the same cause will generally prevail, and be productive of more or less uniformity in the disorder.

Symptoms.

The first symptoms are severe griping and frequent desire to go to stool without the power of passing anything, feverish

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heat of skin, and more or less frequency of pulse. The matter passed by straining has a very offensive smell, consists generally of mucus or slime, and is sometimes mixed with blood. The tongue is almost always furred, and there is an accompanying disagreeable taste in the mouth.

It has been observed that dysentery is but rarely an idiopathic disease on the northern portion of the coast; this circumstance, however, does not prevent very great experience in the disease at Sierra Leone, where hundreds of negroes afflicted with the malady are brought annually from the leeward coast for the purposes of emancipation and location. Amongst these unfortunate creatures, generally exposed to all the evils of bad food, bad water, and a crowded and necessarily filthy vessel, the disease spreads widely, and often becomes evidently infectious previously to landing: and, both on board and on shore, the mortality is very great. In almost all these cases the liver is found to be affected, as well from the existence of the characteristic symptoms of that disorder, as from those that are consequent, the latter being great abdominal enlargement and œdema of the lower extremities: frequently this condition extends over the whole body, the face being so very œdematous that even vision is altogether obstructed. A want of power on the part of these miserable sufferers to explain their feelings in language that would be understood to their medical attendant, of necessity greatly increases the common danger of their respective cases.

Accompanying the slaves, on their arrival at Sierra Leone, are generally the greater part of the crew of the slave-vessel when captured, and these people very frequently suffer severely from chronic dysentery; but, from their extraordinarily regular habits (notwithstanding the infamous nature of their calling) and a good deal of acquired knowledge as to the treatment of the complaint, they seldom die in the colony from its effects.

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Treatment.

The treatment of dysentery, as it has appeared in other parts of the tropical world, and as it has been discussed and laid down by medical writers of celebrity on it, and other diseases of those parts of the world, evinces much variety, and has led to much difference of opinion. It is not necessary or intended to revive these discussions, or to question the expediency of variety in the list of measures recommended when great variety of form presents itself, but to confine attention to the limited form under which the malady ordinarily makes its appearance on the western coast of Africa. As it has been shewn that the malady is seldom original and independent of other disease, the constitutional powers should be delicately treated, and the lancet, if employed at all, must be employed with the most scrupulous care. If the pyrexial symptoms, contrary to what generally occurs on the coast, should run high, the patient being a European and the disease not far advanced, bleeding from the arm will be appropriate; but, if the disease has existed for some time, even with the presence of inflammatory symptoms, general blood-letting would be decidedly inappropriate. In such case if the symptoms be urgent, the application of leeches or blisters, or both, with hot fomentations to the abdomen, or warm bath, or all, as circumstances may seem to call for, will be more to the purpose. The bowels in every case should be thoroughly cleared, in the first instance, by such evacuants as will not cause any increase of tenesmus; and, as the state of salivation is almost absolutely necessary in the cure of the disorder, perhaps a scruple of calomel, with five grains of extract conii, the latter in order to restrict the possibly, rather than probably active operation of the calomel, in that dose, upon the bowels, will prove to be the best primary measure (as regards the internal treatment) for adoption. About six hours after

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the administration of that medicine, three or four drachms of castor-oil may be administered, or a little oil and tepid water may be thrown up in the form of an enema. After this, the system should be brought under the influence of mercury as quickly as possible, and that given by the mouth, whether calomel or blue-pill, should be in a small quantity, combined with opium, the latter not exceeding one grain in the day, and antimonial, or James's powder, very frequently repeated; the patient being directed to use some mild bland article of diet, such as arrow-root, thick gruel, or barley-water, by which the necessity of drink would be lessened. If great debility set in from long want of sleep, an anodyne night-draught, combined with a diaphoretic, should be given, or the effect contemplated by such draught might be produced by ten or twelve grains of Dover's powder. Should the internal use of the mercury be insufficient to produce salivation and alleviation of the symptoms, mercurial ointment should be industriously rubbed in, and if there be no acute pain to the touch in the abdominal region, that will be the better place on which to apply the friction. But should pain exist there, the mercurial frictions must be elsewhere applied. The region of the liver will be the next best place: and to remove the abdominal irritation, which is not here supposed to be of an inflammatory nature, the compound camphor liniment may be advantageously employed, and several turns of a flannel roller round the waist may prove very beneficial; it will afford support and comfort, and may very materially contribute to quicken the action of the absorbents and to expedite the cure.

This disease, like fever, if it occur in a filthy house or ship, may become contagious; a character, amongst Europeans on board of British ships, or amongst those Europeans who have been located on shore, it has, however, seldom been known to assume. The ordinary causes ascribed to the production of dysentery are, a sudden suppression of perspiration; parti-

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cular states, or sudden changes in the atmosphere; eating unripe fruits; or drinking bad water. This last may be considered, at least indirectly, as its principal cause on that part of the western coast of Africa in which it is most prevalent. It is indirectly so, because it is the liver that suffers first, although the impression made upon that organ may not have attracted very particular attention in the first instance.

The following case, from the journal of Mr. Austin, surgeon of His Majesty's ship, Esk, in 1827, is a specimen of the disease, as it generally occurs amongst Europeans on board of ship.

"March 22nd. Den Harrington, seamen, ætatis 22, was taken ill in a slave-vessel, which he was assisting to navigate to Sierra Leone, and in which he was exposed to much wet and fatigue. He was ill upwards of a month before he rejoined his ship. His stools now are frequent and scanty, consisting of mucus and blood, attended with considerable tormina and tenesmus. There is constant uneasiness over the whole of the abdomen, and tenderness around the umbilicus and along the course of the colon, when pressure is made there. There is likewise pain in the right hypochondriac region, which, in some degree, impedes his breathing, and extends to the tip of the right shoulder. Pulse 92, somewhat hard; skin hot; tongue white, and furred at the back part. Blood, to the amount of thirty-five ounces, was immediately abstracted from his arm, which produced syncope.—Eight grains of submur. hyd., followed by ounce of the sulphas magnesia, were given. In the course of the day the abdomen was fomented, and in the evening an anodyne diaphoretic draught was given. On the following day he felt no pain in his side, and the abdomen was less painful on pressure. He was put under a mercurial course.—Four grains of submur. hyd., with two of antimonial powder, and one-fourth of a grain of opium, were exhibited every four hours, whilst frictions of camphorated mercurial ointment

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and laudanum were had recourse to, morning and evening, over the belly and affected side. This treatment, a mild laxative being now and then interposed, and alleviating, as far as possible, the more painful symptoms by opiates, was persisted in; and, in order to hasten the impregnation of the system by the mineral, the calomel was sometimes given in doses of a scruple twice and even thrice a day. A slight soreness of the mouth, however, was all that could be effected, although he took three hundred and twenty-five grains of calomel, and rubbed in three ounces of mercurial ointment. His stools varied little in quantity, or quality, till towards the latter end; they then became more mucous, mixed with blood, and very fetid; and in this state he sunk."

"*Sectio Cadaveris.*—Body much emaciated; omentum and intestines more vascular than natural; the latter adhering to each other in several of their convolutions. A slight serous effusion in the abdominal cavity; many of the mesenteric glands swollen; coats of the colon much thickened, particularly the transverse portion; mucous coat soft, pulpy, and ulcerated in numerous places. The upper part of the mucous coat of the rectum presented the same appearance, and an abscess was found in the right lobe of the liver, near to the gall-bladder, of the size of a walnut, containing pus."

The following remarks, by the late Mr. Tedlie, in his report to the late Dr. Nicoll, are extracted in corroboration of the views entertained respecting this disease, and also of the above case, which is a good specimen of it as it occurs on the coast. The late Mr. Tedlie remarks:—

"Dysentery, which so often proves fatal in this country, is very seldom idiopathic; indeed, from my observation, I have never seen a solitary case in the country, but, on the contrary, have found, on dissection of those who had suffered the most excruciating torture from tenesmus, tormina, fever, and every symptom of genuine dysentery; the liver enlarged, and often containing an abscess in its substance; the spleen

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enlarged to an enormous size, the surface of which, in many cases, having assumed a cartilaginous structure. In these viscera I have always looked for the true cause of dysenteric symptoms, and in no case have I ever found myself disappointed."

Such are the brief observations of Mr. Tedlie, and they may be considered to afford good general conclusions, regarding the disease in question, as it occurs on the western coast of Africa.

Lepra, as it occurred, more particularly in 1828, *in the Gaol of Freetown, Sierra Leone.*

The disease about to be treated of is but little known, even in the medical world, and, as it has received no particular designation, may at once be placed under the head of lepra, without ransacking the complex nomenclature of cutaneous disorders for a term which might be more expressive in a literal sense, but more vague to the general reader. This malady has occasionally occurred in the public gaol of Freetown, Sierra Leone. And, as the complaint has almost invariably resisted every method of treatment adopted for its cure, with the exception of release from confinement, and consequent discharge from prison, it is deemed highly important to give such a brief description of it, as will enable practitioners and others easily to recognise it at an early period of its approaches, and that the adoption of measures, not hitherto available, may be suggested and acceded to for the separation of the affected from the healthy, and the prevention of the more extensive spread of the disorder.

This disease (as it occurred in 1828) generally presented itself in the persons of the most debilitated; first, by the appearance of a scurfy dryness of the whole skin, accompanied with great wasting, and attended with a rapid decline of physical and mental energy. Such having at first been attributed to the effect of confinement upon the diges-

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tive organs, appropriate medicines, with the view to correct these supposed defects, were administered, but to no good purpose; debility increased, and the cuticular complaint gradually progressed to more or less cuticular disorganization. In many cases there were a number of nearly circular spots over the body, varying from the size of a sixpence to that of a shilling; being flat, polished-like, and indurated; of a dark brown colour, strongly resembling so much recently tanned leather,* the interspace being always furfuracious. On other occasions, and sometimes in the same subject, scabs appeared on various parts of the body, the palpebræ being much thickened and diseased, and the conjunctivæ being affected with chronic inflammation. The eye itself had a very turbid appearance, and its functions were impaired, and in some cases destroyed. The nails also became diseased, were loose and brittle, and, in many instances, dropped off. The complaint seemed unquestionably to have arisen independent of infection, although it afterwards manifested in the most unequivocal manner that communicable power. Indeed, so well-known was this to the degraded inmates of the prison, that many of them, before the fact was found out, studiously had the disease communicated to them by coming in contact with those affected, in the hope the existence of the affection in them would excite commiseration, and that they might, in consequence, be discharged, as had previously been the case with some whose crimes had been of a minor description, and whose gaol service had been nearly completed. The greatest attention was directed to the treatment of the disorder, embracing as well local as constitutional measures; but with very little efficacy, as few recovered in the prison, and some died there: nor did post-mortem examination throw any additional light upon the nature of the malady. Decoctions of sarsaparilla and of Peruvian bark, with the

* The subjects were all black.

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various mineral acids, as also the arsenical solution, were respectively employed; mercury, in different forms, and for different purposes, was given; a more liberal diet was allowed; exercise in a large yard in the open air enjoined; the tepid bath, or washing with warm water, frequently resorted to; and cleanliness in every respect strictly observed. The external applications were, in like manner, numerous; they consisted chiefly in the use of ung. hyd. fort., the unguent. hyd. mit., and the unguent. hyd. nit., whether diluted or undiluted, with some more simple ointment; and also in solutions of the argentum nitrat. and sulphatis zinci, distinctly made, and separately employed. All those who were discharged from the prison, though in an extremely emaciated state, and apparently on the very verge of death, recovered; thus proving, that the condition of the mind had much to do with the continuance of the malady.

It is hardly necessary to observe here, in conclusion, that persons affected, as were those remarked upon, should be separated as much as possible from the other prisoners; that they should be kept in separate cells in the prison; and, when in the yard for exercise, there should be a temporary barrier, so arranged as to prevent the healthy and the contaminated from coming in contact.

Frambœsia, or Yaws.

This disease is frequently met with in the West Indies, but prevails to an infinitely greater extent in Africa, which latter country, therefore, may reasonably be considered its birthplace. Its external and only distinguishing characters, and those from which the complaint has been named, consist in a greater or less number of greatly elevated excrescences, similar to the raspberry; at least, the more marked and prominent of them bear that striking and singular resemblance.

Much speculation has gone forth respecting the nature of this disease, as to whether it is constitutional or local; and,

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respecting this point, the medical public have by no means set the question at rest. Hitherto, however, the treatment recommended and generally practised, leads to the conclusion, that the general opinion is in favour of framboesia being a constitutional disorder. A brief description of its appearances and progress will suffice. In its commencement, slight febrile symptoms, and flying pains in the joints, generally are felt without much constitutional disturbance; and, after some days from the occurrence of these symptoms, remarkable small elevated points are observed to present themselves upon different parts of the body. These very gradually approach their greatest magnitude, and occupy, more generally, such parts as are glandular, or lax and cellular. They are to be seen in greater number and larger, for instance, about the axillæ, anus, groins, face, and eyes, than on more muscular and firm parts. And it will generally happen, when the suffering individual is first seen, that some of the excrescences will be dying and dropping off, whilst others will be obviously shooting into existence.

If any of the protuberances be accidentally contused or injured, they will either be supplanted, or their bases surrounded by a fresh crop of confluent or continuous excrescences; but these will seldom acquire the same degree of elevation as those which seemed to have had a more spontaneous origin. The disease is much more frequently met with amongst children and youths than amongst persons arrived to the years of maturity; and its intensity and duration in the subjects of its attack depend much upon the state and circumstances of the individual patient at the time, whether, in fact, he is suffering from filth and low-living, or whether, on the contrary, he is enjoying the advantages of wholesome food and cleanliness. No acute pain is felt in these excrescences, unless they are pressed upon; and thus it is, that such as occur on the soles of the feet are necessarily complained of as being the most painful. Their discharge is thin and ichorous,

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never yellow and consistent, like that from abscess. The duration of the disease varies from weeks to months, according to the circumstances of the patient, which have been previously remarked on; and the period of termination will be best judged of by a cessation in the formation of new protuberances, and a more general desquamation of such as had previously appeared. After this last process takes place whitish spots remain for some time in the parts effected, but no permanent marks continue.

The most spreading of the tubercles has obtained the appellation of master or mother yaw; but this distinction, which, like many others, has been kept up from imitation without reflection on the part of writers, is decidedly inappropriate. A little attention will shew that the most spreading yaw is never a parent, but an offspring; it is, in fact, as before alluded to, the result of the ichorous discharge from an injured or irritated yaw causing a fresh crop of pustules, which, becoming confluent, acquire more than ordinary dimensions at their base.

This complaint, it is generally admitted, is only produced by actual contact, and it may, with propriety be added, that it but seldom proves fatal, unless under the circumstances of an unnecessary, or very improper, use of medicines. Respecting the cure of the disease, indeed, very serious mistakes have been made. The malady having been considered constitutional (by some a species of venereal) a vast variety of medicines have been recommended in its treatment. Decoctions of the woods and tonics of various kinds, as well as the internal and external use of mercury, have been administered, and their advantages urged. The greatest mischief has, undoubtedly, resulted from the internal use of the last-named medicine; for the particular results to be anticipated from its employment not being derivable, the mercury, which at all times is uncalled for except when given so as to produce alterative effects, is generally erroneously persevered in, until,

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at length, what appears to be a rheumatic state of the constitution, and what, in truth, arises solely out of the maladministration of mercury, sets in; a state which has been erroneously enumerated amongst the symptoms of the disorder. Many practitioners of the present day have modified the treatment to a modified view of the nature of the complaint. The following brief remarks, from a report of staff-surgeon Bell, when serving at Accarah, are given in testimony of this assertion. Mr. Bell says:

"Frambœsia, or yaws, is an affliction from which the inhabitants along the sea-coast suffer: it is said by themselves to be hereditary, as I observed the spleen to have been. At present (says Mr. Bell) I have a case under cure, whose face is covered with excrescences resembling raspberries. He had a phagedænic ulcer on the preputium; the perineum was studded with similar excrescences to those upon the face, and there were several over the legs and thighs. The symptoms he laboured under, when I first saw him, indicated great derangement of the digestive organs, to which I directed my treatment. I commenced by giving small doses of rhubarb every day, and a five-grain blue-pill every second night. His stomach and bowels have now acquired tone. The tongue, which in the first instance was foul, is now clean, and the youth is getting lusty."

In his capacity of surgeon to the Mixed Commission Courts, and likewise to the Liberated African Department, the writer of this volume had extensive opportunities of seeing and treating this disease. Amongst the many thousands of slaves that of late years arrived at Sierra Leone, it frequently occurred, and he can speak confidently of the success of a very simple treatment, which was aided by a favourable change of diet and cleanliness on the part of the patients.

The treatment of the people in question consisted simply in their being regularly and carefully washed every morning after landing; on their being each supplied with a clean new

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dress; their having alterative medicine occasionally administered to them; and in the affected parts being touched daily with caustic.

To this last remedy alone the slave-dealers generally trust in the treatment of the complaint; and to them we are indebted for this piece of knowledge. Undoubtedly, this local application, and the adjuvants just named, may be depended upon as measures speedy, safe, and certain, in their curative operation over this disgusting disorder.

Craw-craw.

The above is the country or local term for a species of "scabies," which is very common upon the coast, and which occurs so very generally amongst the unfortunate slaves brought into Sierra Leone for liberty, that to pass it over without a few remarks would seem censurable. This malady bears a stronger resemblance, perhaps, to psora, or common itch, than to any other well-recorded malady with which there is any acquaintance. It, like psora, is characterized by an eruption which gradually spreads; but the eruption enlarges to a considerably greater extent than that of common psora; and, although possessing a precisely similar feeling, from the most distressing sensations of irritability and itching, it is, through the debilitating circumstances of climate and other attendant evils, a much more serious malady to contend with than what is denominated psora in Europe. This is natural, for it might be expected that that which would be a source of constant irritation in Europe, would prove doubly so in a hot climate, where comparative debility exists. The same treatment is to be observed in both cases, in the first instance; namely, that of saline purgatives; sulphur purgatives; the application of sulphur ointments, whether simple or combined with other medicines; frequent tepid ablutions, and changes of linen.

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This practice will generally cure; but it will sometimes so happen, that the disease will only undergo a very material change in its character, and then it will be found that the medicine which effected the alteration will cease to be influential in its future amendment. Fewer pustules and eruptions will exist, but they will be more inveterate than were those of the previous stage, and will call for a different mode of treatment. This stage of the disease, in short, will greatly resemble that species of East India psora, which is commonly denominated "Malabar itch." Under it purgatives, containing calomel, should be substituted for saline aperients; the ung. hyd. nit. cum ung. lapis calamin. should take precedence as an external application to ointments of a sulphureous composition; and if this modification, with the *adatamenta* of cleanliness, &c. previously recommended, should not succeed, the internal use of Fowler's arsenical solution may be employed with every hope of success. As with internal remedies, so with external applications, they will frequently suddenly cease to exert their first influences, and, in such instances, it may be found necessary to change those that have been described for ointment, containing zinc, or oxymuriate of mercury, or for lotions made from some of the mineral acids.

Dracunculus, or Guinea-worm.

The Guinea-worm is a small round white worm, resembling so much catgut; it has a black, or dark-coloured head, and generally burrows between the muscles and fleshy parts, particularly in the legs and thighs, sometimes, however, making its way between and around the tarsal bones. It varies greatly in length, from twelve inches to four or five feet.

The patient, at the commencement of the disorder, in general, feels a slight degree of itching and uneasiness in the affected part, where, on examination, a small blistered appearance will generally be seen. The pain is seldom des-

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cribed as being very severe until the worm is nearly at its full growth, when swelling, pain, and redness, are symptomatic of its near approach to the surface. The part then, in general, becomes much more painful, and the course of the animal may at this period be distinctly seen, and the extent of its abode may be often fully traced: at this time the blister, or blistered appearance, noticed, gives way, and a small aperture, or ulcer, takes place, through which the head of the worm projects. When extracted in its entire state from the body, which but very rarely occurs at one operation, the animal does not evince any of the signs of life; its colour is a pale white, and it is semi-transparent, and of a gelatinous structure. When the head does project, it should be surrounded and secured by a small soft ligature, attached to a piece of quill, or any other convenient substance of that form, rolling the slack part of the worm round it, and taking care not to break or over-stretch it, lest it recede beyond reach; or the slack part, as has been recommended by Dr. Scott, and set forth in Dr. Johnson's work on the Diseases of Tropical Climates, may be cut away from time to time, the remaining portion having always been previously secured as above-described, to prevent its retreat, and to afford facility in its gradual removal as it approaches. Daily and patient attempts are to be made to effectuate this; and, should there be inflammation, or much pain, during any period of the disorder, poultices and fomentations will be found serviceable, and an occasional mild aperient will also be proper and desirable.

Respecting the cause of Guinea-worm, there exists a difference of opinion not yet decided. Most observers upon the subject allow that the disorder is derivable from stagnant or bad water; some believing the modus operandi of its generation to take place in the stomach; whilst others entertain the impression, that the skin is the media through which the process of reproduction, or of generation, in the human body

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is effected. The complaint, like many others, is of much more frequent occurrence on the leeward than windward coast, and the medical officers, serving on the former division of coast, have, consequently, better opportunities of treating and judging of its nature than those serving on the latter division.

Staff-surgeon Bell, in his Report (and we have had opportunities of seeing cases under his care, at Accarah, in 1822) observes:

"The dracunculus, or Guinea-worm, is a disease prevalent among the natives of the Gold Coast, and in a few instances it has been known to attack Europeans. There are two opinions as to how the worm is generated: some imagine the germ of the worm passes under the cuticle when the natives wash or bathe in pool or pond water, which in general is filthy; others think the worm is caused by drinking the water, creating derangement of the stomach and bowels, and giving the constitution a predisposition to that complaint. Many people are rendered incapable of earning their daily bread from the ravages which it commits: I have seen several poor creatures crippled by a contraction of the tendo-achillis, hamstring tendons, or those of the biceps humeri, rendering them a burthen on their parents or friends for life. The only internal treatment I have found to be attended with benefit, was small doses of purgatives with bitters."

The late acting staff-surgeon, Tedlie, in his report from Cape Coast Castle, bearing date in 1822, observes:

"There has been so much said respecting the cause of Guinea-worm by men of acknowledged ability, that but little is left for me to say farther, than that it is my unqualified opinion that the worm is not produced by water taken into the stomach: whether the ova are conveyed by insects as some have supposed, I am not prepared to give an opinion, or that they are deposited in stagnant water and penetrate the skin in the form of animalculæ, I cannot distinctly say;

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though I am much inclined to think that the latter is the case, and that when the worm is found, and the parts in a state of ulceration, I am inclined to think they are then propagated by contact.

"To guard against the ravages of this disease (when it appears) a hospital should be immediately established, and the diseased persons kept entirely separated from the healthy, &c."

Mr. Tedlie further remarks, "That at the time of making out his report, out of a total of a hundred and twenty soldiers in garrison, thirty were rendered unfit for duty from the effects of the complaint." His opinion respecting the cause is the prevailing one, but by no means satisfactorily accounted for. If the position assumed by him and by Mr. Bell, and indeed by many writers upon the subject, were correct, we should, it would be reasonable to suppose, have as many cases of dracunculus in the neighbourhood of Sierra Leone (where the disease very rarely originates) as upon the Gold Coast; and for the plain reason that the contiguous Bullom abounds with pools of stagnant water, in which many of the natives immerse themselves during some hours daily in the pursuit of leeches, and without any of the consequences alluded to resulting therefrom. This circumstance is merely mentioned, as it throws great doubt upon, if it does not entirely negative the assigned cause of the complaint commencing in the skin. It is not proposed here to attempt to decide the question. It is fortunate that the treatment can be successfully conducted without unquestionable knowledge as to the cause of the disorder.

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CHAPTER VIII.

A GENERAL NOTICE OF DISEASES OF FREQUENT OCCURRENCE UPON THE WESTERN COAST OF AFRICA, BUT WHICH ARE NOT PECULIAR TO THAT COAST—NAMELY, PNEUMONIA, CATARRH, GASTRITIS, ENTERITIS, SPLENITIS, COLIC, DIARRHŒA, CHOLERA MORBUS, OPHTHALMIA, VARIOLA, VACCINA, APOPLEXY, PARALYSIS, MANIA, MELANCHOLIA, DYSPEPSIA, SYPHILIS, GONORRHŒA, PHAGEDÆNIC ULCER, AND TETANUS: ALSO, AN ACCOUNT OF SOME OPERATIONS PERFORMED AT SIERRA LEONE, INTENDED TO SHOW THAT THE CLIMATE OF WESTERN AFRICA IS NOT ADVERSE TO THE SUCCESSFUL PRACTICE OF SURGERY.

THE remarks to be offered upon the diseases noticed in the following chapter are not so much intended to enlighten the medical reader, even should he be unacquainted with the coast, regarding their nature and treatment, as to prepare him, and still more the general reader, for their frequent occurrence and consequent treatment.

When the high range of the temperature of the climate is considered, together with the manner in which ordinary dews are increased by the attraction of the shore, and the generally excited and susceptible state of the surface during the day, it cannot appear by any means surprising that sailors in particular, or others alike casually exposed, and so subjected to sudden obstruction or recession in the cuticular discharge in the night, and consequently to a temporary state of atony, at least, in the extreme vessels, should suffer from internal inflammatory affections. Under the circumstances of such exposure, and such state, retrocession from the surface, de-

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termination and accumulation of blood to the centre, and acute disease in some of the internal organs, is necessarily of frequent occurrence amongst the class of people more particularly exposed to the causes described. Thus it is, that *pneumonia*, *catarrh*, *gastritis*, and *enteritis*, have so frequently presented themselves amongst the crews of ships of war employed upon the station, and of which the journals of the respective ships generally afford ample testimony. It is somewhat strange that these complaints occur much more frequently upon the leeward than upon the windward coast; but, upon whatever part these occurrences take place, the antiphlogistic treatment should be prompt and immediate, or it will be unavailing; and, if carried to what many might consider but moderate extent, at a late period, it will undoubtedly hasten the fatal tendency. With this caution, as to the necessity of promptness in the treatment of the above inflammatory disorders, there is nothing here to be noticed as having a novel tendency, or in any way differing from that depletory plan of practice which is so generally approved of as to prevent all cavil. Some of the other prevailing disorders will call for somewhat more especial notice.

Diseased Spleen.

Splenitis may be the first remarked upon, from the circumstance of that disease, differing from inflammation in any of the other viscera not specifically treated of, and entailing a state of suffering and constitutional disturbance which but too often continues during life. Its treatment, even in the form now alluded to, that which is chronic, is, however, perfectly well-known, and demands not further remark than, that when it appears that the ordinary medical treatment is incapable of effecting a cure, or that its beneficial influence is obviously at a stand, change of climate should be urged before the constitution is worn out by obstinate or fruitless resistance; nor should the patient hesitate to make private sacrifice for the advantages to be derived in a healthful point

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of view, from the timely adoption of the measure recommended.

Colic.

Colic is a disorder which, as might be supposed, from the great and rapid changes between Europe and Africa, in food and climate, very frequently obtrudes itself. It has been known upon the coast to assume all of the various forms ascribed to it by nosologists; but that form which prevails most, results from *obstipatio*, or what in plainer language is termed a costive or constipated state of the bowels. Thus, then, it is to be understood that the species of colic which generally appears on the coast, is not, independently of other disease, that of simple accidental or spasmodic colic, but that which is for the most part dependent upon internal, functional, or structural derangement; affording certain facility for the operation of casual minor causes. Be the cause of the disorder what it may, however, it is the urgent and alarming symptoms constituting its existence that are first to be combated; that sucessfully done, the original cause, or the more latent disease which arises out of that cause, is to be cautiously sought after, and treated according to its seat, its nature, and its attendant symptoms.

Diarrhœa.

Diarrhœa is a disorder which prevails, but not to any very great extent, upon the coast; its occurrence, indeed, as an idiopathic disease, amongst Europeans is extremely rare: at Sierra Leone not one instance was met with in several years. It is amongst the unfortunate slaves brought into that colony for adjudication, that this malady is seen to great extent; and here it may be necessary to caution the practitioner against a mistake sometimes not easily to be avoided amongst those people, that of confounding the disease in question with dysentery. This latter malady is frequently the forerunner of the other, and often so closely allied in symptoms and actual character, added to the want of intelligence and power

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of communication on the part of the afflicted, that it is not always an easy matter to decide with accuracy which is the existing malady. It may be important to bear in mind, however, that less mischief will arise from the possible mistake of treating a diarrhœa as a dysentery, than would be the result of treating a dysentery as a diarrhœa; the latter would, almost of necessity, prove fatal.

Cholera Morbus.

Cholera Morbus is a disease which frequently occurs amongst Europeans upon the western coast of Africa, and is very similar in its appearance and nature to that species of the disorder which is observed to occur in the West Indies, in the Mediterranean, and in Europe, ordinarily in the Summer and Autumn seasons; whilst it is, as are those of the other countries, also very different in its nature from the epidemic disorder of that name, which has prevailed so widely and so fatally in the East Indies, and which is now threatening the British dominions by its fatal and alarming march in neighbouring nations. Even in the above simple form, by which is to be easily recognised the similarity referred to, the disease is always one of danger, and sometimes runs a fatal course, notwithstanding the adoption of the most energetic measures for its cure. In the persons of individuals very advanced in life it is more generally fatal than in those of more youthful and vigorous frame. At Sierra Leone this complaint is of comparatively rare occurrence to what it is on other parts of the coast.

Ophthalmia.

Ophthalmia is a disorder which does not prevail to very considerable extent upon the coast under ordinary circumstances, although, during the harmattan seasons, the eyes are greatly exposed, and frequently suffer great inconvenience from the peculiarly sharp and irritating nature of the wind which then blows, and the great quantities of dust which are commonly in motion during this particular season of the year. It is the unfortunate slaves who are brought into Sierra Leone for

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emancipation who are seen to suffer most from this disease. Amongst them it assumes every variety of form, and too frequently structural disease is found, on their arrival, to have so far advanced that it is impossible to avert the most serious mischief; probably the loss of one or both organs of vision. From the very crowded and necessarily filthy condition in which these unhappy beings exist on board the respective vessels, the malady not rarely assumes a contagious character, calling for the immediate adoption of quarantine measures in their location. For this purpose, such cases, or even those of a suspicious description, are always sent to a lazaretto situate upon the bank of the Sierra Leone river, about four miles from Freetown. It will be sufficient here to observe that the treatment of this disease adopted in Europe should also be pursued on the coast of Africa.

Variola, or Small-Pox.

There is no part of the world in which this very destructive malady has committed such dreadful ravages, *time immemorial,* as in Africa; and, as might be supposed, amongst the slaves, when it does break out, the most direful consequences ensue. The circumstance of their being closely penned up together on board most the slave vessels, in a state approaching to suffocation, (indeed, suffocation has been often known to occur amongst them without the appearance of disease) is alone sufficient to extend the mortality of the disorder, at all times great. At Sierra Leone, the greatest dread is manifested by the inhabitants, when it is ascertained by them that the complaint exists amongst any of the people on board vessels that may arrive with human cargoes, although, from the establishment of the lazaretto already alluded to, and the preventive measures conjunctively enforced, no spread of the disorder from importation has taken place of late years; and those who reach the asylum just mentioned, if not previously in a dying state, having all the advantages of separation, and a great

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and favourable change of air and diet, added to medical assistance in general, rapidly progress to good health.

Vaccina.

Vaccination, that most efficient of all means yet found out as corrective, if not absolutely preventive, of small-pox, has been frequently successfully introduced upon the coast, and more particularly at Sierra Leone; but, unfortunately, those who may have succeeded to attain to their own wishes in respect to vaccination, can but rarely be induced to return with the successful cases, to afford the medical practitioner the means of extending that blessing to their neighbours, not less deserving of its salutary mediation. And thus it is, that the best directed efforts have hitherto failed to maintain the permanent existence of what, perhaps with propriety, may be termed the *conservative malady*, technically denominated *vaccina*.

Apoplexy, *Paralysis*, *Mania*, *Melancholia*, and *Dyspepsia*, are disorders which frequently occur upon the coast, and are here successively named, rather with a view of noticing the fact of these complaints being often produced by the same exciting causes, than from any consideration of their classification.

As in all hot countries, an infinitely greater degree of susceptibility to external impressions exists in the human constitution in Africa than in colder climes; a less powerful agent would, therefore, be productive of a given effect in the former, than would be necessary in the latter portion of the world. This application of circumstances is obviously just, as applies to warm latitudes generally, and would, perhaps, seem sufficiently to account for the frequent occurrence of apoplexy upon the coast; but there appears to be some more specific and local cause of this disease in existence on the shores of Africa, since its northern parts are not by any means more exempt from the dangerous disorder, than is that part of the coast to which these remarks are meant more particularly to apply. If the patient escape from the apoplectic attack,

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paralysis too often sets in, and attaches itself to the devoted sufferer during life.

The slightest degree of predisposition to the distressing afflictions of *mania* and *melancholia* will of necessity be greatly quickened by that acquired constitutional susceptibility just noticed; and if the individual, thus originally framed and temporarily circumstanced by location, be exposed from his engagements to great mental agitation, or to embarrassments, the existing predisposition will be excited, and an hallucinated state of the understanding, whether amounting to *mania* or *melancholia*, will almost assuredly follow. *Dyspepsia*, too, is frequently in part the result of hereditary predisposition, and in part of local or casual circumstances, and, if neglected, may give rise to a train of the most distressing symptoms of melancholia.

Tænia.

Tænia, or tape-worm, is of extremely common occurrence amongst natives and Europeans upon the coast. A great many instances might be cited of slaves, apparently in good health previously, being suddenly attacked with symptoms of colic, and dying after a few hours' illness, in the bodies of whom, on *post-mortem* examination, no disease was visible; nothing unnatural to be seen, in short, but a number of worms of the *tænia* tribe, situated in some part of the intestines, generally the colon. The real nature of such sudden attacks as these is seldom known until it is too late for remedy. It is only before landing, however, that time is not afforded for the interposition of appropriate means of cure. In the examinations instituted on the bodies of Europeans who have died of fever or other complaint, it is by no means unusual to find tape-worms in the intestines; a similarity of circumstances which cannot be admitted to depend upon diet, since the greatest possible difference between that of the soldier or sailor, and that of the unfortunate slave, exists. Large doses of spirits of turpentine, followed by calomel or castor-oil, are found to constitute the most effectual treat-

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ment, whether with European or native, when affected with the complaint.

Syphilis.

Syphilis is a disorder which, at one period, extended its most destructive strides in Africa, but which of late years has been observed to appear only in certain parts of that country. At Prince's island, upon the leeward coast, and other Portuguese, and also Spanish, settlements, the most distinguishing proofs of the former extensive existence of the disease are still to be met with; whilst, in such as are properly to be considered British settlements, the disease may be said to be a *rara avis*. At Sierra Leone, the colonial surgeon only met with two cases, which he pronounced to be, and treated as, syphilis, during a period of nearly four years. Not so at FERNANDO Po, which has not yet been so long a British habitation as to admit of any great salutary change from its previous character. Respecting the prevalence of the disease there, Mr. Wilson, in remarks in his journal for 1827 and 1828, and when surgeon of His Majesty's ship Primrose, speaking of the natives of Fernando Po, says, "They are certainly severe sufferers from syphilis, as it is not at all uncommon to see persons of both sexes having suffered the destruction of the nasal bones, and instances of foul, apparently recent venereal ulcers, are not at all uncommon."

Such is the great difference as to the comparative prevalence of this disorder on different parts of the coast. Regarding gonorrhœa the circumstances are altogether different—that species of the venereal prevails to very great extent on every part of the western coast, whether in native, British, or other possession; and the statement of this fact is borne out by the author's having witnessed the importation of this form of the disease into Sierra Leone by the slaves from almost all the surrounding countries.

Gonorrhœa.

Gonorrhœa, it is known, is, even at Sierra Leone, sometimes

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very obstinate in its resistance of the ordinary means of cure; and in its results, as regards treatment, it is still more precarious in hot climates generally, and, above all, more baffling and unmanageable on the Coast of Africa than elsewhere. The different tribes of natives use a variety of country medicines for its cure: of these a few have been tried, and the one from which the most marked effects have been experienced, was a decoction of the leaves of the cola tree; but subsequent experience in the employment of this remedy, proves that it holds only the same fluctuating influence over the disorder as do those of notoriety in its treatment in this country. Some of the cases that occur at Sierra Leone, seem, indeed, to be beyond the power of permanent cure there, the slightest imprudence, without fresh infection, bringing back all the symptoms of the original disorder.

Phagedænic Ulcer.

This complaint has become, lamentably, well known since the establishment of FERNANDO PO, and has, therefore, obtained the appellation of FERNANDO PO *phagedænic*. It has produced dreadful ravages amongst the slaves who unfortunately touched at that island for whatever purpose. The hospitals established at Sierra Leone for the use of the Liberated African Department were at one time (in 1830) entirely filled with patients suffering from the consequences of having touched or landed at that newly-established settlement. Speaking of this disease, the late Dr. Burn, who, from having been surgeon of His Majesty's ship Eden, had the first opportunities for remarking with accuracy upon it, says, "but ulcers did not become very prevalent till after our arrival at this island, when many of the people being employed on shore were constantly getting hurt about the feet and ankles, either from the scratches from underwood, or the bites or stings of insects, which frequently spread into large ulcers. Notwithstanding every means were taken to prevent or subdue inflammation, several of the larger ulcers,

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after being clean and healing for some time, have been attacked with a spot generally on one side, which has spread gradually till the whole of the new granulations have been destroyed and thrown off in the form of putrid cerebral substance."

In many of the cases in the Liberated African hospital the bones became affected to the extent of caries and extensive exfoliations, and, in the cases in which amputation was performed, a great degree of softening, attended with extraordinary vascularity, was observed to have taken place in the bones that were sawed through. To such extent, indeed, was this latter morbid anomaly, that two amputations, one by Dr. Burn, and one by the colonial surgeon, eventually proved fatal, through the constant oozing of blood from the minute vessels seen upon the cut surface of the bone. The plan of practice, which was found to be most successful during the sloughing process, and which was, therefore, in general adopted latterly in the hospitals alluded to, consisted in a generous diet, with wine; the exhibition of bark and nitric acid; and the frequent application of warm poultices, composed of cassada and a solution of chlorate of ime. Mild purgatives were given when absolutely necessary.

Tetanus.

Tetanus and its varieties are of such very frequent occurrence in hot climates, and more especially in such parts of the world as have undergone but little cultivation, that the disease might be supposed to be a very frequent intruder upon the coast. But certainly neither idiopathic nor traumatic tetanus can be said to be of very common occurrence. At Sierra Leone it is rarely if ever met with in either of those forms. Two cases of what might be termed *idiopathic trismus*, occurred in the wet season; and of them one died, whilst the other recovered, under the use of the warm-bath, antispasmodics, &c.; and, during a residence of four years at the same settlement, but one case of what, in conformity

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with the above nomenclature, might be called *traumatic trismus* happened, and that proved fatal. So large a degree of immunity from this last species of the disorder does not, however, extend over all the coast, as will be seen by the two following cases, which, as they are short, are here given upon the authority of staff-surgeon Bell, and as they occurred to that officer when serving at the Gambia in 1825. He observes :—

"Trismus occasionally takes place amongst the natives from very slight accidents : within the last four months I have had two cases under my care. The first was occasioned by a rusty nail penetrating a short distance into the sole of the right foot, followed by violent spasms of the masseter and temporal muscles. The inferior maxilla was drawn inside the teeth of the upper jaw fully half an inch ; difficulty of swallowing very great, and on taking the smallest quantity of fluid it became aggravated ; opisthotonos on the tenth day of the disease set in, which caused the muscles of the belly and back to become so rigid that he could neither bend forwards nor backwards, and he often had to be lifted out of bed and put into the erect posture to present suffocation, and remain standing for hours together with his hands extended above his head, holding by a rope. Laudanum and æther, with purgatives and mercury carried to ptyalism, when salivation occurred freely ; the stiffness of the muscles gradually relaxed until they were restored to their original pliability. The second case occurred, in the same way, in a young lad of 16 years of age, cutting his left foot on a piece of board that had an old nail in it, which entered the soft part of the right foot, near to the toes. The wound healed in five days, and on the sixth he was seized with lock-jaw and spasms of the right sterno-cleido-mastoideus muscle, which drew the neck to one side. On the seventh, the spasms extended to the bronchial muscles, and terminated in death."

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It is most unaccountable that such extraordinary difference as to the liability or non-liability of this dangerous affection should exist between the Gambia and Sierra Leone. At the latter settlement some of the most awfully extensive lacerated and other wounds have of late years been met with, and yet not one case of *trismus* or lock-jaw followed. This circumstance is considered so worthy of notice, and the favourable result of operations and of other treatment adopted in surgical cases, is so important to be understood, that it is deemed advisable here to introduce a few of the most remarkable cases, although some of them have already been published: considered together they will serve to show that the climate of Sierra Leone is not so unfriendly to the practice of surgery, at least, as might be inferred from its general character of insalubrity.

*An Account of some Operations performed at Sierra Leone, intended to show that the Climate of Western Africa is not adverse to the successful Practice of Surgery.**

Case I.

Extensive Wounds of the Face, Head, and Arm.—Recovery.

From the Journal of Mr. Boyle, Colonial Surgeon.

On the morning of the 19th July, 1828, at two o'clock, Mary Javiett, a liberated African, was brought to my house for surgical assistance, it having been stated that her husband, who had shot himself, had previously to the perpretation of that act of madness, inflicted several dangerous wounds on her person.

On examination I found upon the left side of the face, running from the centre of the upper lip backwards, a continuous wound to the extent of six and a half inches, so

* Of these, six were published in the Medical Gazette, but as they may not have been seen by many of the readers of this volume, the re-publication is considered appropriate here.

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completely dividing the cheek that it hung down in the most hideous manner, leaving entirely bare both jaw-bones on that side. Running from the right side of the head posteriorly there was another wound, in a rather transverse direction, about three inches long, exposing a portion of the occipital bone and the atlas.

The left fore-arm was greatly mutilated, having a long oblique wound a little beneath its middle through the radius; the ulna being very badly fractured still lower down, with a dislocation, and laceration of the ligaments at the wrist.

Amputation of the fore-arm a little above the seat of injury was immediately performed. Seven stitches were put into the wounded cheek, and three into the wound behind the head, both being afterwards still further secured by sticking-plaister, bandage, &c.

On the 22d following, three days after the operations, the wounds and stump were undressed: that behind the head was quite united, that of the cheek nearly so, and the stump in as favourable a condition as possible. On this occasion the patient pointed out a tumor on the inner surface of the left breast, accompanied with considerable hardness in the centre of the organ, occasioned by a milk abscess; this, which is noticed because it was likely to retard the patient's cure, was appropriately dressed. All the ligatures came away within seven days, and all were completely healed, and the woman in good health, going abroad as usual about her affairs, in three weeks from the time of her misfortune.

Case II.

Extensive Lacerated Wounds of the Upper and Lower Extremities, from the Bites of a Shark.—Amputation of both Arms.

From the same Journal.

On the 28th of September, 1828, I was suddenly called to visit Thomas Corrigle, an apprentice on board the Britannia

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merchant-ship, (about 17 years old), who, it was stated, was dreadfully mutilated by a shark whilst bathing up the river Sierra Leone,* where the vessel was employed loading with timber.

On proceeding to examine the injured parts, I found that the left fore-arm had been removed within about two and a half inches of the elbow; the joint having been deeply penetrated by the animal's teeth, and the head of the ulna abruptly broken off from the body of the bone remaining attached.

The metacarpal bones of the right hand were denuded and fractured, whilst the ligamentous attachments of the wrist superiorly were all cut through, and both radius and ulna fractured at their lower extemities. There was also a deep ragged wound in the palm of the hand, exposing the flexor tendons.

In the right groin there were two nearly parallel wounds, one about three, the other about two and one-half inches long, the latter dividing the skin and cellular substance, and bringing into view the lower portion of the tendon of the obliquus externus muscle.

The greater part of the testicle of the same side was exposed by an extensive division and a partial removal of its scrotal covering.

The right thigh, which presented the most appalling spectacle I had ever seen before in the form of a wound, had yet to be closely examined. In the attack on this extremity the shark's teeth came in contact with the abdomen, about four inches internally to the centre of the spine of the ileum. From this, no doubt on account of its elastitity, the teeth glided down to the hip-joint, dividing and removing in their course the common integuments to the breadth of about two inches.

* Twenty-five miles distant from Freetown, where he was brought for medical assistance.

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Here the solidity and consequent resistance of parts were favourable to the gratification of the animal's instinct, and he succeeded in penetrating to the neck of the femur externally; thence he conducted a frightful wound downwards till within about four inches of the external condyle, where its course abruptly changed, crossing the thigh, and completely dividing the rectus femoris.

In the whole of this continuous track the femur was laid bare; all the fleshy mass covering the outside of the extremities admitting of such elevation, that it might have been easily removed by one sweep of the amputating-knife.

Internally, a little behind the condyle, about the size of a man's clenched fist of the adductor muscles was altogether removed: this latter wound, continuing to the extent of about three and a half inches upwards, exposed the femoral artery.

It was for a moment a question how to dispose of so many alarming wounds then exhibited: the state of the thigh, particularly in a hot climate, appeared to call for amputation at the hip joint; but the absolute necessity of removing both arms, in addition to the consideration of a probably extensive loss of blood previously to the patient's getting out of the water, rendered the prospect of success so faint as to be despaired of; it was, therefore, determined on to amputate both arms, which was accordingly immediately done—the left above the elbow, the right above the wrist—and to bring the divided fleshy mass of the thigh as nearly in apposition as its excessively lacerated condition would admit of. To accomplish the latter, eighteen stitches by means of curved needles were made in the thigh alone, removing a few loose fleshy particles *en passant*, and completing the dressing by sticking-plaister, soft, simple dressing, and eighteen-tailed bandage. All this the heroic boy bore without murmur, simply remarking, that the worst, mortification, was yet to come.

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After the operations the patient complained of uneasiness from the water he had already drunk, and a continuance of thirst. Thirty-five drops of tincture of opium in an ounce and a half of peppermint-water were given, and he was directed to suck oranges instead of gratifying his thirst by drinking fluids.

Morning of the 29th at 7.—Had slight vomiting, and but little sleep in the night. A dose of castor-oil was ordered, but this not operating in the usual time, was followed by a saline purgative draught. This latter operated four times, and had the effect of removing slight mental aberration previously observed: the pulse too, which at the time of the morning visit was 118 in the minute, was now only 100. The patient in good spirits.

30th.—Had a tolerably good night; skin a little hotter than natural, but no return of vomiting; pulse 100; the patient desirous of eating; to have a soft boiled egg, with a little rice and tea; nitre julep occasionally throughout the day.

1st October.—Slept much, and tranquilly, throughout the night; pulse about 100; tongue slightly furred; thirst; complains of shooting pains in the thigh. The dressings of this extremity were all removed, and the wound in many parts, such as in the first instance admitted of being brought in contact, were firmly united, and the discharge, which was moderate, was also healthy. About the middle of the wound, however, two distinct portions of the vastus externus, each about the size of a hen's egg, protruded. To the water which washed the wound, tincture of myrrh was added, and over its more lacerated parts a little finely-powdered camphor was strewed: the dressings were then applied as at first, and the bowels were kept open by small doses of infusion of senna with Epsom salts.

On the following day the boy was entirely free from fever, and from this time not one unpleasant symptom took place.

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Wine and bark in small quantities, gradually increased, with a generous diet, were admitted. The ligatures came away in due time; but little alteration was found necessary in the local applications; the stumps and wounds, in short, healed gradually, and the spirited youth, in robust health, without lameness, quitted Sierra Leone for England on the 25th of December, taking passage in the Champion, timber-ship.

Case III.

Frost Bite.—Amputation of both Legs.

From the same Journal.

Jem Antonio, a native of Prince's Island, and a passenger in the brig Martha, was brought into the port of Sierra Leone for medical assistance, on the 3rd of March last, he having been severely frost-bitten in both feet on quitting Liverpool some weeks previously.

On examining the injured parts the most abominable fetor was encountered. The whole of the tendons, with the exception of the tendo-Achillis of the right limb, and most of the connecting ligaments of the ankle-joints, were destroyed. The feet were literally dropping off: the left was held on only by a very small portion of ligament, and a piece of what seamen call "rope-yarn," or "lan-yard," passed round the great toe. There was no circulation beneath the ankle-joints, all communicating vessels having been destroyed; and the feet, greatly wasted, were hard as wood, exhibiting a shining mummified appearance. The patient was otherwise in good health, nor was he low-spirited.

Amputation was at once proposed, to which he readily assented, and both the legs were accordingly removed the following day, by circular incision, at the usual situation below the knee. The patient bore the operations manfully, and, by the assistance of an anodyne draught, had a few hours sleep during the night.

After the operation not one bad symptom set in: the liga-

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tures came away in a reasonable time, and the stumps were completely healed in four weeks from that period. Soon after this, the poor fellow had an opportunity of proceeding to his friends at Prince's island, by His Majesty ship Medina; and, although minus the legs, Jem was in excellent health and spirits.

Case IV.

Extensive Lacerated Wounds.

From the same Journal.

Thomas Richards, a powerful liberated African, aged about 28 years, was brought to the colonial pharmacy, on the 20th March, 1829, for medical assistance, he having been severely wounded by the bursting of a musket, when firing the same with the intention of destroying himself. Richards was then greatly intoxicated, and required force to be induced to submit to an examination of his wounds. As blood was flowing freely from the left thigh, that limb was examined first, and a tremendously extensive wound presented itself, its length being nine inches, and its breadth nearly seven: all the enveloping fascia to the above extent was removed. Part of the sartorius was entirely carried away, and smaller portions of the rectus and vastus internus, with all surrounding cellular membrane, were also removed, leaving quite naked the femoral artery and vein. The wound, which was everywhere studded with particles of powder, was less ragged than might have been expected from its extent, and the nature of its cause; a small portion of common integument only requiring removal with the knife.

Two broad straps of adhesive-plaister were placed round the limb, one at each extremity of the wound, for the purpose of approximating, as nearly as possible, its boundaries, and of thus affording the separated muscles the means of regaining their natural position. The centre of the wound was covered by a digestive dressing, and an eighteen-tailed bandage was passed round to give additional security.

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Attention was then drawn to the right-hand, the thumb and middle finger of which were injured as follows:—thumb shot away, with the exception of the head of the first phalanx. It was now amputated at its metarcarpal joint. Middle-finger torn or broken into numerous fragments as far as its central joint. It also was amputated.

The integuments of the chest were loaded with powder, as were also those of the arm of the left-side; and the centre of sternum had a small circular wound, extending to the bone, corresponding to the head of the ramrod of the gun employed by the patient. The scrotum on the right-side was lacerated to the extent of a quarter of an inch, and the glans penis were excoriated all round, evidently by the explosion. Digestive dressing was applied to the wound over the sternum; a mixture of liquor plumbi acet. with sweet oil, to the scorched and inflamed parts; and a saturnine lotion to the thigh. A dose of castor-oil was administered immediately after putting him to bed, and an aperient febrifuge mixture was directed to be given at intervals during the night.

Morning of the 21st.—No sleep during the night. Bowels not moved; pulse 120; tongue slightly furred, with thirst, and heat of skin. The patient rational.—Submur. hyd., Ext. colocynth., c. āā. gr. v., Ol. croton, gt. j. M. ft. pil. ij. statim sumend. Cont. mistura.

22nd.—Had several evacuations; pulse fuller and more pliable. The outer dressings were removed, and the mixture was continued.

23rd.—Removed all the dressings except the circular straps round the thigh; the wound gave exit to a dark fetid matter, and was, in consequence, after washing, dusted over with finely-powdered camphor, and dressed as before. The amputation wounds were partially united and clean; but the scorched surfaces on the chest and arm were completely destroyed, the suppurative process was established, and the patient, though rational, was greatly excited and irritable.

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The dressing and mixture continued, with the addition of a night-draught, composed of Liquor opii sedativus, Tr. hyoscyami, and camphor mixture.

From this time up to the 5th of April all went on well. He now complained of difficult deglutition, with pain and rigidity in the muscles of the lower jaw. Lock-jaw being apprehended, opium, in conjunction with other antispasmodics, were liberally administered: the muscles of the face soon became free, but considerable derangement of the bowels followed, which, with the treatment necessarily adopted, greatly reduced him.

On the 12th, again his health was much improved. The scrotum and penis were both cicatrised; new skin had formed over the chest and arm; the stump of the finger was healed; that of the thumb nearly so; and the wound in the thigh greatly lessened in size, and quite healthy in appearance.

The patient was now sent to a neighbouring village for change of air, and there he soon recovered, with a little limp only in walking.

Case V.

Injury from the Bite of a Shark.—Amputation.

From the same Journal.

——— Laing, a fine lad between 14 and 15 years old, from Plymouth, and belonging to the bark Europe, was bathing in the river Sierra Leone, on the 2nd of February, 1830, where the ship was loading with timber, and was seized by the left-foot by a shark. The lateral ligaments of the ankle joint were both torn through, as was the anterior portion of the capsular, the tendo-Achillis, and the tendons of the extensors of the foot being in like manner divided. Various deep longitudinal wounds extended from the calf of the leg downwards. The boy reached Freetown about four hours and a half after the accident, and amputation was immediately performed below the knee. Every thing went on well after.

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The ligatures were somewhat tedious in coming away, but still the stump was perfectly healed on the twenty-first day, and the youth, soon after, and in full health, quitted Sierra Leone for England in his own vessel.*

Two very interesting cases of amputation occurred from injuries up the river Sierra Leone, but unfortuately the particular account of these was lost on its may home for publication. The following outline, however, is deemed worthy of notice :—

Case VI.

From the same Journal.

A loaded ship, the Harriet, was returning from the river to the anchorage in the night, in the latter end of 1827, when, being caught in a tornado and in great danger of running on shore, a boat was lowered for the purpose of getting out a kedge anchor, in order to bring the vessel too. Whilst this anchor was being dropped from the bow of the boat, one of the men unguardedly allowed his leg to become entangled in a coil of the running cable, and in a moment the limb was literally torn to pieces, the only continuity remaining being one or two of the extensor tendons in a greatly lacerated and injured state. The poor fellow was rescued from the additional peril of being dragged overboard by the cable. Several folds of old linen, wetted with the compound tincture of benzoin, were passed round the limb; and in this state he was brought a distance of about eighteen miles, under a torrent of rain to the house of the colonial-surgeon, who was himself so seriously ill from fever that he had been delirious that morning: he was carried, however, to the suffering patient, and with the kind assistance of Mr. Smart, the then king's advocate, removed the limb. In the course of the

* On this occasion the operator had the advantage of the presence and assistance of Mr. A. Lane, surgeon, R. N.

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night, unfortunately, the poor fellow became violently delirious, removed the tourniquet which had been allowed to remain for security, and tore away the ligatures. Violent hæmorrhage, of course, took place, but the bleeding vessels were again secured, and the patient went on tolerably well until the stump was nearly healed, when the endemic fever of Sierra Leone set in. He went through this; but the greatest degree of debility and sloughing of the stump followed; and no sooner had this unfavourable aspect of his state been removed by appropriate medicines and local applications, than ague, attended with an enormous enlargement of the spleen, presented itself. Under these circumstances, and that of the stump not yet quite healed, though in a healing state, he was reduced to an extreme degree of emaciation, and was for several days insensible. Notwitstanding all these mishaps, he again rallied, eventually recovered, and quitted Sierra Leone for England in tolerably good health a few weeks after this last threatening attack.

Case VII.

Extensive Wound from the Bite of a Shark—Amputation.

From the same Journal.

Another case worthy of notice also occurred to a sailor. The subject was one of the crew of the Thomas Gelston, merchant ship, and, in bathing, whilst the ship was loading up the Sierra Leone river, was caught by the leg by a shark, which greatly mutilated, and nearly removed that portion of the limb upon which it had fixed as its prey. The subject of the case, about 23 years old, was immediately, and in the most humane manner, brought to Freetown for medical aid by his captain, who remained by him until the measure necessary, the removal of the limb by amputation, was completed.* The pa-

* This gentleman, Captain Martin, is the same who so humanely brought into Sierra Leone Jem Antonio (whose case has already been noticed) for assistance.

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tient was of a scrofulous habit of body; but rapidly recovered from the operation, and returned to England in his own ship.

Case VIII.

Lacerated Wound from the Bite of a Shark.

From the same Journal.

Thos. Bremer, seaman of the ship St. Andrew, was brought to Freetown for medical assistance, from the river Sierra Leone, a distance of about twenty-five miles, on the 20th of March last, having been severely bitten by a shark whilst dabbling his lower limbs in the water from a stage alongside.

On examination I found a very extensive wound situated posteriorly on the above-named extremity; this had a superficial commencement at the inner side between the buttocks, running to the lower and central point of the insertion of the gluteus maximus; here the animal's teeth, having penetrated deeply, were carried eleven inches directly downwards, including a space of about seven inches in breadth. A large portion of the biceps flexor cruris was removed, as were also considerable portions of the vasti. The wound had bled freely at first; but all the hæmorrhage had now ceased, nor did any but venous vessels appear to have been divided. A few pieces of ragged integument only required removal: this done, the part was covered with soft dressing and a pledget of fine tow, securing all by an eighteen-tailed bandage.

The bowels were kept open by a mild purgative mixture, and a light diet was enjoined during the first few days.

On the day following the dressings were removed; a moderate and particularly healthy discharge had then established itself, and the work of regeneration had already commenced. From this time the wound was dressed simply, but regularly, every day, and did not require any change of application up to the 25th of April, the period of the patient quitting or England, when its boundaries were reduced to half their original size, the centre being nearly filled up on a level with

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its sides. A little wine, and a more full and nutritious diet, had now for some time been allowed, and was directed to be continued. This patient was throughout in good health and spirits.

Case IX.

Injury of the Chest.—Emphysema.

From the same Journal.

On the 26th of March, 1829, Thomas Rigby, carpenter of the ship Alexander, of Belfast, Ireland, fell into the hold, his breast striking against a log of timber. He was brought to Freetown the following morning for medical assistance, and on my seeing him he complained of difficulty in breathing, and severe pains in the neck and right side of the chest. These parts were emphysematous in the greatest degree, the neck in particular being enormously swollen, with much crepitus and discolouration of skin. The same condition, but not in an equal degree, was to be traced as far as the right knee. The ribs were all very minutely examined, and although pain was felt about the centre of the sixth true rib of the injured side, yet no fracture could be detected, nor was there any pricking sensation experienced on making a deep inspiration.

An incision, one inch long, and extending to the cellular texture, was made over the superior part of the sternum, which gave exit to a small quantity of venous blood, thrown into bubbles by a considerable quantity of air that was emitted at the same time. An antiphlogistic regimen, and a purgative mixture, were directed.

27th.—Great relief was experienced from the treatment of the previous day. The swelling was considerably lessened, but a large quantity of air, with crepitus, still remained; another opening was therefore made, which was attended with the like good effects.

28th.—The patient expresses himself much better, but there is yet air under the skin. The application of the scarificator

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and a cupping-glass now suggested themselves, as being an improvement upon the common practice of merely dividing the skin: first, because numerous incisions could be made by one stroke of the instrument; and, secondly, because the air would necessarily escape rapidly to supply the vacuum in the glass.

This idea was accordingly carried into practice, and the glass acted as was anticipated, but was soon thrown from the surface by the current of air into it. The re-application of the glass was practised two or three times altogether, with such perfect success, that no air was left remaining, nor did it collect again.

It is perhaps worthy of remark, as regards the probability of fracture in the first instance, that pain again returned in its original situation, about the centre of the sixth rib, in a rather greater degree than during the emphysematous condition of the surrounding parts; this, however, was quickly removed by the application of a few leeches, and the patient was discharged a few days after, in perfect health.

[Since writing the above, I have been informed that the patient, whilst at work with his head inclined downwards, and apparently in good health, suddenly fell, and expired.]

Case X.

Case of Abdominal Wounds, from an Attempt at Self-Destruction.

From the same Journal.

I was called to visit a patient at seven o'clock, on the evening of the 1st of March, 1830, who was reported to have murdered a female from feelings of jealousy, and to have inflicted very severe wounds on his own person, with the intention of destroying life. It was stated that, during my absence from Freetown, on a visit to the Liberated African Hospital under my superintendence, the patient had been brought to my house for assistance; but, not finding me at

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home, two other medical gentlemen were sent for, who, on examining his wounds, declined interference.

On my seeing the unfortunate subject of this case, and on removing the bandages and examining the body about five hours after the attempt at self-destruction, two wounds in the abdomen presented themselves; one over the *scrobiculus cordis*, the other about one inch above the *umbilicus*. The superior wound, which had a transverse course, was about three inches long, and gave exit to the following enormous mass of internal parts:—namely, a large portion of omentum, the greater portion of the transverse arch of the colon, then distended with food, and a considerable section of the liver. The pressure upon these parts, from powerful constrictions, formed by the contracted fibres of the divided muscles, was as great as that of a very tightly-applied ligature. The probability of returning the parts, therefore, seemed to be very distant. An attempt, however, was made whilst the patient was in the horizontal position, but the greatest pain was produced, and the patient, who frequently expressed his anxiety to die, used such powerful efforts to resist the exertions made to return the parts, that a large portion of the stomach was now suddenly forced out. By remonstrance upon this, and advice and encouragement, a temporary desire to live was excited. He was now placed upon a chair, with a view of keeping the trunk erect, and of thus favouring the object of reduction by gravitation of the intestines. The contents of the transverse arch of the colon were first gradually and delicately urged forward, by which the muscular stricture was greatly lessened, and, with a little gentle management, the wounded portion of the liver was returned, and the other parts easily followed. But, at the moment of restoring these parts, a large portion of the jejunum started through the lower wound. Of this, no immediate notice was taken, the first object being the security of the superior and larger wound, which was accomplished by four firm

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stitches, adhesive straps, bandage, &c. The protruded intestine from the inferior wound was easily returned, by first pressing onward the air with which it was distended, and the wound, like the other, was secured by stitches. The peritoneal portion of this latter wound admitted only the point of a little finger.

On completing the dressings, &c. which were effected in the presence of the Coroner and others, the patient was very weak, the pulse being about 140, and extremely feeble: when put to rest he had the following draught.—Ol. ricini, Aq. menthæ, āā. ℥j.

2nd of March.—Had some sleep, and expressed himself easier, and desirous of living. The medicine had not operated, and was, therefore, repeated. The pulse was now somewhat reduced in frequency, and was firmer. In this rather favourable state he continued, the medicine having in the meantime operated, until the following morning, when he suddenly became exhausted, and sunk.

On examining the body, it was found that death was caused by hæmorrhage from the liver.

All speculation is here avoided as to what might have possibly been the result of an earlier application of the means finally adopted. By some, the author may be considered impolitic in publishing this fatal case; but the dictates of humanity have a different tendency, and lead to a different course to that of mere personal policy: medical knowledge, indeed, is more enlarged by the publication of cases that have proved unfavourable, than by the publication of such, only, as recover; and the one detailed will, perhaps, sufficiently shew that ancient dogmas should not restrict our zeal in affording assistance to the most dangerous-looking visceral wounds. The following outline of a deeply wounded lung adds to the justice of the above assertion.

A few weeks previous to my departure from Sierra Leone, a slight black lad, named Harry Robarts, was brought to my

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house, he having been rescued from the more immediate fatal consequences of an armed, infuriated, and supposed to be mentally alienated individual of his own colour. The lad's clothes were covered with blood; and, on examination, a small wound from a knife was seen between the fifth and sixth ribs, on the left side. Through this wound the inspired air passed with a loud and whizzing noise, throwing the emitted sanguineous fluid into large bubbles, at the time the patient was examined; he having been then nearly in a state of collapse from previous hæmorrhage. The track of the wound was followed by the introduction of a wax bougie, and thus ascertained to be about three inches in depth. A powerful expiration was directed to be made, and the parts were temporarily brought together, but not permanently secured; the object being to exclude the external atmosphere, and admit the exudation or escape of blood or matter that might afterwards form or accumulate in the wounded side of the thoracic cavity. Purgatives were immediately administered, the strictest antiphlogistic regimen, with absolute quiet, was enjoined, and the circulation was so far brought under the influence of digitalis, that the pulse was reduced to less than fifty strokes in the minute. Under this treatment determination to the injured part was prevented, the healing process went on rapidly and favourably, and, in about three weeks from the infliction of the wound, the subject was in perfect health.*

* By a late communication from Sierra Leone, it appears that the subject of the above case was seized with inflammation of the previously affected lung, and that he died after a short illness.

THE END.

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TO THE BINDER.

The Plan of Freetown *to face* page 211.
Sketch of the Bullom Shore, page 256.

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