

**A clinical treatise on the endemic fevers of the West Indies : intended as a guide for the young practitioner in those countries / by W.J. Evans.**

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A  
CLINICAL TREATISE  
ON THE  
ENDEMIC FEVERS  
OF  
THE WEST INDIES,

INTENDED AS  
A GUIDE FOR THE YOUNG PRACTITIONER IN  
THOSE COUNTRIES.

BY  
W. J. EVANS, ESQ. M.R.C.S.

EDINBURGH  
COLL. REG.  
MED. EDIN.

" Quid verum atque decens curo et rogo,  
" Et omnis in hoc sum." — HORACE.

LONDON: JOHN CHURCHILL, PRINCES STREET,  
LEICESTER SQUARE.

MDCCCXXXVII.



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BY

A GUIDE FOR THE YOUNG PRACTITIONER IN  
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W. J. EVANS, ESQ. M.B.C.S.

"This volume is a most valuable addition to the library of the young practitioner in the West Indies."—*Lancet*

LONDON:

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## P R E F A C E.

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IT is admitted on every hand that of all the diseases which fall under the observation of the physician, none have led to greater discussions respecting their nature, nor to more opposite modes of practice, than those which constitute what is called the "*Endemic*" of the West Indies. Doubts and difficulties beset the path of the young practitioner in these countries, which reading, unassisted by his own researches and experience, only renders the more confused and discouraging. Fascinated, perhaps, by the plausible reasoning and partial views of one author, he sees in the cases which present themselves to him, so many *gastrites*, or *gastro-enterites* of various types. Daily observation destroys the illusion, and his doubts return. Again, he refers to some established authority for information, and is told that these diseases are not inflammatory; that they are general and essential; depending upon a spasm of the extreme vessels; on a disturbance, interruption, or suspension of the alternate uniform action and rest of the irritable and moving parts of the body; on an affection of some part, or the whole of the nervous system; or on a disease of the blood, &c. &c. He is bewildered and confounded, and either ceases to think further upon the subject, or else endeavours to explain the "*proximate cause*" in the manner his observation teaches him. Such has been my case—and such is the apology I offer to the public for bringing before it the present treatise. My object is to exhibit the cases as they have occurred to me in all their varieties; to



detail faithfully their symptoms; to expose the appearances that the different organs presented after death; and to explain, as far as I am able, the physiological operation of the producing causes.

“ Une nouvelle époque commence pour la médecine. Il ne s'agit point de reconstruire l'édifice de la science, mais d'y ajouter, et de remplacer plusieurs parties que leur vétusté fait tomber en ruines. Il est à désirer que chaque médecin jaloux de contribuer au perfectionnement de la science des maladies, s'emparant d'une portion de l'ancienne pathologie, en rapproche les observations de ses prédécesseurs, celles de ses contemporains, les résultats de sa pratique, co-ordonne le tout d'après les lumières que fournissent les progrès les plus récents de l'anatomie et de la physiologie pathologique, et présente les faits que nous possédons sous le jour qui convient à l'état actuel des sciences médicales. Beaucoup d'essais n'atteindront pas ce but, mais aucun ne sera sans quelque avantage pour la science : dans ce mouvement général vers le bien, les vaincus eux-mêmes ne se retireront pas sans avoir contribué au triomphe de la vérité.”

Page 82, line 18, *for* of any *read* or any.

128, — 25, *for* epistaxis *read* epistaxis.

181, — 19, *for* aged 17 *read* aged 9.

192, — 3, *insert* a semicolon after *Intermittent* ;





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A  
CLINICAL TREATISE,

&c.

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CHAPTER I.

INTRODUCTORY.

THE difficulty that is met with even at the commencement of a work like the present is inconceivably great, and can only be felt by those who have given to this subject great attention, and have essayed to embody their ideas upon paper. This difficulty arises from the adaptation of the word 'Fever,' to numerous diseases differing amongst themselves, both in their symptoms, their pathological characters, the sources whence they arise, and the countries in which they exist. Were we to request a man, who had travelled from the equator to the poles, and studied what is called fever in every country, to give us a description of this malady, we may easily conceive his answer—he would tell us that each case required its own description.

The difficulty is still further increased for want of something with which we are to compare the diseases that form the subject of this treatise. Suppose we take the fevers of England and France commonly called essential, those described by authors under the name of typhus, or typhoid, gastro-enterite-adynamique, dothinenthérie, enterite-folliculense, maladie tyhoïde, &c.; we shall find the medical world split into factions about their nature, their situation in the economy, and the causes which have produced them. Whilst some give to them "a local habitation and a name," attributing them to an



inflammation of the mucus follicles of the gastro-intestinal mucus membrane, others, acknowledging the existence of this inflammation as an essential part of these diseases, do not consider that it enjoys so exclusive a character in the production of all the morbid phenomena; on the contrary, observing that the local affection is quite disproportionate in many cases to the violence of the symptoms, they believe that the causes, whatever they may be, have operated much more generally, both upon the blood and perhaps also upon the nervous system, though the effects produced may in the present state of our knowledge escape our observation.

A third party, and in England a far too numerous one, pertinaciously stick to the opinions of their predecessors, and confound, under the name of a typhus, a synocha, or a synochus, a variety of different affections. They see a patient who labours under a heated skin, a quick pulse, thirst, and headache; these symptoms in their ideas constitute a disease, and that disease is designated by a name. In the language of Fordyce, they say, "that fever is a disease which affects the whole body; *it* affects the head, the trunk and the extremities; *it* affects the circulation, the absorption and the nervous system; *it* affects the skin, the muscular fibres, and the membranes; *it* affects the body, and *it* affects the mind." What is this *it*, this fever, but an immaterial being, a word like honour in Falstaff's catechism—air? I have introduced this last opinion of the nature of fever (if it indeed deserve the name) to show the extreme ambiguity of the word as generally used, and shall at once dismiss it without any further remark. The others are those of the first men of the age, and refer to one disease only, a disease characterized by a certain train of symptoms and pathological appearances, of sufficient frequency in modern times, and certainly not uncommon amongst the ancients.

If we meet with these discrepancies, these doubts, and these difficulties, in a disease so near home, and which has been so ably, so zealously, but nevertheless up to this moment unsuccessfully studied, may I not well say, that the subject before me is one of difficulty? Far from the great arena of medicine, where every one actuated by a noble emulation strives to gain



the palm ; where his struggles, instead of being checked, are aided by those of his rivals in the race, and every effort makes him wiser, if not more successful, I have been, alone and unaided, without the benefit of the opinion of others, occupied in a similar pursuit ; without that advantage which books on most other subjects confers, by acting as guides to the steps of the uninitiated, but which on this served only as lights to render the darkness of the prospect more visible.

Countless authors have written upon diseases of hot and marshy countries in different parts of the world, and the endemic and epidemic febrile diseases of the West Indies reckon not a few amongst them. The differences of opinion here have been, and still are, even greater than those which obtain respecting the fevers of England and France ; for we have no longer a regular series of symptoms, which, though somewhat modified in different cases, yet for the most part bear the stamp of individuality ; on the contrary, we see the skin sometimes intensely hot, at other times much below the usual temperature ; sometimes yellow, at other times pale, or livid ; the tongue is occasionally red, occasionally broad, moist, and white as a snow-ball ; the pulse as rapid as 130, or even quicker ; in another case it does not exceed seventy strokes in a minute. There may be acute pain in the epigastrium, or the patient may bear great pressure over this region without suffering even the ordinary inconvenience. There may be coma and delirium from the first, or he may preserve his mental faculties entire until the last. Again, the type varies as much as the symptoms : we have the most fatal diseases intermittent, we have others continued. Can we wonder that there should exist differences of opinion respecting diseases apparently so dissimilar ? These differences of opinion may be reduced to three. 1st. That all these diseases are essentially the same, and arise from causes in their immediate neighbourhood. 2nd. That these diseases are divided into two classes, into those of an intermittent and those of a continued type ; the first arising from marsh, the second from solar heat. 3rd. That these diseases are of three kinds : intermittents, arising from marshy exhalations,—the continued, from insolation—



and others from an imported source, and being eminently contagious.

Before we even discuss these opinions it will be necessary to examine the causes of disease, as they exist in the places where these endemics are found.

I shall continue throughout this work to use the word fever, for fault of a better designation for the diseases I shall have to bring to view. I apply it to the group of symptoms, whatever they may be, which it may perhaps be necessary for me to state here I do not consider as essential, but merely sympathetic of the disease, which, as I hope to prove, has well-marked seats in the economy and causes which will not be denied.

The generally-acknowledged causes of the West India fever are those I have just mentioned—malaria from swamps and other sources, solar heat, and contagion. A short description of St. Lucia will show that the two first exist in this island in a great degree; the latter I have never witnessed.

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## CHAPTER II.

### TOPOGRAPHY OF ST. LUCIA.

THE island of St. Lucia is in  $14^{\circ}$  north latitude; it is forty-five miles in length from north to south, and about twelve in mean breadth. Like the others in this archipelago, it presents very distinctive evidence of volcanic origin; viewed from the sea it appears to consist of numerous conical mounds, and resembles somewhat a hay-field when the hay is in cock. A chain of hills of considerable elevation commences at the northern and terminates at the southern extremity, dividing it into a windward and leeward side; it is further intersected by smaller ranges running from east to west, forming corresponding valleys, through each of which runs a river or rivulet, having its origin in one of the loftier hills of the central chain.



The greater number of these valleys on the leeward side are in a state of cultivation more or less complete; others are so narrow, and their inclosing hills so steep and high, as to lose the name of valley in that of ravine. To windward the valleys are broader, and the cultivation is less extensive.

These hills, some of which are 3,000 feet above the level of the sea, are covered with brushwood and forest-trees to their summits; they are composed of a volcanic conglomerate, and are barren and sterile, except where patches of a rich vegetable soil are lodged amongst their crevices and protected from the autumnal rains by some natural buttress. The valleys are extremely fertile, being covered with a coat of alluvial soil, in some places several feet in thickness; they are little elevated above the level of the sea, from which cause,—and also from the mouths of the rivers being dammed up by the sandbanks formed by the currents of the ocean, giving rise to lagoons, or, in the language of the country, marigots,—they are particularly liable to inundation during the season of the heavy rains.

To windward the trade-wind blows with its accustomed freshness and regularity, but it is either prevented from reaching the leeward side by the central chain of hills, or else, finding a passage through their gorges, it rushes down the valleys as through a funnel or chimney; thus to leeward there generally is a succession of calms and strong currents of air alternately. The fall of rain throughout the year in St. Lucia is greater than that of any of the neighbouring islands, Trinidad alone excepted, and the atmosphere is always charged with moisture: during the driest period a pair of boots are covered with vegetation within twenty-four hours after being cleaned. Fahrenheit's thermometer remains generally stationary at  $85^{\circ}$  in the shade of a very cool house; it seldom exceeds  $94^{\circ}$ , and never perhaps falls below  $75^{\circ}$ . Though the changes of temperature as evinced by the thermometer are neither great nor sudden, the effects upon the feeling of a fall of only  $5^{\circ}$  is equal to that of  $15^{\circ}$  in England.

Little is known respecting the electrical states of the atmosphere in these countries, and nothing of them as agents in the production of disease. The quantity of dew which nightly



falls between the tropics has often been considered a fruitful cause of disease. During the hours of from seven to eleven o'clock on a clear calm night, I have known the dew to fall so heavily as to have been sensible to the feeling, to have given to the pavement the appearance of a slight shower having fallen, and to have drenched the brushwood with moisture. It has been described as offensive to the smell: this is not the case: the unpleasant odour occasionally perceived during a heavy fall of dew in certain places arises from other causes, which I shall attempt to explain in another part. Except immediately preceding one of those dreadful scourges of the West Indies, a hurricane, the barometrical changes are imperceptible, the mercury always remaining opposite 29.50 on the scale of the instrument.

Towards the centre of the island, on the leeward side, is found what in the language of the country is called the *souffre*; it is the crater of a former volcano, and consists of a valley filled with aluminous earth, combined with sulphurous acid, and native sulphur. In the centre are several cauldrons of water in a state of constant ebullition, and evolving at the same time quantities of sulphuretted hydrogen and sulphurous acid gases. The little town of Soufriere in the neighbourhood is so impregnated with the former of these gases, that the silver plate in the houses cannot be preserved bright for half an hour, and paint which contains the carbonate of lead, is decomposed and changes its colour in a single night, from exposure to the atmosphere.

Castries, the principal town of the island, is situated on its leeward side, at the bottom of a deep and narrow bay, on a plain scarcely elevated above the level of the sea, and in many places even lower. It is surrounded by hills of considerable elevation, which are intersected here and there by ravines. Those parts of the town in the immediate vicinity of the sea have been formed artificially by filling up the shallow water of what was formerly a lagoon. The plain immediately to windward serves during the dry season as a parade-ground for the militia; it is entirely uncultivated and swampy. From the north to the east the town is bounded by extensive fens filled



with mangrove trees, and covered partially at high tide by the sea. To the southward it is bounded by the river, the lagoon, and the burying-ground, the lower parts of which are often inundated, always humid, and covered by a luxuriant but rank vegetation. It is well paved for the most part, with a kennel running through the centre of each street; these, partly from the low situation of many parts of the town, and partly also for want of proper police regulations, are often exceedingly filthy.

Viewed from any part of the surrounding heights, about sunrise Castries appears to be buried in a thick canopy of dense vapour, arising from the swamps and marshy grounds which surround it. This accounts for the sensation of a damp, unhealthy coldness often felt at or before sunrise—a coldness, however, which is not indicated by the thermometer. As the sun rises, this mist or fog is either dissipated by his rays, or is blown to leeward by the wind.

The garrison of Morne Fortuné is situated upon a high hill to the southward of the town, rising abruptly above it to the height of 800 feet; the difference of temperature averages about  $4^{\circ}$ . St. Lucia is considered one of the most unhealthy of the West India islands, and there are certain parts of it which most assuredly merit this unenviable celebrity, amongst which the town of Castries is one. To account for this, I have given this short sketch of its topography and climate; and we see that it abounds in all the generally acknowledged sources of the tropical fevers. We have an elevated temperature, imperfect ventilation, humidity, and malaria from every attributable origin. We will now examine all these causes in succession, and ascertain, as far as we are able, their effects upon the human body.



## CHAPTER III.

## MALARIA.

THIS name is given at the present day to a peculiar principle, with the nature of which we are as yet unacquainted, but to the effects of which the febrile endemics, particularly those of an intermittent or remittent type, that at different periods have been seen to obtain in certain parts of the world, have been and still are almost universally attributed. By the bulk of physicians it is supposed to arise from animal or vegetable matters, or both united, in certain states and stages of decomposition. It is true that this opinion is not universal. Dr. Fergusson attributes the origin of this poison to water during the process of drying. This gentleman says that "one only condition is indispensable to its production, and that is the paucity of water, where it has recently abounded. It is the drying margins of the lake or pool from which this poison uniformly emanates, and never from the body; and he thinks that it may be fairly presumed that water, for as long as it can preserve the figure of its particles above the surface, is innoxious, and that it must first be absorbed into the soil and disappear to the eye, before it can produce any mischievous effects."

Others have supposed that the causes which give rise to this poison exist in the emanations from ground of a volcanic formation, produced by the action of the sun's rays. These emanations, they state, contain quantities of deleterious gases, as sulphuretted hydrogen, carbonic acid, and azote, which affect the vital principles of the human frame. We will presently investigate the truth of these opinions. We must now examine the properties of malaria when arising from swamp, or from the decomposition of animal and vegetable matter.

*Marsh or Swamp.*

Both these terms are used to signify a tract of country of greater or less extent, the surface of which is habitually covered



with stagnant water, and the soil underneath is formed of a clay mixed with the detritus of vegetable and animal matter in different stages of decomposition. In the West Indies, the greatest number of these swamps have a communication with the sea. They are covered with mangrove bushes, to the trunks of which myriads of the mangrove oysters are attached, and they contain also marine animalculæ and small fish, in such abundance as to render the mud upon their surface frequently highly phosphorescent. It is this kind of swamp which, according to Humboldt, contains the constituents necessary to furnish the most virulent species of malaria,—viz. tannin and albumen combined.

By marshy or swampy lands are meant those places subject to occasional inundation, either from the overflowing of a river, from heavy falls of rain, or from any other cause; where, in consequence of their position and the firm and plastic nature of the soil, the water lodges, until carried off by evaporation, and mixes with decayed vegetable and animal remains.

The mud thus formed, when acted upon by the sun's rays, emits vapours deleterious in proportion to the quantity of organic matter which has been mixed up with it and to the activity of the causes which assist in its decomposition. Many countries which under ordinary circumstances may be healthy, become under these fruitful in disease.

In the neighbourhood of Castries we meet with both permanent and occasional swamp, the former being the mangrove fen to the north-east of the town, and the latter is found in all the environs. When both are in full operation, we observe the greatest number of cases of fever: that is when hot and sultry weather has succeeded heavy falls of rain.

During the months of August, September, and October, the heavy showers which are daily occurring in these latitudes are sometimes alone sufficient to inundate the whole surface of a flat country; but when we take into consideration the peculiar formation of St. Lucia, its succession of hill and valley, we must here add another and more important cause to its partial inundation. The waters rush down the steep sides of the mountains, carrying with them the detritus of animal and vegetable life, and cover the plain or valley with a rich, but un-



healthy coat of alluvial soil. The river, instead of acting as a drain to the overflowed valley, cannot discharge its own contents, its mouth being blocked up by sandbanks, further strengthened by the fallen trees, shrubs, and earth, carried down from the neighbouring heights. Thus the whole valley is laid under water, which does not retire until the force of the stream has broken through this barrier. In the mean time, the matters contained in the water depose and remain in the form of rich mud and manure upon the surface of the land, which, however valuable it may be to the agriculturist, is exceedingly injurious to his health.

The cultivation of the Anse des Roseaux valley began about thirty-six years ago; since this period not fewer than 800 negroes have been placed or born upon one estate; only 270 remain. The proprietors (two brothers) are notorious for their lenient and kindly dispositions. The work performed by the slaves has always been very inconsiderable, and the annual number of births has averaged sixteen. This decrease in persons who are supposed to withstand the effects of marsh better than any other class of the human race, is terrific. A gentleman establishing an estate in the neighbourhood, purchased, in the year 1802, fourteen African negroes at Dominique: in nine months there was not one remaining. As it is now almost entirely cultivated, it is much less injurious to health than it then was; but even at the present moment very few acclimatized Europeans, or even Creoles of other parts of the island, can long withstand its effects.

The old and permanent swamp just mentioned as adjoining Castries, constitutes the upper extremity of the basin of the Carenage. It was formerly entirely covered by the sea, and is partially so now at high-water. It may, therefore, with some propriety be divided into two portions: that over which the tide continues to flow, and that which, from its higher situation, is no longer exposed to the action of the salt water. The former is thickly studded with mangrove bushes, and contains an immense deposit of decomposed animal matter; the latter is luxuriant with wild canes, guava trees, and log-wood, and the proportion of animal matter is less.



This swamp, for a foot or eighteen inches from its surface, is composed of a black mud of unpleasant smell, containing the leaves and small branches of the shrubs which grow out of it. Below this, to the depth of five or six feet, its appearance was thus described to me by my friend Mr. Taylor:—"It is composed of a solid matter of a yellow colour," says this gentleman, "exactly resembling rotten horse-dung, containing some marine shells, and is principally formed of the fibrous parts of vegetables mixed up with animal matter. The odour emitted by this substance is indescribable, but disgusting in the extreme, producing a sweetish sickly taste in the mouth, pharynx, and upper part of the œsophagus, with a discharge of saliva. A thermometer thrust into the sides of a canal five feet deep, rises rapidly to 100° and upwards; the temperature appears to be greater than that of any dunghill, and communicates a tingling, unpleasant feeling to the hand. The vapour which arises from it is very evident, being opaque, like smoke, and though it fills the canal, ascends only to the height of four or five inches above the level of the swamp."

There is another and more extensive, though probably less noxious fen, which extends along the sea-shore of Chocq Bay, to the distance of three or four miles. It is cultivated in small detached patches, here and there; the rest is covered with wild canes, and resembles rather the jungles of India or the Pontine Marshes than a West India swamp; for the most part it is firm, and admits the passage of a horse, but in places it is treacherous under-foot and impassable. Its surface is composed of a vegetable debris. I am unacquainted with its structure underneath.

Though swamps are composed of vegetable remains mixed with animal matter, they differ considerably amongst each other in their degrees of virulence, which bear an exact proportion to the quantity of organic matter, (particularly the latter,) in a state of decomposition, which they contain, and also to the powers of the agents which promote this effect. Therefore in countries where both these states abound, as in the West Indies, swamps are the most injurious to life.



*Exhalations from Swamp or Marsh.*

It is to these emanations that we are to look for the causes of the operation of marshes upon the human body, and many wild theories have at different times existed respecting their nature. One of the oldest amongst them, and which was republished during the seventeenth century, supposes that marsh generates a number of infinitely small insects, which escape into the surrounding atmosphere, and, penetrating our bodies through the pulmonary passages, produce disease. The chemical physiologists supposed that these emanations contained vapours of a saline and sulphurous nature, which corrupted the fluids. Bernardo Ramuzzini thought that they were acid, and that they acted upon the body by coagulating the blood. The humouralists attributed the diseases which reign in a marshy country to heat and humidity alone. Hoffmann considered that the vapours from swamps when expended in the atmosphere produced a heaviness of the air, deprived it of its energy and elasticity, and rendered it unfit for the vivification and expansion of the blood and humours, and thus, by coagulating the former and corrupting the latter, gave rise to putrefaction and disease of the whole body. The chemists of the present day have attributed the noxious principle in these emanations to certain gases, as hydrogen combined with sulphur, carbon, or phosphorus, or some of the combinations of oxygen with azote.

A broad-mouthed glass vessel placed over a cleared portion of swamp, the surface of which is tolerably dry, and on a fine evening, soon becomes filled with a watery vapour, which is condensed on the inside of the vessel in the form of small drops or beads of dew. M. Julia states that this fluid is capable of fermentation, and M. Vauquelin gives us the following description of a quantity collected by M. Rigaud de l'Isle. "It is clear," says the chemist, "but when agitated we see small flocculent particles suspended in it; it has a slightly sulphurous smell, similar to the white of egg when boiled. Amongst the different reagents employed, the nitrate of silver, nitrate of mercury, and nitrate of lead were the only



ones which produced any effect upon it, announcing the presence of a muriate and of an alkali; this was further proved by its changing to blue, litmus paper reddened by an acid. The residue was of a yellow colour, weighing at most two or three grains; it had a saltish taste, became blackened on exposure to heat, produced a slight effervescence with acids, and formed with the nitrate of silver a yellow precipitate; this precipitate was partly soluble in nitric acid, and the remainder became white." From this experiment M. Vauquelin concludes that this fluid contains animal matter, ammonia, and the muriate and carbonate of soda. The fluid was obtained from a swamp in the Papal states, and we may, I think, conclude, *à priori*, that were experiments made upon the vapour collected in this manner from the old mangrove fens of the West Indies, the result would be the same, except that in the latter the active products, as animal matter and ammonia, would be found in greater abundance. From the experiments of M. Julia, however, it would appear that the dew arising from swamps differs only from rain-water in containing a small quantity of animal matter. M. Devèze, as well as Brocchi, found no difference between the air in the most pestiferous places and those noted for their salubrity; but all admit that there is a deleterious something which our present knowledge cannot take hold of.

Poisonous exhalations arise from other collections of animal and vegetable substances besides marsh; and allowance being made for the circumstances with which each is essentially connected, they seem to be identic. The products from both, as far as chemistry can detect them, are similar, and their physical and physiological laws seem to be the same.

The gases evolved from the decomposition of vegetable and animal bodies, are oxygen, hydrogen, carbon, azote, in different proportions and in different combinations, according to a variety of circumstances under which collections of this kind may exist,—according as the one or the other may be in excess—according to other matters with which they may be combined, as water or earth—according to the facility with which they have communication with the atmosphere—



to the different *species* of animal or vegetable matter of which they may be composed, and to the activity of the causes which produce decomposition. Thus we meet with sulphuretted, phosphoretted, carbonated and carburetted hydrogen, ammonia, deutoxyde of azote, carbonic acid, &c.

These gases are exceedingly prejudicial to health, and produce death in different ways when introduced into the lungs, and injected into the circulation. It has been supposed, that to one or other of these substances we are to look for the poison of malaria. Such is, however, not the case, for they cannot, under any circumstances, produce the diseases in question. Though some, or all of them, are continually escaping from such a swamp as I have described, and are expanded into the atmosphere, yet, so far from infecting it, they cannot be detected in the air immediately surrounding their source by any means we at present possess. And where some of them, arising from other causes, exist in such quantities as to be appreciable even to the senses, as is the case in the town of Soufriere, we never find them as agents in the production of disease.

It is a fact pretty well established, that the emanations from swamp are much more deleterious during the night than during the day. The sportsman wades through the stagnant waters and mangrove bushes which cover the surfaces of the West India fens in search of game, with comparative impunity; but long before the sun has disappeared beneath the horizon, he seeks to place himself beyond the reach of their poisonous effluvia, taught by sad experience the necessity of prudence. The reason is obvious: these emanations consist principally of aqueous vapour, produced by evaporation from the surface which contains within it the deleterious principle of malaria. During the day this process goes on rapidly under the influence of the sun's heat. The vapour once escaped is quickly absorbed by the lower stratum of the atmosphere with which it has come into contact; and this body of air, holding in solution these emanations, becomes heated and rarified, and forms an ascending column, making room for the stratum immediately above it, which, in its turn, after under-



going the same changes, is replaced by a third. These miasms, where they have attained a certain elevation, are carried away by the wind.

During night things are very different. The swamp has an elevated temperature of its own, dependent upon the chemical actions which are going on in its bosom, the products of which are constantly evolved, and escape at the surface in the form of a vapour. The influence of the sun has now ceased to be felt, and this vapour, no longer dissolved, as in the daytime, hangs in cloudy masses over its birth-place; the lowness of the swamp, and its own gravity, preventing it being dissipated by the currents of air. The surface of the earth, and most of the substances which cover it, as grass and brushwood, are excellent radiators of caloric, in consequence of which they acquire a temperature some few degrees below that of the atmosphere, when they cease to be acted upon by the sun's rays. This vapour, condensed in part by the coolness of the air, is still further so by the leaves and grass with which it is in contact, and is deposited upon them in the form of dew. We must not confound this with common dew; it is purely local, and is rarely found at any great distance from its source.

The baneful effects of marshes are still further confined by an adhesive quality which these emanations seem to possess in a very eminent degree. Air charged with malaria is filtered, if we may use the expression, by its passage through a screen of any kind, as a plantation of trees, the bushes which grow from the swamp itself, or any similar obstruction to its free transition, which breaks and divides its particles. Under these circumstances, the poison attaches itself to the opposing body, and the air escapes purified and innoxious. Marshes which previously exercised little influence on the health of the inhabitants of a town in their neighbourhood, become instantly the cause of epidemics when cleared of their covering shrubs, or when an intervening wood or forest is cut down.

These vapours are clearly heavier than the atmosphere; they always travel upon the ground, and are incapable of rising to any considerable height, perpendicularly, though



they are found travelling up hills of moderate elevation, the ascent of which is very gradual; and this holds good, from whatsoever source they may have arisen. Whilst excavations were making at the Cimetiere des Innocents at Paris, this poison was found in the cellars of some of the neighbouring houses, in such quantities, mixed up with other gases, as to produce asphyxia in those exposed to them; and of those who recovered from the first effects, many died from malignant fevers produced by its absorption into the body.

Though we must come to the conclusion, that we know nothing of the nature of this poison, we must not, on that account, deny its existence, nor its identity in every case, from whatever source it may have risen. When we study its physiological effects on man, or some of the lower animals, we shall still farther be convinced of this truth, that in no respect does it present any other difference than that of intensity, or perhaps some slight modifications arising from its source, its producing causes, and the substances with which it may in different cases be combined.

#### PHYSIOLOGICAL EFFECTS OF MALARIA.

This subject may be divided into two heads. First, the effects of marsh effluvia expanded through the atmosphere on the mass of an acclimated population. Secondly, the effects produced on individuals by this poison in a concentrated form.

##### *Effects of Malaria on an acclimated Population.*

These effects are not the same in all countries, for each climate has its own temperature, and other causes which powerfully influence those of malaria. The people of Holland have not the same character and appearance as those near Rome; nor do the latter resemble altogether the inhabitants of St. Lucia.

The inhabitants of marshy countries, where the temperature is moderate, present the following appearances:—The skin is pale, livid, or yellow, the eyes dull and heavy, the movements



of the body slow and languid, the eyelids and face puffy and somewhat swollen, or shrunk and wrinkled at an age when they ought not to be; the abdomen large, the extremities small, shrunk, and wanting consistence in the muscles; the sensations both of pleasure and pain seem deadened; common events produce little effect, exciting neither joy nor sorrow. They present the lymphatic, or, as it was formerly called, the leuco-phlegmatic temperament, in its greatest developement. Cadavaric inspection shows us chronic engorgements or morbid changes of structure in some or all of the viscera. Acute inflammations are rare, but living in an unwholesome atmosphere, they never enjoy health; they are always valetudinarians. How can it be otherwise, attacked as they so frequently are by intermittent or remittent fevers, which though so slight as to be treated by the unfortunate beings who have served a long apprenticeship to suffering, with indifference, nevertheless ultimately produce premature old age and death? They suffer from neuralgic affections; sciatica and tic douloureux are common; their blood is thin and watery, giving rise to ulcers of the legs and scurvy.

As we approach the tropics, though the lymphatic temperament still obtains, we find it combined with a greater excitability of the nervous system; and within these regions are added irritability of the skin and of the abdominal viscera. There is a strange mixture of indolence and love of excitement: a wish to be roused from the listlessness of every-day life, but requiring a powerful stimulus to effect it. Slight causes produce affections of the nervous system which terminate in death. Colic, followed by paralysis of some part of the body, is common; and hysteria and other diseases of this class are frequently combined with the ordinary disorders of the country. We can account for this only by admitting a peculiar modification of the ordinary morbid agents, or a peculiar idiosyncrasy in the people.

When acclimated individuals are exposed to the emanations from marsh in a more concentrated form, or in a greater quantity than their powers are capable of resisting, they are attacked by the same diseases as the unacclimated.



Differences in the manner of, and situation in life, influence the temperament of the inhabitants, and consequently their diseases. The population of St. Lucia consists of English, French, Creoles of both white and mixed races, and negroes. The better classes, who live well, drinking good old wine and eating food both nourishing and easily digested, preserve a temperament more or less sanguineous; and though occasionally attacked with fever or affections of the abdominal organs, are not subject to those chronic engorgements of the viscera which I have mentioned. Some of the poorer French or their descendants, white or coloured, who are badly fed and naturally abstemious in their mode of living, taking only small quantities of an inferior red wine mixed with water, present examples of a developed lymphatic temperament, and their diseases are of that class. Dram-drinkers of all races are subject to organic læsions of different viscera in a chronic form, and to derangements of the nervous system; they are liable to fevers, and when attacked generally sink under a train of ataxic symptoms.

An English gentleman of a sanguineous temperament married a French lady. He was attacked with a mild intermitment, which was cured by diet and demulcent drinks. Fancying that his former method of life produced his disease, he determined upon living very abstemiously for the future, and his resolution was strengthened by the advice of his wife and her family. Madeira was exchanged for a common poor French wine, which he took diluted in large quantities of water; animal food, for the indigestible vegetables of the country, and a small proportion of fish. This system was continued for some time, until his abdomen and fat began to swell; to combat which he discontinued his wine, took large quantities of tisannes, several clysters, and a smart purge twice a week. In about a month he came up to town, and I saw him with my friend Dr. Drivon, when he presented the following appearances:—Anasarca from head to foot, effusion into the cavity of the peritonium. He was sitting up, his back supported by a chair, the body bent slightly forward; his breathing, short and rapid, consisting of a succession of



gasps for air, could not be performed in any other position. Percussion of the chest impossible, from the immense effusion into the cellular tissue ; neither the pulse at the wrist nor the stroke of the heart could be felt, for a similar reason. By change of diet this patient recovered and returned to England, where I lately saw him in rude health, and effectually cured of tisanes and abstinence.

By abstinence from a sufficient quantity of nutritious food and a moderate allowance of good wine, instead of dropsy we occasionally find that some painful neuralgic affection arises, and is only made to subside by returning to the former manner of life.

Dr. Levacher, in his "Guide Medical des Antilles," describes a peculiar kind of dysentery occurring in negroes or other people who have passed their lives in the neighbourhood of marshes, which he denominates, from its combination with other symptoms, "*scorbutic*." It may be added that where these dysenteric symptoms are not found, others arising from the same cause occupy their place.

*The effects of Malaria in a more concentrated form on  
Individuals.*

Two ways of examining this subject present themselves to us ; the first by observing its effects upon men and animals exposed to its influence ; the second by experiments made on those animals which, like man, suffer from these emanations.

An European, or a native, after a long residence in a temperate and healthy climate, arriving in St. Lucia, complains of a feeling of weight in the atmosphere,—a something which resists the wish for exertion or exercise. Both his mind and body are oppressed ; his intellect is clouded ; his spirits are low and desponding, and all pre-existing love of enterprize vanishes. If his residence be protracted he has slight febrile movements, which come on regularly or irregularly, not sufficiently severe to prevent him pursuing his usual avocations, but which, nevertheless, are sufficient to induce him to throw



himself upon a sofa, and require a powerful effort of resolution to combat. In this manner his body may gradually accommodate itself to the climate, but he may consider himself fortunate if he escape so easily; in general, particularly if he be guilty of any imprudences, he feels restless at night, and can only sleep during the cool of the morning; he feels out of sorts; has pains in the back and extremities, as if from fatigue; he complains of head-ache, sickness, and nausea; and if these symptoms are not attended to immediately, suffers what is vulgarly called an attack of seasoning fever.

When the constitution is affected by malaria in a still more powerful manner, the effects are often immediate, and I will describe them as they occurred to myself. I had occasion to visit an estate in the neighbourhood of Castries about midnight, and my road obliged me to pass the swamp which lies to the north of the town. There was a lovely moonlight, the sky was unclouded, and a heavy dew was falling. On approaching the swamp I was sensible of an extremely disagreeable odour, arising from its emanations, and from the dank and foul vegetation on its surface and in its neighbourhood. I then perceived a peculiarly unpleasant, but indescribable taste in my mouth and pharynx, which produced slight vertigo, nausea, and even efforts to vomit. On my arrival at the estate, which was shortly afterwards, I took a glass of hot punch, with the hope that it would allay the nausea; I was, however, mistaken, for it was immediately rejected, and an ague came on, which obliged me to go to bed, where I remained until the afternoon of the following day. After a profuse perspiration I was enabled to ride to town, through still very unwell. At night the symptoms returned with such severity as to require a bleeding from the arm and leeches to the epigastrium; by these means the paroxysm subsided eighteen hours after its commencement, and a return was prevented by the free use of the sulphate of quinine. Both before and since I have passed this swamp at all hours without inconvenience, except from the unpleasant smell which always existed. I have also twice passed the Pontine Marshes at night, at a time when fever was raging in the Campagna,



in Rome, Velletri, and Terracina; the only effect I could perceive was a slight odour, not unlike champagne.

The two following cases were related to me by my friend Dr. Chevalier, of Martinique, but who at the time when they occurred was practising in St. Lucia:—About eight o'clock in the evening two boatmen, after finishing their day's work, before returning home, were occupied in hauling their canoe high up on the beach, close to the most dangerous part of the swamp mentioned above, when they perceived immediately to windward a small cloud of vapour gradually approaching them, and in a short time they were enveloped in it. One of them fell down, apparently in a state of asphyxia, and the other was so affected as to be unable to render him any assistance. The vapour passed away quickly, and the one who had been the least incommoded recovered sufficiently to look after his companion, whom he found lying in the mud, apparently insensible. He continued in this state only a short time, and gradually became sufficiently well to be led home. In the course of the night Dr. Chevalier was called to see him, and found him suffering from an intense ague. The surface of the body was cold, the countenance expressed great anxiety, the pulse was small and scarcely perceptible, the patient was insensible to surrounding objects, and in a state of coma, only interrupted by severe convulsions. The cold stage continued altogether about three hours, and as reaction took place the convulsions subsided; but the coma continued, and alternated with delirium. There was occasional vomiting of mucosities with great effort and apparent pain. Pressure on the epigastrium made the patient wince and contort his countenance. About eighteen hours from the commencement there was remission, or rather a slight mitigation of symptoms, with a partial return of consciousness; it continued only a very short time, and was followed by another paroxysm, equal in violence to the last, except that the cold stage was scarcely perceptible. The patient died about forty hours from the period of exposure. The body was examined whilst warm; the blood was found fluid, and a small quantity of troubled serum was effused between the arachnoid and pia



mater on the surface; the lungs were somewhat engorged, and the stomach intensely inflamed, containing about two or three ounces of blood in its cavity.

The other man never suffered further inconvenience; he said that the vapour had no perceptible smell; that it was warm and moist, like steam, stopped the respiration for a moment, and produced a sense of faintness and trembling of the whole body.

In the year 1826, a schooner put into St. Lucia, with three men ill, out of a crew of four men and a boy; two of them were dangerously ill with all the symptoms of yellow fever, and one died; the third suffered from a gastro-enteritis of a mild form and remittent type. They were attacked two days previously to their arrival. The vessel was from Bermuda, loaded with onions, most of which were rotten, and emitted an insupportable smell.

M. Cassan, médecin en chef des hôpitaux militaires de St. Lucie, and who resided some time in the island when it was in the possession of the French, says that "twenty-eight soldiers of the garrison of Morne Fortuné were employed by two planters to clear some land which was both humid and swampy. Within a week they were all brought to the hospital, three of whom died of *cholera morbus*, five of severe *dysentery*, four of *adynamanic fever*, in which the *bodies* became *yellow*, and exhaled so infectious an odour that they could not be approached. The remainder had malignant intermittents (*fièvres pernicieuses*) more or less severe, and recovered with the greatest difficulty."

Mr. Taylor, after the hurricane of 1817, being then harbour-master of the port of Castries, contracted with the agent for Lloyds to get afloat a vessel which had been thrown high up among the mangrove bushes, to the north-east of the town. As she lay fifty or sixty yards from the water's edge, even at the highest tide, this object could only be accomplished by cutting a canal from the vessel to the carenage. The appearance of the swamp as evinced by the canal, I have already described; it remains for me now to mention the effects produced upon the workmen, which I shall do, as near as my



memory will allow me, in the words of Mr. Taylor himself A number of negroes were employed at the commencement, but they abandoned the work to a man, declaring that they could not support the stench. As there were several foreigners in the town at the time, eighteen of these were engaged, being principally Spaniards and Portuguese, but the undertaking was abandoned, when nearly two-thirds finished, for want of hands. The men fell ill day after day, and the greater part of them died; they first complained of faintness and vertigo, then the feet and legs began to swell and be inflamed, and the swelling and inflammation quickly extended above the knee; fever came on, and death ensued in two or three days.

The autumnal months of the year 1830 were remarkable for the dry and clear state of the atmosphere: the trade-wind continued to blow steadily from its accustomed quarter, and in consequence there was little sickness in the town, if we except an epidemic of scarlet fever, which had made its appearance about the month of July; it was not severe, and yielded generally to very mild treatment.

A Protestant church was on the point of being built, and the site fixed upon was the centre of the above-mentioned swamp. The work commenced, canals were cut with the idea of acting as drains, but they were found to be useless, as the centre of the swamp was lower than the sea; an embankment was then thrown up, separating these two and preventing the customary ingress of the latter; whilst the surface of the former was exposed to the full influence of the sun's rays by cutting down the brushwood which covered it. The next step was to form a road to the place where the church was to be situated, and this road had to be formed over a part never yet passed by the foot of man. By these measures, not only were several acres of swamp exposed which were before covered twice a day by the sea, and therefore to a certain extent innocuous, but a certain portion of its very bosom was laid bare. The first effects perceived was the smell which expanded itself over a considerable portion of the town in its neighbourhood; the next was in a sudden change which the epidemic underwent. The efflorescence, instead of scarlet became dusky red,



occasionally approaching to purple; the tonsils, mouth, and pharynx were intensely inflamed, and of a dark colour, as if falling into gangrene; the blood drawn from the arm was of a deeper colour than in health, and the crassamentum did not separate from the serum; the pulse was small and rapid; the meninges became affected, the patient fell into a low muttering delirium, and in a space of time, seldom exceeding three days' died. The exceptions to this termination were rare; out of seven or eight cases which it fell to my lot to see, two or three only recovered. Two girls, one eighteen, the other twenty years of age, sisters, died, one after forty, the other after fifty-four hours' sickness. After death the blood was found fluid and the gastro intestinal mucus membrane and the meninges were inflamed. Fortunately, by this time the epidemic had nearly run its course, and this horrible disease ceased for want of victims; but it made way for another scarcely less fatal, inasmuch as its effects were principally confined to those who had acquired by habit certain powers of resisting them, I mean the endemic fever of the Antilles. We shall have to examine some of these cases presently; it is necessary here to mention the principal læsions found after death. The gastro-intestinal mucus membrane was invariably found in a state of acute inflammation; the blood was probably diseased in all the cases, as it wanted that firm consistency which it had in health, remaining either quite fluid, or when it coagulated (which it did sometimes, and even exhibited an inflammatory crust now and then, when the lungs or arachnoid were intensely inflamed) the coagulum was soft and inadhesive, and the buffy coat thin and gelatinous. The spleen was frequently in a state of ramollissement; meningitis was found in the great number of cases, and pneumonia was found in its different stages, from simple engorgement to red softening, and purulent infiltration in a small proportion.

The gales of wind which blow from the north-east about Christmas in these latitudes, in a great measure put a stop to this state of things, by driving away the emanations as they arose, by reducing the temperature of the atmosphere, and by obviating the humidity, a necessary agent for the production of infection from malaria.



The autumnal months of the year 1831 were healthy. In the month of August the island experienced a severe hurricane. How far the healthiness may have been caused by it I know not; but certain it is, that the inhabitants generally expect a season comparatively free from disease after such an event. The barque *Magnet* was lying in the bay, and with the exception of the captain and two men, the crew were quite healthy during their stay. After having been at sea some time, fever broke out—two-thirds of the crew were attacked, and two died.

The months of August, September, October and the beginning of November, of the year 1833, were extremely sultry, with almost incessant rains. The environs of the town were inundated, and the savannah of Leslie, or the parade-ground, became impassable on foot, being converted into a perfect sludge-pond. During this period, there was an epidemic of intermittent of various types, not generally very severe, but I am sure that at the most moderate calculation two-thirds of the inhabitants of Castries were attacked with it. In some houses all suffered indiscriminately, in others the negroes were more free. The greater number suffered from bilious symptoms, others from intermittent irritation of the gastro-enteric mucus membrane, others again from severe neuralgic affections. The brig *Monarch*, from Liverpool, was the only vessel of importance in the harbour during the month of September: the captain and all the crew were attacked some of them very severely, but none of them died. During her passage home, however, three or four relapses took place, and one death.

From the middle of November to the middle of January the weather was hot during the day, but cool at night, with heavy falls of dew. The rains had ceased, and vigorous breezes had sprung up occasionally from the north-east, particularly towards the end of December. The environs of the town became in consequence comparatively dry, and the parade-ground was converted to its former purposes. The cases were more rare, but much more severe; intermission was less marked, the type was subintrant remittent, or even continued; and the



diseases were of a more inflammatory character, being ushered in with pulmonic or bronchial inflammation, at least in many instances; but in all, the gastro-intestinal inflammation was severe, and required an active antiphlogistic treatment for its cure. Even when the disease was purely intermittent, it was very severe; and when left to itself, in many instances terminated fatally, after the close of the third or fifth paroxysm. But whether intermittent or continued, the appearances on dissection were the same, and the cause of death was local. It was found solely in the stomach and bowels, except where the pulmonic disease had been considerable, and then, though the stomach was found inflamed, yet the principal seat of the disease was in the chest. Other organs were likewise found affected in different cases, particularly the meninges; but they were sympathetic of the primitive læsion. The blood was such as it is usually met with in gastro-enteritis and pulmonic inflammations; it never had that dark, thin, half-dissolved appearance which it possesses, sometimes, in cases more immediately arising from marsh. At the latter end of December, the brig *Jane* arrived from the Clyde, and anchored high up the carenage. Within a week of her arrival, the mate and two of her crew were seized with severe gastro-enteritis, which was at first continued; by active treatment, however, it subsided, but to return again in a short time in an intermittent form. Did these cases owe their cause to malaria, or to the difference of temperature between the days and the nights? I think from both combined—because we rarely see gastro-enteritis assume an intermittent type, unless under the influence of the first of these agents; and had this been the only cause we should have had other symptoms superadded. In other words, the change of temperature, particularly the heat of the days, caused indirectly the inflammation; marsh modified the type.

The fever of 1830 owed its origin to the same cause which so much modified the epidemic of scarlet fever, viz. to the evolution of malaria in a concentrated form, and possessed all the features peculiar to this class of diseases; whereas, this agent was less intense, though probably as extensively diffused during the fever of 1833, and mild intermittents were the re-



sult until towards the close of the year, when the intensity of heat during the day and the coldness of the nights, became in their turn either directly or indirectly causes of disease.

I left St. Lucia at the latter end of July 1835. During the passage, three of the people were attacked, one with intermittent neuralgia of the intestines, or intermittent colic; a second with quotidian ague, and the third died of black vomit, within a day's sail from the coast of Ireland. Vessels leaving St. Lucia after the first of August, even though the crew may be in perfect health at the time of departure, seldom arrive in England without having had cases of fever on board, and death in consequence is not uncommon.

If we examine the different endemics which have arisen from malaria, as they have been described by authors, three classes of symptoms will not fail to strike us. The first is immediate, and often follows the impression of the poison instantaneously; vertigo, headache, fainting, convulsions, coma, or even death itself, belong to it, and point out to us the powerful action which has been produced upon the nervous system. The second sometimes quickly succeeds the first: often, on the contrary, a period of some days intervenes between them. It consists of a series of symptoms, characteristic of abdominal inflammation, such as pain and heat in the region of the stomach, vomiting with more or less effort, thirst, anxiety, agitation, supination, the tongue dry and red at the edges and tip. Other organs soon sympathize, become irritated, and at last inflame; none so frequently as the brain and its appendages, and we have then head-ache, coma, and delirium superadded. The symptoms of the third class depend upon a disordered hæmatisation, and consist of passive hæmorrhages, petechiæ, ecchymoses, extravasations of blood into the cellular tissue, &c.

How does malaria introduce itself into the system? is a question which is often asked; and by some it has been doubted whether it enters the system at all. The emanations from the marshes are held in solution by the watery vapour existing in the atmosphere, and therefore come into contact with all those substances which are surrounded by this fluid; consequently with those surfaces of the human body which are in report



with the external world, the skin, and the mucus membranes of the aëriform and alimentary passages. With every inspiration a certain quantity of this poison is inhaled and impinges itself upon the capillary and nervous extremities of the lining membrane of the bronchi and air-cells: when this is great, or where it is concentrated, the nervous extremities become irritated, and this irritation is conveyed to the brain; hence the symptoms belonging to the first class described above. Its mode of action approaches nearly that of the mephitic gases, or of prussic acid and is equally as incomprehensible. By the venous capillaries or radicles it is absorbed: at least everything would lead us to suppose so, and is carried into the system.

Has malaria any other local effect besides that produced upon the nerves of the part? No, certainly not; neither pneumonia, gasteritis, nor inflammation of the skin, is ever produced by the direct contact of this agent, unless it be at the same time combined with some other, which of itself is a powerful irritant. The men who worked in the swamp in the neighbourhood of Castries suffered from inflammation of the lower extremities; but the nature of the substance amongst which they were treading, and to which these parts were exposed, was sufficient to produce this effect.

The effects produced by the introduction of malaria into the economy are generally imperceptible at the time, and a certain interval, more or less considerable, elapses before they take place in a manner appreciable to us. A number of men are exposed to the emanations arising from swamp; some are instantly attacked with delirium, stupor, or convulsions; others remain apparently well for a day or two; a third party for a week or fortnight, and a fourth are not affected at all. Now and then the effects have not been perceived for months after leaving the infected source, and then break out suddenly. This was frequently observed after the campaign of Walcheren; and it was of daily occurrence to see men who leave St. Lucia apparently in perfect health, attacked with intermittents after having been three weeks or a month at sea.



Another peculiarity in the physiological history of this poison is the faculty which it seems to possess of gradually accumulating in the body ; and when the system is charged with it, suddenly exploding. A series of symptoms are thus produced, exactly resembling those arising from its introduction in a more rapid and energetic way.

At other times it does not explode in this sudden manner, but, on the contrary, produces a series of nervous phenomena, and ultimately an intermittent.

### *Effects of Malaria on Animals.*

Marsh seems in general to produce no injurious effects on the greater number of animals placed below man in the zoological scale. The tiger finds a safe shade in the jungles of Bengal, and the lion watches his prey in the mangrove fens of the African river, unscathed by their poisonous emanations. The cow, the buffalo, and the hog, luxuriate in the rich pastures of the Pontine Marshes ; they thrive and grow fat, whilst man, all-powerful man, whom interest or necessity has induced to become their attendant, if he escape their first effects, gradually wastes away from protracted intermittents, or trails along his wretched body, swollen from dropsy, or emaciated from visceral disease. In St. Lucia, the only animals, except man, which appear to be affected by malaria, are dogs. These poor creatures are imported from England in considerable numbers, and are always in demand, as few survive the first year of their transportation, either being carried off by accidents, as the bite of the serpent, (the *trigonocephale* of Cuvier,) convulsions produced by insolation, or (by far the greater number) dying from fever of different types, presenting similar symptoms and pathological appearances as are found in man. When ill, the creature is seen stretching himself out in the sunshine, or under a cool shade, where the air blows freely ; his eyes are dull and heavy, his tongue protruded from the mouth, and white ; his respiration is quick, and his sleep apparently disturbed by dreams. When his thirst induces him to rise and seek for water, he often trembles in his gait, and seems to reel either from giddiness or weakness. At length, life is terminated generally by a convulsion.



These symptoms may be intermittent, or they may be continued. That they arise from malaria I think is certain, because they are not seen in the other islands, where this poison is less abundant; and secondly, because they can be produced at will, in recently arrived dogs, by confining them within the range of the action of the swamp. In all the dogs I have examined which have died with these symptoms, I have found, with only one exception, the cause of death in an inflammation of some part of the gastro-intestinal mucus membrane. There was also a perceptible change in the blood, which, though it coagulated to a certain degree when taken from the vessels, and poured into a basin, after death, the coagulation was soft, and the serum contained a quantity of the colouring matter. This was the extreme extent of alteration in its appearance; in one or two it scarcely differed from that found in death from other causes, and seemed, in part at least, to have coagulated in the vessels; yet it did differ. The brain was examined in two cases only, and presented no læsion whatever. In the case which forms the exception, the dog died from an inflammation and purulent infiltration of one lung; the lower part of the ileon was in a state of considerable hyperemia.

I never saw, as far as I can recollect, ague, or a perceptible cold stage, except once, and then it was extremely well marked. The animal shook convulsively, and sought the sunshine, from which it was impossible to drive him. The symptoms continued about an hour, and then gradually subsided; but though he seemed better, he still continued unwell; the paroxysm returned daily, the poor wretch became worn to a skeleton, and at length disappeared.

*The Effects produced on Animals by the introduction of putrid matter into the economy.*

This subject has been extensively and most successfully pursued in France. M. Gaspard injected putrid animal and vegetable substances into the crural veins of dogs. The animal, immediately after the operation, seemed to suffer considerable uneasiness. Occasionally he was attacked by convul-



sions; he made frequent efforts to vomit, and threw up small quantities of frothy mucus; there was frequent tenesmus, with passages of mucus and bloody stools, difficulty and quickness of breathing, and great anxiety. He lay on his side, and his limbs were occasionally convulsed. He had copious evacuations by the anus, of dark matter, mixed with fluid blood: at length death ensued, generally within twenty hours after the experiment. The cadaveric appearances were, a particular inflammation (*une inflammation particulière*) of a considerable portion of the gastro-intestinal mucus membrane, accompanied with a species of hæmorrhage as passive; the blood contained in the alimentary canal being dark and grumous, resembling tar or coffee-grounds. Congestion, or in some cases even inflammation of the lungs; in a few instances, vascular redness of the lining membrane of the heart, inflammation of the mesenteric glands, distention of the gall bladder, with a dark coloured thick bile. Magendie repeated the experiments, and obtained the same results. He found that different substances possessed different degrees of activity; the most active being fish. In all the experiments, he observed that the blood had undergone a great chemical alteration; that it remained in a great degree liquid after death; that it had transuded through the parietes of the vessels into the different tissues, particularly through the gastro-intestinal mucus membrane, and was accumulated in the stomach and intestines; it possessed a colour between a bright red and a black. The same liquid used in these experiments was injected into the stomach and bowels, without producing any ill effect; this he attributes to its being filtered by passing through the mucus membrane. To ascertain whether this were the cause, he filtered the fluid through blotting-paper, and then injected it into the circulation; powerful effects took place, but they were much more feeble than in the former cases. Messrs. Leuret and Hamont performed similar experiments, and from the results obtained, these gentlemen attribute the effects produced on the economy by the introduction of putrid matters into the system, to the changes which the blood undergoes in its chemical properties.



M. Gaspard placed putrid matter in contact with a serous membrane; this matter was absorbed, and the appearances after death were such as those described as resulting from its introduction into a vein, added to an inflammation of the part itself: in other words, the effects were local as well as general. Gendrin introduced putrid matter into the cellular tissue of animals. Death ensued six or eight hours afterwards: the cellular texture was found softened and pulpy, it emitted a fetid odour, and had a number of small red spots scattered through it. The gastro-intestinal mucus membrane was healthy; that of the bronchi of a dusky red, and presenting spots of a dark brown colour, approaching to black. No læsions existed, either in the brain or spinal marrow; the heart was flabby and soft. A dark serous blood had escaped from the vessels, and was effused into some tissue or cavity. The lungs were engorged with dark blood, and this fluid was found in the larger vessels liquid and black. These experiments of placing putrid matters in contact with the cellular texture have been repeated by others, and the results are the following: in cases where death has ensued, inflammation of the part, fluidity and blackness of the blood, and engorgement of the lungs.

I was called to see a negro woman, who was stated to be labouring under metritis and peritonitis, after a difficult labour. I found her in the following state. Abdomen *ballone*, and exceedingly sensitive, fetid discharge from the vagina, with great heat and pain; pulse scarcely perceptible, extremities cold; but the most remarkable symptom was the almost incessant vomiting, without effort, of immense quantities of a dark chocolate-looking matter, filling several chamber-pots. This matter was thrown up with such force as to be ejected from the mouth to the distance of two or three yards, when a vessel was not ready to receive it. The patient was dying, and all further questioning or examination was postponed until that grand event had taken place, which would enable me easily to ascertain the nature of the disease. The neck of the uterus was bruised, lacerated, inflamed, and gangrenous, from the improper application of the forceps; the



placenta was attached to the fundus and putrid; the inner surface and body of the womb were considerably inflamed. Inflammation also existed in the peritoneum, covering the abdominal parietes and some parts of the intestine, with effusion of milky fluid into its cavity, in which portions of coagulated febrine were floating. The stomach contained a quantity of black matter, similar to that vomited, probably the greater part of a pint. Its mucous coat, washed and examined with care, was of a grey colour throughout, except that it was speckled with innumerable black spots, produced by this black matter, stopping up the mouths of the exhalent vessels, and easily picked out with the point of a needle. On its great curvature were five or six small red spots, one the size of a sixpence, formed by capillary congestion, and ecchymosis of the submucous cellular tissue. The mucous membrane of the small intestine was in its normal state, except that there were black spots similar to those in the stomach observed throughout its whole extent, particularly towards its lower half, where two or three congested and ecchymosed patches were again remarked. The blood was fluid in the vessels, but not in a state of dissolution; it coagulated completely in a basin, and the serum separated from the crassamentum. The heart was soft and flabby, the right cavities distended with blood; the left contained a colourless coagulum. The spleen in a state of extreme ramollissement.

In this case was observed that symptom which, according to many, constitutes one of the diagnostic peculiarities of yellow fever. I have on that account introduced it here. The only means by which we can explain it, is by attributing it to the effects of the putrid placenta on the circulating mass. Would not the changes observable in the chemical properties of the blood have been more marked but for the existence at the same time of intense inflammation of a serous organ?

A pound of animal matter, being a portion of a large marine molluscum, and four ounces of cabbage-stalk, were chopped up together into small pieces; upon this was poured twenty ounces of water, and the whole was allowed to simmer on a



slow fire for a short time ; it was then exposed to the action of the sun for three or four days, until it had run into a complete state of putrefaction, and after having been pressed through a piece of coarse calico the fluid was kept in a bottle. Half an ounce of this liquid, mixed with a quantity of water sufficient to allow of its being filtered through a sheet of blotting paper, was injected into the crural vein of a dog. In a few seconds the animal was seized with convulsions, which soon disappeared. When released, he ran about the apartment, making constant efforts to vomit ; at first nothing but frothy mucus was thrown from the stomach ; afterwards there were discharges of yellowish or greenish bile ; he had then tenesmus and bloody stools. In a short time he lay down ; his tongue was protruded, pale, and moist ; he had great difficulty of breathing, uttered slight cries of distress, and at last, eight hours from the performance of the experiment, after severe convulsive struggles, with howling, he died. The following morning, twelve hours after death, the body, already emitting a putrid odour, was opened. The veins on the superficies of the body contained a quantity of blood, which flowed out freely under the knife ; it was dark, and did not coagulate. The lungs were slightly engorged at their base and on the right side. The heart was softer than natural ; the left cavities were empty ; the right contained a quantity of fluid blood. In the stomach was found about two ounces of green bile, and the whole of its mucous coat was covered with a tough, viscid, and adherent mucus ; here and there, on the left side, the redness appeared through this, so as to be visible externally. Washing dislodged this mucus in part, but in other places it required the handle of the scalpel to effect this. Underneath this mucus the mucous membrane itself was of a bright red colour, to at least one-half of its extent, having that appearance denominated by the French *rougeur pointillée* ; it was softened throughout, but not to a great degree, and particularly in those places where the vascularity was greatest. Arborized hyperhemia at the lower portion of the small intestine and arch of the colon.

A quantity of the same fluid as that used in the former ex-



periment was injected into the crural vein of another dog of ordinary size, but without being filtered through blotting paper, and similar symptoms resulted, except that the dyspnoea was greater, and there was a discharge, per anum, of a quantity of dark-coloured matter, like tar, mixed with fluid blood. Engorgement of both lungs; blood fluid and dark; mucous membrane of the stomach perfectly healthy; mesenteric veins distended with blood; redness *pointillée*, and arborization of the lower half of the small intestine, which was sprinkled with those small black spots formerly described. These spots were very numerous in the colon, the sigmoid flexure of which was in a state of acute inflammation.

In both these cases all the other viscera were in their healthy condition, except that they appeared to contain more blood than usual, in consequence of this fluid remaining liquid in the vessels. Neither brain nor spinal marrow presented any other appearances than those observed in health.

To ascertain the effects produced by the introduction of putrid matter into the circulation, in so weak a form and in so small a quantity as not to produce death, I obtained three dogs, which had been for some time, if not born, in the colony, and into the veins of each injected a fluid almost exclusively obtained from vegetable matter, in which the putrefactive process had not proceeded to its height. The symptoms were similar to those in the former cases, but nothing like so severe. At the end of two hours one of the animals was destroyed by a blow upon the head with a hammer, and a short time having elapsed the body was opened. No bleeding on cutting through the parietes; lungs slightly engorged, or rather containing more blood than usual; heart natural, and containing clots of blood in both cavities, its lining membrane presenting rosy patches, described by some as characteristic of inflammation; diffused rosy redness of different parts of the gastro-intestinal mucous membrane; the duodenum tinged with yellow bile. In the subject of the second experiment there appeared to be more blood on the surface of the body; throughout the blood was fluid; it coagulated when received into a basin, but its two parts did not separate. Except the



appearance observed in the lining membrane of the heart, the other organs were found in a state similar to those described in the last. The third dog was not destroyed; he remained lying on his side and panting, only rising when urged to evacuate his bowels. About five hours after the experiment was made he had a copious evacuation of a dark black matter, and from that time got better. The following day he lay down more than usual, and sought the sunshine, but exhibited no marked symptoms of ill health. On the third day he was observed to be more unwell, and vomited his food, but did not exhibit any severe symptoms. He got well, and remained so, as far as I could ascertain.

Experiments have been made by Nysten, Dupuytren, Magendie, Gaspard, and others, by introducing the gases which result from the decomposition of animal and vegetable substances into the lungs and into the circulation. In the first case death is produced by asphyxia, properly so called, when some of these gases are employed. When, however, sulphuretted hydrogen or the deutoxyde of azote are the substances inhaled, the animals die instantly, not from asphyxia, but from poisoning, from the action of these substances on the nervous system generally through the nerves of the lungs. In the second case death also ensues; the blood is found to be changed and the solids affected, but neither the symptoms nor pathological appearances are those which result from marsh poison, nor the introduction of putrid matter into the circulation.

It may be asked whether the cases of poisoning from the introduction of putrid matter into the circulation, present such a strongly marked resemblance to those of fevers from marshy origin as to lead to the conclusion that both the causes and the effects are identic? At this stage of our undertaking it may be difficult to answer this question, but when we shall have examined some of the cases in the following pages, I think it would be exceedingly difficult, if not impossible, to ascertain whether they arose from the introduction of putrid matter by the inhalation of malaria, or from its introduction into the circulation from other sources and by other passages,



if we were to judge by the symptoms without reference to the history. These are rare cases I know, and the resemblance ceases to be so great in the majority of those offered to our observation; for in the production of the latter other causes have operated besides malaria, and the whole progress of these diseases is in consequence considerably modified. Besides, in the above experiments allowance must be made for the coarse manner in which these matters have been introduced into the system; instead of an inelastic fluid, a liquid which, even when filtered, contained a quantity of solid matter in the form of small flocculent masses, was rudely thrown into the circulation; these particles, small though they were, could not circulate freely through the capillaries; but in a certain degree, at least, must have remained in some of these vessels, blocking up their passages and irritating the organs to which they were sent. It is not, therefore, wonderful that we have congestions and even inflammation of organs in cases where the matter has been thrown into the circulation which we do not find in those produced from malaria.

M. Magendie exposed a dog to the fumes of matters in putrid fermentation; the animal was well fed, and supported his captivity without evincing any symptom for the first four days; he then began to fall off, and died at the end of ten days, preserving his appetite and gaiety to the last. The gastro-intestinal mucous membrane was found inflamed, but less so than in cases of injection into the veins.

Cases of intermittent disease have never been produced by the introduction of putrid substances into the circulation; upon this subject the experiments have neither been sufficiently numerous nor as yet decisive.

With respect to the other supposed sources of malaria, little need be said. We have already seen that the gases which escape from soil of volcanic formation, under no circumstances can be considered as constituting this poison; and that places, the atmosphere of which contains one or more of the most mephitic amongst them, in a considerable proportion are free from the diseases of which we propose to treat: thus in St. Lucia, Castries is extremely unhealthy, whilst the town



of Souffriere, situated in the immediate neighbourhood of a prolific source of these emanations, is the most salubrious quarter of the island.

Another opinion that malaria originates from the decomposition of certain plants, as the *chara vulgaris* or *flexibilis*, the manchineal or the mangrove, is correct so far as these substances form part of the vegetable kingdom, and therefore capable of giving rise to it no further; true, some of these furnish emanations much more deleterious than others, but they enjoy no exclusive privilege in its production.

The opinion of Dr. Fergusson that water during its process of exsiccation is the only cause which gives rise to this poison, is an ingenious hypothesis, but has no substantial foundation, and is contradicted by every day's experience.

To conclude, nothing is known of the chemical properties of malaria. Whatever may be its nature, it has its origin in the decomposition of organic matter; whether it has any other, remains to be proved. It differs little or not at all from the peculiar poison which resides in all putrid substances, whether animal or vegetable, as the physiological effects of both seem to be the same, allowance being made for those which may be caused by the different matters with which each may be united, and the different ways by which they may be introduced into the economy.

Putrid substances have an action upon the part to which they are applied, and inflammation of this part is the consequence. To the local affection is added a series of phenomena which terminate in death, and the whole circulating mass is found diseased: the former depends upon the local effects of an irritating substance; the latter upon the absorption into the system of a peculiar matter, which seems to possess a specific action upon the blood.

When putrid substances divested by filtration of a great portion of the solid matter with which they were before united, are injected into the circulation, convulsions, gastro-enteritis, and fluidity of the blood, are the result.

We hear of fevers of different types reigning epidemically or endemically, in countries where marsh is unknown, and



where the quantity of animal or vegetable matter is so small as to preclude our attributing them to this cause. Do these diseases differ from those of acknowledged marsh origin? Have they their rise in malaria? If so, whence emanates this substance? These questions are not to be answered here. I can only examine the known causes of the diseases of St. Lucia and the neighbouring islands, and refer those who are curious in this subject to other sources of information.

When the emanations from decomposed animal substances are *confined*, and do not escape freely into the atmosphere, new arrangements take place, and certain gases are formed, with which, if man or an animal comes into report, asphyxia, or even poisoning ensues, from the action of these substances upon the nervous system, through the nervous extremities of the lungs; and whether these symptoms will be followed by those peculiar to the introduction of putrid matter into the system, will depend upon the existence or non-existence of *this poison* in the emanations, or rather the proportion in which it enters into combination with them.

Emanations from marsh or swamp generally consist of malaria held in solution in the atmosphere, and when collected in form of dew do not contain any of these gases, or if they do, it is in so small a quantity as to escape all our researches, and therefore to be incapable of producing any effect. These emanations have a specific action *on the nervous system*, causing ague, neuralgic affections, convulsions, coma, and sometimes, but rarely, death. *On the blood*, by destroying the powers of coagulation which the fibrine possesses in health. *On the gastro-enteric* mucous membrane, producing inflammation of this tissue. M. Caillot says, in his work "Sur la Fièvre Jaune," that every physician who has treated bilious fevers in their most intense form, within the tropics, must be struck with the similarity which exists between the effects produced by certain mineral poisons and those arising from malaria. This remark is very true, and to which every one, acquainted with these diseases and with the researches of Sir B. Brodie and Dr. Orfila, cannot fail to subscribe.



## CHAPTER IV.

## EFFECTS OF HEAT ON THE ANIMAL ECONOMY.

It appears that to this cause, almost solely, the early adventurers who first navigated the tropical seas, or who inhabited for some time those countries, attributed the fevers by which their companions were carried off, and their small colonies were devastated: and in consequence they gave to these diseases the name of Calenturas. At a late period this opinion gave way to others, and heat was looked upon as an active agent in the production of *malaria* only, but not directly as a cause of fever. After the promulgation of the *doctrine physiologique*, however, it again became to a certain degree popular: and we find that the *élèves* of this school, in their works upon the subject, look upon the yellow fever as being nothing more than a gastro-enteritis in its most acute form, arising from insolation.

The human body is capable of supporting for a short time only, a temperature considerably higher than its own. Many persons have exposed themselves to the action of an atmosphere sufficiently heated to produce the ebullition of water; care being taken at the same time that there be a sufficient supply of air, in its common state of rarefaction, for the purposes of respiration. This faculty seems to depend upon a peculiar property possessed by animal bodies of resisting, for a short time at least, the absorption of the superabundant caloric. M. Rochoux relates, in the "Archives Générales," a number of experiments made by him to show the effects of exposure to a very high temperature on the blood of animals; from which it results that "in a rabbit or any other animal exposed for a sufficiently long time to an atmosphere equal to 30° on the scale of Reaumur, the circulation becomes consi-



derably quickened, and the venous blood acquires the colour of arterial, and is extremely fluid. If the temperature be still further elevated, until the resistance which the economy opposes to the introduction of caloric be surmounted, and the body of the animal becomes heated five or six degrees above its natural temperature, the venous blood becomes again dark, and, what is still more remarkable, the blood in the arteries acquires likewise a colour exactly similar. From this period we perceive a formidable train of symptoms make their appearance, which are speedily followed by death if the experiment be not put a stop to. The first phenomena are attributable to the rapidity of the circulation; the blood sojourning only a very short time in the capillaries, is returned by the veins in almost an unaltered state. In the second, the temperature being further increased, the rapidity of the circulation is increased also, and the respiration in consequence is unequal to the proper oxygenation of the blood in the lungs; the whole mass becomes black and venous, empoisoning the parts to which it is carried."

The temperature of St. Lucia is almost always below 90° of Fahrenheit's thermometer, yet sufficiently high generally to produce the phenomena described by Rochoux, in animals exposed to a temperature a little above that of their bodies, but in a much milder degree. Its effects upon the newly arrived stranger uncombined with those of malaria are the following. The arterial system is excited, the blood is determined to the surface of the body, the skin is either preternaturally warm and dry, or covered with profuse perspiration; there is a desire for cool drink, which when taken into the stomach increases the perspiration until the clothes become saturated with moisture. The skin then becomes irritable and covered with a lichenous eruption, known by the name of prickly heat; the body seems to have acquired, if I may use the term, an inflammatory diathesis; and if blood be taken from a person under these circumstances it will be found to be of a brighter colour than in Europe; it will separate completely into its two parts, and the crassamentum will be firm and tenacious.



The nervous system is rendered more irritable, and many organs, as the liver and mucous membrane of the alimentary canal, are excited.

There is a tendency to congestion in certain organs, where the capillary circulation is much developed, as in the lungs, the brain, and the liver, more particularly the former, at least in St. Lucia. This is probably owing, at least in many cases, to the increased bulk of the blood from rarefaction, and to the augmented rapidity of its circulation. There is another cause for this effect; the body, heated and in a state of perspiration, is suddenly exposed to a current of cool air; or the person desirous of relief may plunge into cold water: the perspiration becomes checked the cutaneous capillaries become constricted, and the blood, rushing back upon itself, is thrown in greater quantities to the internal cavities. In such a state of things is it wonderful that congestion, or even inflammation of some important organ, should be easily produced? in fact, we see it daily, and it is this which constitutes the inflammatory fever of the tropics.

There is a close and intimate connexion between the skin and the mucous membrane of the stomach and the bowels: many of the diseases of this tissue have their source from suppressed perspiration. When the activity of the cutaneous circulation becomes suddenly checked, hyperhemia of the gastro-enteric mucous membrane generally results from it; and when we add to this the increased excitability of this organ from solar heat, we must necessarily expect that læsions of it will be of no uncommon occurrence, and therefore often play a prominent part in the phenomena of these diseases.

Andral, in his *Clinique Médicale*, states, "that at a higher temperature than  $50^{\circ}$  of the centigrade thermometer, or  $122^{\circ}$  by the scale of Fahrenheit, man cannot prolong his existence beyond a few minutes; that from  $50^{\circ}$  to  $40^{\circ}$  cent., he either resists, or else dies rapidly with all the symptoms of cerebral congestion; from  $40^{\circ}$  to  $35^{\circ}$  of the same scale, similar phenomena are still observed. In these cases not only is there cerebral congestion found after death, but the blood is black and liquid; the body is covered with petechiæ, and runs



rapidly into decomposition." In cases of pulmonary apoplexy, or cerebral congestion occurring during exposure to intense solar heat, I certainly have not seen this state of the blood mentioned by Andral, nor, as far as I could observe, did the bodies become putrid sooner than in cases where death has been produced from any other cause. A gentleman aged fifty-four, whilst walking through the streets of Castries, fell down suddenly, speechless, but without loss of consciousness. I was sent for, but before my arrival he had expired. On examining the body four hours after death, no disease was discovered in the brain or its membranes; in the abdomen the spleen and liver were immensely hypertrophied, extending from the diaphragm downwards and resting upon the iliac fossa on each side: they were completely consolidated into one mass, and not to be separated without cutting into the tissue of either one or the other: the other viscera were thrust behind them, and invisible until these were removed; but it was in the lungs that we found the cause of death. These organs were completely engorged with dark blood, and not compressible under the finger; their structure in certain places had given way, and the blood was effused into their parenchyma. The blood was found in its usual state, and where the coagulum was not complete, further contraction of the fibrine took place when removed into a basin.

A negro, whilst working in a cane-field exposed to a powerful sun, suddenly fell down senseless, and was carried to the hospital of the estate; I saw him six hours after the accident, when he appeared to be in a complete state of apoplexy: he died in the course of the night, and the following morning, six or seven hours after the seizure, the body was examined. The vessels of the subarachnoid cellular tissue engorged with dark blood; the brain, when cut into, presented innumerable small points from which a serous looking blood escaped, the medullary substance of a greyer colour than usual. All the other organs were healthy. The blood presented nothing remarkable in its appearance.

It may be unnecessary to relate any other cases here; in none have I ever observed the changes of the blood described



by Andral. Were these cases produced *exclusively* from insolation? Probably not; but I will mention the appearances found in lower animals where death has ensued from this cause alone. A dog just arrived from Europe in perfect health was landed for the first time upon the wharf; he seemed to enjoy his liberty, and ran about in high spirits for a few minutes, when he suddenly fell; in a short time he got up, but again fell down apparently from giddiness; then he was seized with convulsions, which continued all day, and during the night he died. On examining the body, the posterior part of the cerebellum and the medulla oblongata, were in a state of hyperhemia, and the enveloping pia mater intensely inflamed; the blood was in its usual state, and colourless clots were found in the left ventricle of the heart and aorta. I examined two other dogs, one of which died immediately upon landing, and in neither did the blood present any marked feature of disease. It is to these cases that the name of *coup de soleil* has been given, but though it is a common disease, and by no means terminating fatally in the greater number of instances in man, yet the blood in all cases, when drawn from the arm, if it present any morbid appearance, it is that of inflammation; it is never in that liquid and dissolved state which is so remarkable in some other diseases.

When Dr. Andral speaks of the human body being exposed to a temperature of  $50^{\circ}$  of the centigrade, he means that the mercury rises to this point on exposure to the rays of the sun; for under no circumstances, nor in any part of the world, does the atmosphere itself produce such an elevation on the scale of this thermometer. In St. Lucia the temperature of the atmosphere itself is generally from  $82^{\circ}$  to  $85^{\circ}$  Fahrenheit, or  $28^{\circ}$  cent.; whereas if the instrument were exposed to the solar rays the mercury would rise to  $122^{\circ}$  of the one or  $50^{\circ}$  of the other. In other words, the medium to which the body is exposed is  $82^{\circ}$  or  $85^{\circ}$  Fahrenheit, whilst those parts on which the solar beams strike are exposed to a heat of  $122^{\circ}$ . That these beams cannot impinge upon the whole body at the same time is clear; if they did, life could not continue; for those parts thus exposed inflame, and the cuticle is separated from the cutis by



serous effusion. The scalp being protected by the hair, does not inflame as the other parts of the surface, but its temperature becomes increased; the caloric traversing through it and the skull, is conducted to the membranes and the brain itself, and irritation, hyperhemia, and inflammation of these organs may ensue. It is in this way that cerebral congestion from insolation has occurred in every case that I have witnessed; nor can I conceive that in the ordinary states of the atmosphere within the tropics, it can arise in any other manner. Never have I seen any change in the appearance of the blood, unless that it probably may have been more plastic, more nearly approaching to that state called inflammatory, now and then; never was it such as described by Dr. Andral.

Not only do the disciples of Dr. Broussais attribute yellow-fever to the direct influence of solar heat, but still more recently Dr. Stevens, of St. Thomas, has described this agent as one of the causes of tropical fever; not by producing a gastro-enteritis, but by its action upon the blood, which it renders irritating to the heart, arteries, and circulating system generally, and thus giving rise to fever. Should læsions of organs be found after death, this gentleman believes them to be adventitious, and that they are produced by a diseased state of the blood.

But can solar heat alone, uncombined with any other agent, produce fever? I not believe that it can directly, either by producing a gastro-enteritis, or by its action upon the blood. That it produces a disposition in the system favourable to the production of a febrile state is certain; but it is not until the circulation has been thrown off its balance, if I may so express myself, and the blood is determined in greater quantities than natural to some organs, producing congestion, and afterwards inflammation, that fever from insolation is ever seen to arise. Insolation may produce meningitis, or inflammation of the skin may give rise to inflammation of the gastro-intestinal mucous membrane by metastasis or otherwise; or exposure to a current of cool air, when the surface is heated and perspiring, may cause a pleurisy, a pneumonia or hepatitis, and consequently fever.



The effects of an elevated temperature on the human body are the following :—1st. An accelerated circulation, giving rise to a florid appearance of the blood from the short period of its sojourn in the capillaries ; in other respects the properties of this fluid do not appear to be altered. 2nd. An irritation and inflammation of the skin, and a consequent exanthema known by the name of prickly heat, or the lichen tropicus of Dr. James Johnson. 3rd. Excitement of the chylopoietic viscera, particularly the mucous membrane of the stomach and intestinal canal, and the liver. 4th. Irritability of the nervous system.

In St. Lucia, where to an elevated temperature is added malaria or marshy exhalations, we have an idea, from what has already been said, of the character of the diseases.

When malaria is the exciting cause of disease, solar heat is combined with it, and the united effects are more virulent in consequence ; though there may be intense inflammation of one or more organs, the general symptoms will not be those of inflammatory fever, properly so called. The blood will probably be found dark, fluid, and uncoagulable.

On the other hand, when inflammation of an organ, as the meninges, arises from insolation, or from some other cause independent of malaria, the symptoms will be those of a local inflammation, more or less modified, however, by this agent, in proportion to the violence of the inflammatory action on the one hand, and on the other, to the extent to which the system may be under its influence. Thus we may have a continued, remittent, or intermittent fever, having its point of departure in a local inflammation.

Not only does solar heat enter into the formation of disease by predisposing the body to receive it, or to be acted upon by morbid agents, but to the *existence* of the most common amongst these, malaria, it is absolutely essential ; and, *cæteris paribus*, the one is in direct ratio with the other. In many countries in the north of Europe, the diseases which arise from malaria are almost unknown, and yet in them the marshes are so numerous and so extensive, as to render them perfectly uninhabitable were they exposed to the temperature of the tropics.



## HUMIDITY.

We know very little about the different states of dryness and humidity of the atmosphere as causes of disease. In some countries extremely humid, as the Scottish islands, the inhabitants enjoy the best of health, whilst in some others less favourably circumstanced, diseases of different kinds, particularly those of a lymphatic character, are common. Though probably not a very powerful agent when alone, yet when combined with an elevated temperature, humidity constitutes that state necessary for the production of malaria, for putrefaction could not go on without it. It also forms the vehicle for the suspension of the emanations which thence arise, and in which they are diffused in the atmosphere. In the East it has been observed, that during the sirocco winds, the human body cannot be made to receive infection even by artificial means.

Besides these causes, it is probable that other meteorological conditions of the atmosphere may enjoy certain powers in influencing the production, or modifying the forms, of these diseases. On this subject our knowledge is as nothing, though the time, perhaps, is not far distant when the application of this branch of natural science to medicine, and its cultivation, will prove a source of immense information and interest.

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CASES.

CASE I.—C. C., Esq., aged 50, of a nervous temperament, irascible, residing in the West Indies twenty-five years, in St. Lucia three, was taken unwell December 6, 1833. I saw him half-an-hour after the attack. The patient is lying in his bed, which is violently shaken from the effects of the universal tremor; he can scarcely command the muscles of the lower jaw sufficiently to enable him to articulate. He complains of extreme coldness, which neither the application of warmth to the feet, nor being enveloped in blankets, relieves;



intense pain at the back of the head, loins, and in the extremities, shooting along the course of the large nerves, every five minutes opisthotonic spasms, the heels being drawn up to the buttock, and the head thrown forcibly backward. He says that he cannot long support the pain of these accidents. The skin is cold and pale, pulse small and irregular, tongue clean and moist, no thirst, but desire for hot and stimulating drink; no heat nor pain in any part of the abdomen; breathing irregular. The patient was seized in the midst of his usual occupations, without any premonitory symptoms, and is ignorant of any cause which has given rise to this complaint. These symptoms continued about two hours, and then gradually subsided. After a short calm they returned, and were succeeded by another interval of repose. Towards night they came on the third time with considerable violence: and I was induced to administer a drachm of laudanum in clyster. Complete repose, followed by sound sleep, was the result; and the patient got up the following morning perfectly well. On the 8th, or day but one after the first attack, return of all the accidents; demand for another anodyne injection, but I was not anxious to comply with the wish, and refused. In three hours calm, and sleep for two or three hours, from which he awoke to suffer again the same phenomena. *Rep. ænema. cum tinct. opii, ʒi.* Relief; passed a quiet night: following morning health apparently perfectly re-established. *To take three grains of the sulphate of quina every three or four hours, until eighteen grains shall have been administered.* No return of any of the symptoms.

CASE II.—Similar to the last.

A lady, aged 48, of a nervo-lymphatic temperament. Suffered two attacks of what she calls frisson, a sense of coldness of the extremities, accompanied by slight tremors on going to bed. Between these attacks there was one evening of perfect health. The day but one after the last attack I was sent for, 5, p. m. 7th August, 1833. Severe rigor, making the bed shake very perceptibly. Cramp in the feet and hands, some of the fingers and toes stiffly extended, others as firmly flexed. Somnolence, but suddenly roused, when the cramps are se-



vere; pains shooting down the back of the thighs and legs, which induce the patient to shriek out and demand relief. As these cease, she relapses again into a state of slumber, from which she is easily awoke, and answers correctly. No pain in the head, skin cold, pulse small but regular; bowels open, no appreciable affection of any organ in the abdomen or thorax. Towards morning, relief of symptoms; and during the following day perfect health. On the evening of the third day, however, at the same hour as before, return of all the symptoms. The paroxysm is similar to, but more severe than the last; constant cries and demand for relief.—To take twenty drops of laudanum in half an ounce of orange-flower water immediately. About nine o'clock the symptoms gradually abated, without being followed by a hot stage; and after several hours' sleep, the patient awoke perfectly free from suffering. The paroxysm was prevented from returning by the use of quinine.

CASE III.—V. S., Esq., native of England, residing in St. Lucia two years, of a nervo-lymphatic temperament, the former predominating, has suffered two attacks of rigor of a tertian type, not succeeded by the febrile stage. The third attack came on about three o'clock P. M. April 1834. It was much more severe than the two former, and was accompanied by an intense hemicrania of the left side of the face and head. The pain was very great, the rigors not very severe, but sufficiently so to shake the bed. The pain continued all night, but subsided the following morning.—R Hydrarg. submuriat. g. iii. ext. opii gr. i. statim sumend. The patient remained well all day, and took an aperient draught at night, which operated freely. On the third day, at the same hour, return of symptoms, much more severe than before. Eight leeches to the affected temple produced no relief.—To have the scalp bathed in laudanum and water, and bottles of hot water to hands and feet. These means soon procured relief, and the following day the patient took twenty grains of the sulphate of quinine, which prevented a return.

CASE IV.—Madame J., native of St. Lucia, never resided out of the West Indies, of a lymphatic temperament, suffered



two paroxysms of neuralgic pain of one side of the scalp and face, accompanied with a sense of coldness of the feet and hands, the type being quotidian. The third attack being more severe than the former ones, she sent for me on the morning of the 4th of January, 1834. I found her in the following state. Acute pain of the left side of the face and forehead, exceedingly tender to the touch, particularly over the different orifices through which the three divisions of the fifth pair of nerves escape on the face. Extremities exceedingly cold, slight rigors. Nothing perceptibly wrong in any of the cavities, pulse quiet. I prescribed the application of laudanum and tepid water to the face, and a mild aperient; the former procured relief for a short time, but in the course of the day the pain returned, alternating with excruciating pains, sometimes of the breast, then of the extremities in the course of the nerves, and with spasms of the gastro-cnemii muscles. Towards night these symptoms subsided, and the patient slept tolerably well. At eight o'clock the following morning, return of the paroxysm. The pain in the extremities, and cramps, were very severe, and alternated with the neuralgic affection of the eye and face; the rigors, too, were more intense. The patient attributing her malady to plethora, insisted upon being bled, and I was induced in consequence to take away about  $\bar{3}$  x. of blood. This fluid was of its natural and healthy appearance, and the operation seemed to produce no change, either for better or worse. The bowels were moved twice by the medicine: stools natural.—To commence the sulphate of quinine at night, when the symptoms are mitigated. On the 6th of January, the third day of my attendance, no return of the complaint, but the patient complains that her rest was disturbed by the continued administration of the quinine during the night. Slight deafness, and singing in the ears. She has perspired somewhat, and the skin is still moist. At noon slight rigor, which continued about half-an-hour, and subsided.—To take one grain of quinine every two hours during the day, for the next three days. Cured.

CASE V.—Monsieur D., a native of the island, 28 years of age, of a nervous temperament, somewhat addicted to the



use of undiluted spirit, has had these paroxysms of an anomalous nervous affection, which he feels a difficulty in describing, but which is of a quartan type. I saw him 15th of Sept. 1833, at the commencement of the fourth paroxysm. Extreme anxiety is depicted in his countenance, which is pale; the lips bluish, extremely cold and livid, fear of death; sitting up in his bed; slight dyspnœa; acute pain over the region of the heart. This organ is seen beating violently and irregularly through the parietes of the chest. Pulse is rapid, irregular and intermittent; the intermittence corresponding with that of the heart, and appears to be produced by disordered innervation. The blood is heard distinctly passing from the auricles into the ventricles, which do not always appear to be influenced by its presence, as it seems to remain there without producing contraction for a short period; and when this contraction takes place it is powerful, sudden, and with a jerk. This occurrence takes place about every eighth or tenth pulsation. These symptoms commenced about an hour ago, preceded by rigor and coldness; the patient attributes them to poison administered to him by his cook, and anxiously demands relief, though he despairs of obtaining it.—To take forty drops of laudanum, and twenty of the tincture of digitalis immediately. About twenty minutes after taking the draught, the patient vomited freely, and the stomach was relieved of its contents. The pain and irregular action of the heart ceased, and he found great relief; suddenly, however, he was seized with acute pain in the course of the sacro-ischiatic nerve of the right side; so great was this that he could not be moved without screaming. In a short time this pain ceased, and the former symptoms returned. I was again sent for, and administered the former draught. Relief of the symptoms followed, and towards evening the patient fell into a calm sleep. Second and third day—free from accident of any kind, but still convinced that he is poisoned. Morning of the fourth day — all the symptoms returned, alternating with a colic, and the with the pain in the back of the right thigh. There was this remarkable, that when the neurosis left the heart and intestines, and at-



tacked the lower extremity, the rigors were more intense, and the sense of coldness more perceptible to the patient's feelings. Fifth and sixth day, free from complaint, and taking three grains of sulph. quinae and a quarter of a grain of the acetate of morphia four times a day. Seventh day, slight rigor without the other symptoms. Continued the use of his pills, and returned to the estate cured.

CASE VI.—A sailor, aged about 40, a month after his arrival, had a pain in the abdomen, which came on every evening after leaving off work, and continued until the following morning. This pain was so severe as to prevent his sleeping, and at the time I saw him he was considerably emaciated. A variety of medicines had been given him, but without producing relief. The patient, though tolerably well during the day, invariably became exceedingly unwell at night. January 8th, 1834, I saw him for the first time. He appears thin and emaciated, but says that I must see him at night if I wish to be of any service to him; his pulse is natural, and his tongue, though somewhat furred at the root, presents nothing remarkable in its appearance. I can discover no apparent disease in any organ. I saw him again at night, and things were indeed very different; he was shivering with cold in his bed, though covered with three or four blankets, and in an atmosphere of at least 90°; his forehead was covered with beads of perspiration, produced, he says, by the severity of his suffering; he rolls about, moaning most piteously, and pressing a pillow against the abdomen; intense colicky pains; the bowels are open; has been twice to stool in the course of the day; the pulse is natural.—To take three grains of tartarized antimony, *en lavage*, immediately, and early to-morrow morning a dose of castor-oil. 9th. He thinks the emetic has been of some use to him by procuring a discharge of bile both upwards and downwards, but the pain continued until its accustomed period. Evening; another paroxysm has commenced, similar in every respect to the former. 10th. To commence the sulphate of quinine. Evening; the paroxysm has returned, but is very slight. 11th. To continue the use of the quinine. From this period the paroxysms ceased, and



the patient remained in a state of comparatively good health for about a fortnight, when he was again attacked with his former symptoms, accompanied by a numbness of both arms. The colic was again relieved, but the numbness of the arms terminated in paralysis of the extensor muscles of the forearm; the fingers were flexed, and both members in a state of pronation, the skin preserving its sensibility. The patient left the island in that state.

*Remarks.*—The foregoing cases present no features of novelty: under the name of concealed fevers the physicians of former days give us many such. They occurred within a few months of each other, during an epidemic of fever which attacked a considerable proportion of the population of Castries. The greater number of the cases constituting this epidemic were of a subintrant or intermittent type, and were accompanied by a considerable irritation of the gastro-intestinal mucous membrane; but there were many continued, some of which offered the symptoms said to be the distinguishing characteristics of yellow fever. Why were the cases detailed above exempt from that which was common to the rest, the hot or febrile stage? They arose, most certainly, from the same cause, and were cured by the same means as are employed in the more usual forms of intermittent. For the present it is sufficient to mention the fact; the explanation we will leave to another opportunity. To what are we to attribute these symptoms, the tremors, the spasms, the colics, the neuralgic affections, the palpitations, the diminished evolutions of caloric, &c.? Were they dependent upon the inflammation of some organs? It would be madness to suppose so. They were dependent, on the contrary, on a disordered innervation; and we must agree with M. Rayer that the cause of this is to be found in some functional derangement of the brain and spinal marrow. What that derangement may be, our present knowledge does not allow us even to guess at. There is, however, a word already coined which we must make use of as well as our betters, I mean irritation; it certainly does not throw any light upon the nature of the malady, but it is a concise and easy way of comprising in one term the phenomena which



constitute its outward and visible effects. The above symptoms we therefore say depend upon an irritation of the cerebro-spinal nervous system, caused by the operation of malaria.

*Cases of Intermittent Inflammations.*

CASE VII. *Intermittent Pleuropneumonia*.—Lucille, a girl of colour, aged 23, has been unwell for two or three days with what she calls a cold, but has not been confined to the house until yesterday, when she was suddenly attacked with a severe pain in her side, cough, and fever, about nine o'clock in the morning. The symptoms ceased toward evening, and she remained tolerably well until this morning, August 21, 1833, when they again returned. At noon I found her as follows: Pain over the sixth and seventh ribs on the right side, increased on inspiration; dry cough, crepitating *râle* over the seat of the pain; no uneasiness of the epigastrium; bowels regular; skin dry and warm; tongue natural. She had no cold stage, nor was the attack preceded by a sense of coldness. *Diet*—*demulcent drink*; *castor oil*. Evening; the patient is perspiring; expectoration on coughing; the pain has subsided; the *râle* is mucous. 22nd. The patient has had a return of the paroxysm; the pain in the side is greater than yesterday; several fits of coughing, with expectoration of small quantities of very viscid mucus; *râle crepitant*; pulse ninety-six. Evening; perspiration, and mitigation of symptoms; expectoration free; the sputa white and frothy; there is still some pain on inspiration; the pulse is eighty-four; bowels open. 23. The paroxysm commenced two hours before its usual period; I saw the patient at noon; she is much worse than she has yet been; the sound on percussion over the seat of the disease is somewhat dull; breathing very painful. Evening; the disease is advancing; there is no appearance of intermission; sound on percussion dull; centre of the diseased part does not appear permeable to air: at least the crepitating *râle* in its neighbourhood hides the sound, if any exists; sputa viscid, adherent, and of a rusty colour. V. S.  $\bar{3}$  xvi.; hirudines xx. lateri; decoction of marsh-mal-



low, in which antim. tart. gr. vi. are dissolved for drink. 24. The patient is better: to continue. Evening; amelioration very great; great prostration from the effects of the antimony, of which the patient has taken nearly eighteen grains. 25. Expectoration free; *râle* mucous; pain nearly gone; pulse seventy, small. To take the medicine only now and then. 26. Convalescent.

CASE VIII.—The carpenter of the ship Cuba, up to this period in the enjoyment of good health, married, and father of three children, has been unwell, for the last week or ten days with pains in different parts of the body, but is laid up to-day for the first time. He says that he has a good day and a bad day. The pains first commenced in the loins, then attacked the shoulders, and are now in the left knee and ankle; the knee is somewhat swollen and warm; the patient complains of excruciating pain on moving it; the ankle is not swollen, but is warmer than natural; the pulse is ninety, and full; the tongue clean, and the bowels open from medicines which have been given to him: warm fomentations to the knee, and to take twenty drops of the vin. colchici thrice a day. The following morning: the patient is walking about; the pains are gone, and nothing but a stiffness remains. On the third and fifth days from the period of my first seeing him the pains of the knee returned, accompanied by a pain and swelling of one wrist; the paroxysms continued about fourteen hours. The patient was completely cured by a few doses of quinine.

CASE IX. *Intermittent Peritonitis*.—A. V., aged 25, of a nervo-sanguineous temperament, superficial veins very much developed; native of the West Indies, but has resided until within a few months in France. Plunged into cold water when the body was very much heated, and shortly after eating a copious breakfast; immediately felt a general uneasiness, and vomited his breakfast; he was then seized with colicky pains of the belly, which continued nearly the whole day; in the night these pains became continued, and fever was not long in making its appearance. The following morning I saw him: the patient complains of considerable pain throughout the whole of the abdomen, nausea, violent efforts to vomit,



skin hot and dry ; no evacuation of the bowels for two days ; pulse full, and 100 strokes in a minute ; no head-ache ; urine high coloured, and small in quantity ; the abdomen is very slightly distended, and extremely painful on pressure. V. S.  $\bar{3}$  xvi. statim, castor oil ; hot fomentations to the abdomen. Evening ; the patient seems nearly well ; the skin is moist, the pulse quiet, and the pain in the abdomen gone ; he can bear pressure, though a little sensibility still remains ; the bowels have not been opened ; the castor oil was returned.— To take calomel, gr. x. to-night, and a black draught early in the morning. 20th. Noon ; I have again been sent for, as all the symptoms returned at ten o'clock this morning, after an intermission of twelve hours ; skin intensely hot and dry ; pulse 108, full and hard ; abdomen extremely painful ; the weight of the sheet is almost insupportable ; vomiting of bilious matter ; great thirst. Bowels have been freely opened. I must confess that I feel a great deal of astonishment, as I looked upon the disease as completely vanquished last night, and little dreamed of its return in so severe a form. I considered it a case of peritoneal inflammation, from hyperhemia of this membrane, consequent upon the sudden constriction of the cutaneous capillaries produced by the cold bath. The blood taken away yesterday was very sily. Bleeding repeated ; hot fomentations ; barley-water. Evening, blood cupped, buffy. As the patient could not bear the weight of the flannels, his friends put him into a warm bath, which procured some relief ; but he is still much in the same state as this morning, and there is now evidently a gastrite superadded ; the tongue is red at tip and edges ; great thirst ; vomiting of bilious matters and mucosities, with effort ; frontal head-ache, and heat and dryness of the skin. Hirudines xxx. abdom. During the application of the leeches the patient suddenly began to feel relief ; the skin became moist, and the symptoms subsided rapidly. To take three grains of quinine every hour. 20th. The patient has passed an excellent night. There has been another intermission, but he has not taken any of the quinine ; unfortunately his friends have thought proper to judge for themselves, and I was told that "*le sang est trop échauffé*:" he



is now just like a person convalescent. There is a complete apyrexia, pulse soft, 80, skin moist; has perspired freely, and had his linen changed in consequence; but the abdomen is somewhat distended and sensible on pressure, though not much so, nor more than might be expected from the symptoms of yesterday. To take ten grains of quinine immediately, and to have them repeated in half an hour. Noon; all the symptoms returned half an hour after I saw him, and are now as violent as yesterday. To have a warm-bath immediately. The disease being decidedly intermittent, I think it injudicious to repeat the bleeding, as we may expect another intermission to night. Nine o'clock, P. M. I have been obliged to repeat the bleeding. The symptoms are more violent than ever; both the peritonitis and gastritis are most acute. Rep. hirudines. 21st. I have been up all night with this poor person. He has been again bled, and placed in a warm-bath until fainting was produced, but the symptoms have made an awful advance. Has had one stool, about eight hours since, from the use of a syringe. From midnight until about two o'clock in the morning there was a partial calm, and quinine was administered in a clyster, but was soon returned. Since this period the symptoms have gradually but rapidly increased, and at present, one o'clock, P. M., 22nd, he is in the following state: Drooping of the eye-lids, tears escaping on the cheek; extremities cold as ice; chest and abdomen burning hot: the latter distended, and so exceedingly painful as to make the patient scream with agony when moved. He insisted upon having cold water constantly applied, by pouring it from a vessel in which it is kept cool, but cannot support even a linen cloth. Tongue red at edges and tip, dry; pulse rapid and small; perfect consciousness, and aware that the result will be fatal. Rep. hirudines. Mustard to the inside of each thigh; stimulating frictions to the arms and legs. Evening; the friends have requested my opinion, and have begged me to allow them to do what they imagined they were able for the patient, who cannot outlive the night. He died at nine A. M., 23rd November. Sect. cad., five hours after death. Body very stiff but warm, ab-



domen meteorized. In cutting through the parietes of the chest and abdomen, the skin, cellular tissue, and muscles were dry: that is, no blood escaped from their divided vessels. About  $\frac{3}{4}$  of a pint of fluid were discovered in the abdominal cavity; this fluid was what has been denominated sero-purulent: that is, serum in which molecules of albumen are suspended, giving it a wheyish appearance. Some of these molecules were of considerable size, resembling shreds of false membrane. The peritoneum covering the abdominal parietes red throughout almost the whole of its extent, and covered with a thin layer of fibrine, adhering in places to its reflections over the intestines, which are inflamed in patches to a great extent. The lower portion of the ilion of a dusky red, friable, and easily lacerated. Rougeur pointillée of the cul de sac of the mucous membrane of the stomach. This organ contained a small quantity of yellowish fluid. All the other organs healthy. Blood has undergone no change; colourless clot on the right cavities of the heart.

CASE X. *Gastro-hepatitis sub-acute*.—G., Esq., native of England, some time in St. Lucia, of a nervo-sanguineous temperament, aged about 35, was taken ill two days ago with what he calls slight fever, which has continued ever since, but with a marked evening exacerbation. 2nd December, 1833; skin hot, but very moist; pain in head, back, and extremities, but not severe; nausea; thirst; conjunctivæ yellow; urine high-coloured, tinging the linen: it is opaque, but there is no sediment; abdomen slightly distended, but no pain on pressing any part of it; tongue yellow, and furred at the back; red at edges and tip; pulse quick, about 90; bitter taste in the mouth; tendency to diarrhœa; tenesmus; stools bilious and slimy. The patient says that just now he is comparatively well, and requests that I will return in the evening. He is anxious to take an emetic, but as I should wish to see the paroxysm uninterrupted or interfered with, I prescribed nothing more than barley-water and a most strict diet. Evening; paroxysm has begun about an hour; skin hot and dry; great thirst; whatever is taken into the stomach, even in the smallest quantity, is immediately rejected,



mixed with yellow bile. He is now conscious of slight pain, or rather uneasiness, on pressing the epigastrium and right hypochondrium; head-ache increased, and the tongue more red at the tip; is still furred at the base; pulse upwards of 120; great uneasiness and anxiety from the nausea.—To take three grains of tart. antim. this evening, followed by gr. v. of calomel, and early in the morning castor oil in the juice of sour orange. 3rd Dec. The patient is much better, and entirely free from his complaints of yesterday; the eyes are scarcely yellow; the urine clear, and has thrown down a lateritious sediment; tongue quite clean and pale. This patient remained well until the following day, the 4th, when at noon he again had general heat of skin, and quickness of pulse, and some thirst. The symptoms very slight, but still there is a complete state of pyrexia; with slight redness of tongue at the tip. Towards evening diaphoresis and return to health. Quinine gr. iv. ter die. 6th. Has had no return, and is perfectly well.

*Remarks.*—The symptoms which constitute fever are heat of skin, quickness of the pulse, and disordered secretions, dependent upon a cause known or unknown. This being premised, we might logically draw the following conclusion:—That these symptoms would bear a just proportion to the severity of the cause, that is, if the cause be a powerful one, the heat of skin, the quickness of the pulse, and the derangement of the secretions would be very considerable, and *vice versa*. Experience daily proves its fallacy. In some of the most acute forms of gastritis which are to be found in the West Indies, the skin is cold and damp, and the pulse does not exceed 80 or 90. The rigid inflexibility of truth daily subverts the most plausible arguments and the most subtle theories. Neither heat of skin nor quickness of the pulse bear any proportion to the severity of the disease. We daily see cases where the skin is intensely hot, and the pulse 140 pulsations in a minute, which are comparatively mild, and have the most favourable termination. What is meant by the general symptoms it would be difficult to express; they are so numerous, so various, and so different in each



case, that it would be quite impossible to form a nomenclature of these diseases founded only upon them, without reference to the seat of the evil. If we study diseases we must first ascertain the cause; the effects, or, in other words, the symptoms, then become no longer difficult.

In the last four cases we meet with intermittent inflammations of different parts. In the seventh case the inflammation was seated in the parenchyma of the lungs. In the eighth in the fibrous textures of the articulations. In the ninth in the peritoneum; and in the tenth in the mucous membrane of the stomach, duodenum, and biliary canals.

That inflammation properly so called ever observes a purely intermittent type, has been and still is doubted by many; and the principal reason offered in defence of this objection is founded upon the treatment which these forms of disease require. But all the subtleties of logic cannot explain away a fact, and diseases similar to those above, exist, have existed, and will exist, call them by what names we may. Except the last, I have carefully abstained from introducing any case in which the local inflammation was not marked, and clearly the cause of the general symptoms. These cases do not form a large proportion in the intermittent fevers of St. Lucia, I allow; but if we were to examine those of the more usual form, we must still admit the existence of inflammation as a point of departure. Let us examine the two following.

CASE XI. — *Irritation of the gastro-enteric mucous membrane, increased by purgation.* — R. G., Esq., native of the West Indies, of a lymphatic temperament, and 33 years of age, has suffered from *une fièvre lente*, as he calls it, for the last month; the paroxysms commencing before noon and terminating after dinner. He continues his usual occupations, but complains of malaise, sluggishness of his faculties both mental and corporeal, a sense of fatigue in the back and extremities, slight head-ache, and a desire to lie down. The skin is hotter than natural, and dry; the bowels open and stools natural, tongue clean and moist; no appetite for breakfast, but enjoys his dinner: abdomen supple, epigastrium insensible. These symptoms disappear



about seven o'clock in the evening, shortly after dinner, with a diffused diaphoresis; to take a dose of calomel at night, and salts in the morning. 5th September, second day of my attendance; the patient passed a good night, the medicine operated freely; the paroxysm returned at its usual hour, or rather earlier, and, as before, unpreceded by rigors or any sense of coldness. The paroxysm has been very violent, and at four o'clock P.M. the patient is in bed; there is great restlessness, nausea, frequent vomiting of the contents of the stomach, and mucosities unmingled with bile; constant moaning, thirst, frontal head-ache, conjunctiva injected; pains in the loins and extremities, uneasiness in the epigastrium, which is tender on pressure, skin very hot and dry, tongue reddish at the tip and edges, pulse quick, urine in small quantities, and high coloured. Emollient clysters every hour, warm fomentations to the abdomen. 6th. The paroxysm subsided during the night by profuse perspiration, and the patient is now apyretic.—To take three grains of sulph. quinae ter die. 7th. Had a slight return yesterday afternoon, which soon subsided.—To continue the quinine. 10th. Has had no return.

CASE XII.—*Intermittent irritation of the stomach and liver cured by an emetic.*—A young man, aged 16, has been labouring under what he calls slight fever for the last fortnight. The paroxysms come on every morning about ten o'clock, and continue until evening; they are not preceded by rigors or even a sense of coldness; on the contrary, after a short period of malaise and slight nausea with occasional vomiting, the patient feels a heat in the feet, hands, and forehead, which soon extends itself over the whole body; he has slight thirst, and the tongue is somewhat red at the edges and tip; there is uneasiness in the epigastrium, particularly on pressure: the bowels are constipated. These symptoms are sufficiently severe to confine the patient to the sofa. — Diet, barley-water.

This simple treatment was observed for three days without producing any change in the patient; he has also had two tepid baths, and his food has consisted of rice, milk, and panado; his only drink barley-water. The mouth is now pasty and



unpleasant ; there is a constant desire to vomit ; the tongue is yellowish and slimy, red at the edges and tip.—To take three grains of tartar emetic in two doses, with an interval of a quarter of an hour between each, and when the effects are over and the stomach quiet, a dose of senna and salts. 10th Aug. the day following the administration of these remedies ; the patient is much better, he has passed an immense quantity of bilious matter upwards and downwards ; the tongue is clean.

From this period the fever disappeared and never returned.

In these two cases I know that there are many who will not admit that irritation, or erythema of the stomach, was the cause of the symptoms. Gastritis, in their minds, is associated with something so terrible, and with symptoms so well marked, that they cannot readily admit of its existence in a slight form without a shock to their prejudices. But are we yet agreed as to what are the symptoms which characterize vascular irritation, or even acute inflammation of this organ ? I think not. A physician unacquainted with tropical fever, would certainly not be led to suppose its existence, in many cases, from the symptoms, if he expected to meet with acute pain and burning in the region of the stomach. We owe eternal gratitude to Dr. Broussais, if it were only for the following observation, “ that the SYMPATHETIC symptoms where the symptoms of gastric irritation are absent, evidently demonstrate, although indirectly, its existence.” However we may be disposed to dispute the truth of this aphorism in a temperate climate, in the tropics, where disease is more simple, and infinitely more acute, we must admit it to its full extent.

Inflammation has at all times been considered as one of the causes of fever ; by some even at the present day it is considered as the only one ; whilst by others it is considered only as an occasional one, the others being in their opinion found either in some deranged state of the blood, or in disorders of the nervous system. This discrepancy would no longer exist if we were to cease using the word fever with so little discrimination. Whether fever under any circumstances has commenced independently of some inflammation or vascular irritation, I will not stop to inquire, as it is foreign to our subject ; but



that it invariably takes its departure from this point in the diseases before us, I feel convinced. That the fevers of the West Indies are nothing more than inflammations of one or a series of organs, however, is not the case in every instance, or in the generality of instances; I mean only that to produce fever, inflammation is necessary, and in these diseases always exists, but the general symptoms which constitute fever are modified by the operation of the cause upon other systems.

Diseases similar to those above, or, in other words, the phenomena observed in the hot stage of an intermittent, are nothing but vascular irritation, of one or more organs. When the local symptoms are not evident, we shall nevertheless find that it exists somewhere; that its seat will most probably be in the gastro-intestinal mucous membrane. Bearing this in mind, we will now examine a few cases in which the phenomena are those which belong to the more usual forms of intermittents.

*Cases of Intermittents, all the stages being present.*

CASE XIII.—*Cold stage; hot stage.*—A. B., a man of colour, aged about 40, native of St. Lucia, of a robust constitution, whilst in a state of perspiration, exposed himself to an open window, and suddenly felt a chill; the sense of coldness increased to rigor, which was followed by a febrile stage, and that by profuse perspiration; he has had three attacks, each coming on at an early hour every second day, and continuing until the afternoon, when he feels perfectly well, and has a good appetite. I saw him 2nd July, 1832. The hot stage has commenced, and he presents the following appearance: skin hot and dry, pulse 120, soft, head-ache, slight injection of the conjunctiva, thirst, tongue somewhat furred at the base, slightly red at the tip; respiration easy, breath hot, inside of the lips dry; no uneasiness on pressing the epigastrium; had two evacuations per anum yesterday; belly supple, complains only of his head, loins, and lower extremities; no nausea; in short, no local symptoms of gastric irritation. He says the cold stage was severe, and that he suffered more from the pains in the legs during that period than now; it continued about an hour and a half. About one o'clock



P. M., a short time after I saw him, perspiration broke out, and he recovered. 3rd. Apparently in good health, no appreciable affection of the gastro-enteric mucous membrane, or of any other organ: and is taking quinine. 4th. The paroxysm has returned, the cold stage has been shorter, and the hot stage is much the same as yesterday, except that he has vomited some bile and still complains of nausea, and a sense of weight of the epigastrium; has taken twenty grains of the sulphate of quinine, and he attributes the vomiting of bile and nausea to that cause, and to his not having been sufficiently *refraîsché*. The attack continued longer than the last, and terminated in the same way. 5th. Tolerably well, except that the *embarras gastrique* continues, and he has lost his appetite.—To take ant. tart. gr. iii. at noon, five grs. of calomel at night, and senna and salts to-morrow morning. 6th. Has taken his medicines, which he says has brought away an immense quantity of bile; the paroxysm has returned, but more slightly than any of the others; no nausea, nor weight in the stomach. 7th. Apparently perfectly well, and taking quinine. He has had no return up to this period, 12th July.

CASE XIV. — *Inntermittent; coryza*. — W ———, Esq., after complaining of a slight cold for two or three days, suddenly felt a chilliness of the back accompanied by horripilations; then severe rigor and coldness of the whole body, pains in the head and extremities, shooting down the course of the nerves. In about two hours the body became gradually suffused with heat, the skin became hot and dry, the pulse quick, and the pain in the head and back increased. The patient now complains of no other symptoms, but confesses that he has what he calls a cold; he has no cough, nor affection of the chest; on examining the nose, the schneiderian membrane is inflamed, the inflammation extends through the posterior nares, and the mucous membrane of the pharynx is of a diffused redness; he admits that he has a slight soreness of the throat, which he did not think it necessary to specify. After continuing some time, towards the close of the day, perspiration. 2nd day. Patient is up; discharge of thick mucus from the nose; the pharynx in its healthy state; *diet and demulcent drinks; to put the feet into warm water at bed*



*time, and to take a dose of castor oil.* 3rd. Return of all the symptoms, the redness of the pharynx again appeared; nose dry and stuffed up. 4th. Tolerably well. 5th. Return of precisely the same symptoms. 6th. Taking quinine. 9th. Has had no return; but the nose is still discharging a little.

N. B.—This inflammation of the pharynx would have been quite overlooked if I had trusted only to the symptoms described by the patient; and it was discovered merely because I am in the habit of examining, as far as I can, every organ in these cases. I have no doubt that the gastro-enteric mucous membrane was in a state of irritation also.

CASE XV.—Maria R., girl of colour, aged 18, of a robust constitution, has had three paroxysms of fever, the stages well marked, commencing about nine o'clock, P. M., and terminating in the course of the afternoon; type tertian. I saw her 29th June, 1832, during the hot stage of the fourth paroxysm; frontal head-ache, great pain in the loins, extending down the thighs; skin very hot and dry, pulse quick and small, tongue clean and moist; no pain on pressing the epigastrium; no nausea at present, but has vomited once during the former paroxysms; no distension of the belly; the patient gives way under pressure upon hypogastric region immediately above the pubes, but says she has no pain there except on pressure. The history of the case is, that this girl bathed herself in cold water during menstruation; that the discharge ceased in consequence; that during the rest of the day she had occasional chills, succeeded by flushing of heat, and the following morning rigors and fever, which, as I have said, have returned every second day. The person from whom I obtained this history says, that the patient has complained of a sense of fulness at the lower parts of the belly, and some pain like colic. *The patient to be kept quiet, and to take a mild aperient.* 30th. The paroxysm of yesterday terminated as the others have done, in sweating, about 5, P. M. The patient is apparently well; she however confesses to a sense of weight in the region of the womb, but she bears pressure on that part tolerably well. Bloody discharge in small quan-



tity, which I now hear she has had more or less during each intermission. July 1st. Return of symptoms; there can be no doubt that there is a slight hysteritis. Half bath, leeches to the groins, hot fomentations, castor oil. 2nd. Discharge copious, no uneasiness on pressing the uterus. I do not think there will be a return. 3rd. I am wrong in my opinion, the symptoms have returned, but are much milder than before, and the discharge continues. 4th. Menstruation free; apparently perfectly well. To take sulph. quinae gr. xvij. before the hour when the paroxysm should return. 5th. 7th. Cured.

CASE XVI.—John K, aged 27, delicate constitution and nervous temperament, after exposure for some time to a powerful sun, felt a slight giddiness, and inclination to vomit. These symptoms disappeared on entering the house, and taking a glass of punch; but towards evening, rigors, trembling of the whole body, coldness, and horripilation came on, and continued about two hours, when they were succeeded by headache, heat of the skin, &c. The patient, after suffering for some time, fell asleep, and awoke the following morning perfectly well, except that his night-clothes and sheets were saturated with perspiration. He returned to his usual employment, that of planter, and continued well until six o'clock the following evening, when he experienced a return of the same symptoms. This has occurred every second night for the last eight or nine days. 20th Nov. 1832. The patient says he is suffering from the fifth paroxysm: skin warm and dry; slight headache, and pains of the lower limbs, pulse somewhat quick, no other symptoms; in fact, the patient can scarcely be said to be very ill; he is lying on a sofa, but can walk about, though he complains of sickness and giddiness when he stands up. No symptom of gastric irritation, or of any one organ; has taken purgative medicine twice since the commencement of the disease, which he says has brought away a quantity of bile, producing scalding of the anus on going to stool; some thirst, and slight redness of the tip of the tongue. No nausea, no tenderness of the epigastrium. Occasionally feels hungry, has not given way to it, but satis-



fied it by beef-tea, rice-milk, or soup. 21st. Apparently quite well, complains only of weakness, and is somewhat emaciated. Quinine prevented a return.

CASE XVII.—A. B., a young lady, lately returned from Europe, had what she calls a paroxysm of fever, commencing with a general sense of coldness, and slight rigors, which continued about half-an-hour, and was succeeded by a hot skin, headache, quick pulse, &c. In about twelve hours from the commencement, termination by slight diaphoresis. This paroxysm occurred yesterday, the 11th March, 1834. After an intermission of about twenty hours, it returned this evening, 12th, at four o'clock, just eight hours after the commencement of the former—a phenomenon sufficient to throw doubt upon the nature of the disease in the minds of many. The cold stage has not been well marked; the patient complains of coldness, and is suffering from rigors, but the skin of the arms, forehead, and neck, is hot and dry, cheeks flushed, headache, and pains of the extremities; pulse quick, tongue clean, no nausea at present, but suffered a little from it at the commencement of the paroxysm. I can get no other information from the patient, and prescribe barley-water for beverage, &c.; mild aperient. Before leaving the house, an attendant asks me if I have seen the young lady's leg? On my return I find a diffused rosy redness of the left leg, extending from the inner ankle, to the distance of six inches upwards, with very slight swelling; a red line, marking the course of the absorbents, pain and swelling of the inguinal glands. The case was now clear enough. 13th. The symptoms continuing, swelling of the leg greater. At noon, the febrile symptoms have entirely ceased, and the inflammation of the leg is scarcely perceptible. After a calm of four hours, or upwards, the coldness and rigors returned. About four o'clock, at my own desire, I was sent for: the fingers and feet are cold, and there is a sort of an ague, but not very distinct, as the forehead is warmer than natural; the leg has become more painful than it was three hours ago, and the part which, in the former paroxysm, had exhibited the redness of inflammation, is now darker than the surrounding



skin, of a colour approaching to a pale blue, with a slight admixture of red. As the hot stage advanced, the leg became more and more red, until it assumed its former colour: the change was very gradual, and quite regular, going progressively from lilac to scarlet, whereas the hot stage was not so regular, but commenced by slight chills and flushes of heat alternating. Hirudines xx. to the affected groin and down the inside of the thigh, along the inflamed absorbents. Cold spirituous applications to the leg, diet, and saline purgatives. 14th. Much better. 15th. A slight exacerbation of symptoms, both local and general. 16th. Apparently well, and is up. 17th. Walking about; the leg has returned to its natural state, but the glands in the groin somewhat swollen and painful. 20th. Quite well.

N. B. This case perhaps ought not to have been introduced here, as it was a disease *sui generis*, being one of elephantiasis, or Barbadoes leg, so common in these countries. I have related it merely for the purpose of showing the extreme facility with which a medical man may fall into error, as to the nature of a disease. I should, I must confess, have taken this case for one of gastritis in its intermittent form, had I not been informed of the state of the leg. Should I have been wrong in such a supposition? Not, most certainly, altogether. Those who are acquainted with this disease know well that an irritation of the digestive organs both precedes and accompanies it. Many practitioners confine their practice entirely to giving emetics and purgatives. In every case of this peculiar inflammation of the lymphatics, whether occurring in the lower or upper extremity, which I have seen, there has invariably, during the acute attacks or paroxysms, been a decided, and in many cases, a pretty severe, irritation of the stomach, combined in some with a bilious vomiting or diarrhœa.

*Remarks on 13th, 14th, 15th, and 16th Cases.*—These cases of intermittent fever correspond pretty nearly with those which have been described by many physicians, as simple and legitimate. The stages and type were well characterized, and they may be said to be as free from local irritation as the generality of these diseases observed in any country. Their



phenomena were those described by Stoll, Frank, Boerhaave, Cullen, Chomel, and Rayer, as indicative of the more pure and uncomplicated agues, as essential intermittent fevers. The last gentleman, who considers all the stages of these diseases as being caused exclusively by a neurosis of the cerebro-spinal system, looks upon any læsion which may accompany a pure intermittent as adventitious, and distinct from the primitive disease. I have had some little difficulty in finding the above cases amongst notes of some hundreds which I possess; and were I to practise in St Lucia for another seven years, I should rarely meet with such simple and slight ones. In the 13th and 16th cases, I contend that irritation of the stomach was the cause of the hot stage. In the 13th that irritation of this organ was superadded to one of the mucous membrane of the nose and posterior part of the pharynx. In the 18th we meet with a case of intermittent hysteritis. I am aware that this opinion is open to contradiction, that there is a want of direct evidence to prove its correctness. But if we compare these cases with others, differing in no respect from them, except in being a shade more severe, we shall at least pause before we consider them as either nervous, or as what is commonly understood by the word essential.

I was suddenly called to a man who was said to be in his last agony. When I arrived he was already dead, and his friends gave me the following history. He had suffered from a tertian intermittent for more than a fortnight. The three stages were marked, but so slight as not to prevent him pursuing his daily work, except for two or three hours, during the day of the fever. That he had remained at home yesterday and to-day, for the purpose of taking his tisane previously to an emetic and a purge, as is the custom with these people; that he had suffered from the cold stage to-day more severely than he had done in any of the former paroxysms, and that it continued about two hours and a half, and was succeeded by the hot stage; this, however, had scarcely commenced when he cried out suddenly that he was dying, and fell upon his back in the bed, and died almost immediately. On examining the body four hours after death, the pericar-



dium was distended to a certain degree with clotted venous blood from a rupture of the right auricle, which was found to be aneurismal, its parietes extremely thin, consisting at the place of rupture of a union of the inner and pericardial coats, which were scarcely thicker than a sheet of writing-paper. This patient had complained for a length of time of difficulty in mounting a hill, and of palpitations; he fancied that he had what is here called *mal d'estomac*, or the *cachexia africana* of Cullen. The mucous membrane of the stomach was of greyish-fawn colour, and thickened, but neither harder nor softer than natural; the villusites were somewhat developed, and the whole of the left cul de sac was of a rosy colour; the colour deeper in spots, and lighter towards the circumference of these patches; it was a slight erythema, with here and there the *rougeur pointillée*; the duodenum contained mucosities and yellow bile; rosy streaks were observed here and there in the jejunum and ileon, running parallel to a transverse section of the gut. The mucous membrane, in other respects, in its natural state. The patient, as far as I could collect from the friends, had never complained of his stomach, and his only reason for thinking of an emetic was, that it is the treatment pursued by the lower classes in St. Lucia, in the milder forms of intermittent.

I have given a few cases of the mildest form in which I have ever seen fever in St. Lucia; I have attempted to show that the hot stage depends upon a phlogosis of some organ; and that without this phlogosis, or rather in the more strict language of the present day, active hyperhemia with irritation, the disease would consist of one stage only, a neurosis of the cerebro-spinal system. In the cases we have to examine, the local disease will be evident. If in the preceding ones this has not been the case in the opinion of some, it becomes necessary to make a distinction between them—a distinction dependent upon the existence or non-existence of inflammation,—an arrangement which has frequently been attempted, but which has no practical existence, at least in the West Indies. Where are we to draw the line? I confess that I never have seen a possibility of doing it; one



case in which inflammation has an acknowledged existence resembles perhaps one of those above so closely, that if we allow it in one, we must admit it in the other. I cannot sufficiently impress this upon the mind of the young physician in the West Indies, there is nothing new in it; it is the opinion most generally entertained, and assuredly the most rational one; and is consistent with what is seen both in observing the symptoms, and from examinations after death, in man and in animals.

It has been said that the hot stage of an intermittent is in proportion to the violence and length of the cold one. As a general rule perhaps this may be correct. In the above cases, the local irritation, whether remittent or intermittent, would not, it is probable, have been sufficient to have produced a febrile commotion, had it not been coupled with a cold stage. During this period, when the blood leaves the surface of the body, and is accumulated in the capillaries and veins of the internal cavities, congestion becomes added to the pre-existing irritation of an organ, and inflammation of a longer or shorter duration is the consequence. It is in this way that the cold stage is almost invariably followed by a hot one, for the cause which produced the former, for the most part, acts also upon one of the viscera; or an organ may be already in a state of irritation, and this irritation, for the above reason, may run into inflammation. We must not doubt the existence of this inflammation, though the local symptoms may not be perceptible, being swallowed up, as it were, in the general ones produced by irritation of the heart and circulating system sympathetically affected. In slight cases this may be of minor importance; but in others of greater severity such an oversight, and it is unfortunately but of too common occurrence, becomes serious indeed.

*Cases of Intermittent Fever of regular type and stages, in which local inflammation is very apparent, constituting the Inflammatory Intermittents of Authors.*

CASE XVIII. *Intermittent-gastritis*.—W., Esq., native of England, of nervo-sanguineous-temperament, the former pre-



nating inhabiting St. Lucia two years, had slight rigors, followed by fever and perspiration, December 9th, 1833. He took five grains of calomel at night, and early the following morning a dose of senna and salts. Finding himself tolerably well he went out, but about eight o'clock he perceived a coldness of the hands and feet, which soon extended to the whole body, and obliged him to return home. The rigors continuing, he went to bed; in a short time they increased to such a degree as to alarm his attendants, and I was sent for. I found him in the following state: severe rigors, shaking the bed violently; occasional cramps of the legs, which rouse him from a state of stupor or lethargy; vomiting. He answers rationally, but keeps his eyelids closed; says that the medicine he has taken has operated powerfully several times; and complains of his head, back, and extremities. The extremities are cold, but the forehead and abdomen are hot. The cold stage commenced three hours ago. At two P. M. I again saw him. Body intensely hot; great agitation; anxiety of countenance; quick perspiration; delirium; eyes sparkling; conjunctivæ injected; great tenderness of the epigastrium; vomiting of bilious matters; pulse 110. V. S. ad  $\frac{3}{4}$  xii. produced fainting. The blood had undergone scarcely any change; the coagulum being more firm, perhaps, and its surface more tenacious than in its ordinary state. *Cold to the head, fomentations of the abdomen, barley-water.* Evening. The patient no better, though perfectly sensible; great restlessness; incessant vomiting of grass-green liquid; the matter which was thrown off the stomach the last time resembled snuff in clear water. Complains of oppression at the epigastrium and continued nausea, which he tries to relieve by introducing the finger into the throat. Cannot bear the hot fomentations. Ten P. M. much better; is perspiring freely. The pulse is quick, but the patient describes himself to be perfectly well, but very weak. Following morning, the 11th; has passed a good night and is apyretic; but there is occasional nausea, and he has vomited his barley-water two or three times; tongue red at edges and tip. Eight, A. M. rigors as yesterday. Noon, hot stage



set in, but no delirium; gastric irritation and other symptoms as yesterday. Nine P. M. paroxysms subsiding.—To take six grains of quinine every two hours. At first the quinine was rejected thrice, but on the fourth attempt it remained. 12th. Ten o'clock A. M., no return; has taken thirty grains of the medicine. To take two grains every three hours. Never had a return; convalescence short, and return to occupation on the 14th.

CASE XIX. *Intermittent-gastritis*.—D. N., aged 25—muscular structure developed, of a sanguineous temperament, felt, without any previous indisposition, at ten A. M., September 21, 1832, shivering, anxiety, and general trembling; two or three hours afterwards, heat of skin, quick pulse, headache, &c. which continued until evening, and subsided in perspiration. 23rd. Return of paroxysm. 25th. I was sent for, and saw him about one o'clock P. M., a short time after the commencement of the hot stage. Extreme pain in the head, accompanied by a sensation of some one driving a chisel through the sagittal suture; face very red; eyes injected; ideas clear; tongue white on the surface, red at edges and tip; vomiting of bitter yellow bile; uneasiness and pain on pressure over the epigastrium; pulse quick and full. Has taken an emetic and a purge yesterday morning. Evening. Paroxysms subsiding; skin moist. 26th. Sitting up; has a slight appetite; tongue moist, and tolerably clean. *Panado and gruel for nourishment; to take sulph. quince, gr. xviii. in six doses, with an interval of two hours.* Never had a return.

CASE XX. *Intermittent with gastro-hepatic irritation and pleuro-pneumonia*.—Clara, a mulatress, aged 25, has had two paroxysms of tertian intermittent, each preceded by severe rigors, which continued about two hours. The paroxysms are described as being very severe, and continuing thirty-six hours, accompanied by a dry cough and pain of the right side. December 2nd, 1832. The last paroxysm subsided about two o'clock P. M. The patient is still in bed, and perspiring profusely. Pain over the eighth and ninth ribs of the right side, increased on inspiration; *râle muqueux*; ex-



pectoration of small quantity of thick and viscid mucus; tongue covered with a brownish-yellow fur; nausea; vomiting of bile; thirst. Has taken medicine, which has operated upon the bowels freely; urine high-coloured and clear, but not yellow. Demulcent drinks; strict diet. 3rd. The paroxysm returned with rigors; the skin very hot and dry; pain in the side, and cough increased; pulse quick and hard, (requires the lancet.) To continue the demulcent drinks. 4th. The paroxysm has continued until four o'clock this afternoon, that is, for a period of thirty hours. She is now perspiring, and almost apyretic, the pulse being a little quicker than natural. The pulmonic symptoms exist, but are not at all severe.—To take three grains of quinine every hour, until twenty-four grains have been taken. 5th. Apyretic; free expectoration of thin white mucus; pain in the side gone; ringing of the ears from the quinine. 6th. Convalescent.

N. B.—This case must be compared with the others; it is one of considerable interest, and not the less so, as showing the beneficial effects of quinine in certain cases of this kind, even where the inflammation is evident, and of a type approaching the remittent.

CASE XXI. *Intermittent gastritis*.—R. S., Esq., aged 40, native of England, inhabiting St. Lucia several years, of a lymphatic temperament, recently married, was seized suddenly, 24th April, with rigor and trembling, which terminated in the usual manner about ten hours after the commencement. 26th. Return of symptoms. I saw him at noon, and found him in the following state: the cold stage has disappeared, and the skin is hot and dry; the pulse quick; very severe frontal headache; sense of heat in the stomach; great sensibility of the epigastrium; nausea; frequent vomiting; short frequent dry cough; tongue moist and furred, red at the edges and tip; supination; frequent sighing; constipation. To take a dose of calomel immediately, and castor-oil this evening. The symptoms continued until about seven o'clock, and the patient then began to perspire; the calomel has operated twice, and the patient has taken the castor-oil. 25th. Instead of being free from



fever, as I expected to have found him, the patient is very unwell. An exacerbation took place immediately after I saw him last night, and is still continuing. The medicine has operated several times; the tongue is more red, and has a tendency to dry; great thirst, and vomiting whatever is taken into the stomach; great sensibility of the epigastrium; abdomen slightly distended; skin very hot and dry; pulse quick; short cough. Barley-water; emollient glysters; hot fomentations to the abdomen. Evening. Skin moist and cooler; tongue moist and less red; cough, nausea, and vomiting have ceased; has passed about half a pint of turbid urine; feels much better.—To commence the sulphate of quinine immediately. 26th. Apyretic; pulse quiet; skin cool; no pain anywhere; complains only of weakness and want of appetite; strict diet, and to continue to take two grains of quinine every four hours. 27th. Well.

*Remarks on the last four Cases.*—It is to this form of intermittent that the term inflammatory has been attached; whilst the one immediately preceding it has been designated by the appellation of simple. It would be needless to enter into a refutation of the propriety of such a distinction; the difference exists only in degree, and were I to continue the classification as adopted by Alibert, and founded upon the predominance of some particular phænomena, as choleric, dysenteric, cardialgic, hepatic, pneumonic or pleuritic, apoplectic, hydrophobic, algide, diaphoretic, carditic, syncopal, &c., I should only carry it out *ad infinitum*, without advancing our knowledge beyond the limits to which it has hitherto been confined. When the local symptoms are severe, and threaten the life of the patient, the term pernicious, or malignant, is given to the disease by the French. “Amongst the characteristic phænomena,” says M. Boisseau, in his *Pyretologie Physiologique*, “met with in these fevers, (*fièvres intermittentes pernicieuses*,) the first in order are those which announce an irritation of the stomach and intestines; then those which denote cerebral irritation; afterwards, in respect to their frequency, come those which announce that the lungs, the pleura, the uterus, the kidneys, the bladder, &c., are, if



not the only point, at least one of the points from which the morbid action takes its departure." In these cases, then, we find no other difference from those of the most benignant form than what arises from the severity of some local læsion. We will at once discard all artificial argument as conducive to no good purpose, but which, on the contrary, tends only to mystify these diseases, and to throw over each a sort of peculiarity, or even essentiality, which does not exist, and continue the cases beginning with those which are the least severe.

CASE XXII.—*Intermittent-gastro-enteritis*.—December 1st, 1830. Mlle. E. D., aged 14, never menstruated, but of a strong constitution and sanguineous temperament; has been labouring under a febrile paroxysm since six o'clock P. M. yesterday; it was preceded by a cold stage of two hours' continuance, and the patient presents the following symptoms: Skin hot and dry, headache, principally frontal, nausea but not vomiting; slight distension of the abdomen; uneasiness on pressing the epigastrium; tongue pale, yellow, and moist; pulse 110, soft; constipation.—*Ordered to take a grain of tartar emetic dissolved in a jug of sour orange beverage; and a mild dose of senna and salts three or four hours after.* Nine o'clock P. M. Paroxysm continuing, the emetic operating very mildly, two or three times; no bile discharged; has had several evacuations per anum; in consequence of which her mother has not administered the draught. 2nd. Eight o'clock A. M. The paroxysm terminated early this morning; the patient is now calm, the skin moist, pulse 96, no appetite; the sense of lassitude, embarras gastrique, and tenderness of the epigastrium are ameliorated, but still exist in a slight degree.—*To take the senna and salts during the calm.* Evening, eight o'clock. The patient has continued in the above state of almost complete intermission until an hour ago, when the paroxysm came on without rigor, but with a slight sense of coldness in the feet and hands; has been freely purged during the day; evacuations bilious, and small in quantity. This paroxysm resembled the former, but the tongue became redder, the agitation and sighing were more frequent, and the patient complained of nausea and great thirst; it terminated the morning of the



4th, after continuing thirty-six hours. 4th. Eight o'clock A. M. Almost complete intermission. To take three grains of the sulph. quinae every second hour. The paroxysm did not return.

*Remarks.*—This is one of the most common forms of fever, observed in acclimatized individuals in this island; it constitutes the bilious intermittent of authors: it was an intermittent gastro-enteritis, but very mild; the paroxysms were thirty-six hours long, and the intermissions twelve. During the former, the gastric symptoms were sufficiently intense to explain the general symptoms; whilst during the latter periods, though still existing, they were so mild as not to act upon the circulating system. There was no cold stage in the second paroxysm, though it had been sufficiently well-marked during the first. With respect to the treatment, the emetic and purgative did no perceptible good, neither did they do much harm. The quinine given at the termination of the second paroxysm, though the intermission was not complete, and the stomach was still irritable, effected a speedy cure; it prevented a return, and did not increase the local affection.

CASE XXIII.—*Remittent; from duodeno-hepatitis.*—A woman, aged 60, of a robust constitution, was taken ill the day before yesterday, with what she calls fever unpreceded by rigor; the symptoms have continued without any mitigation up to the present time, but with a marked exacerbation every evening, and each day the patient has been worse than the preceding one. December 4th, 1830. The skin is universally hot, but moist; slight pain of the whole head; pains of the limbs, which she describes as rheumatic, incessant vomiting of considerable quantities of thick yellow bile, great thirst, skin and conjunctiva yellow; urine high-coloured, and tinges the linen, but deposits no sediment; abdomen somewhat distended, uneasiness at the epigastrium, and right hypochondrium not increased on pressure; tongue covered with a mucus of a dark yellow colour, tendency to become dry, red at the edges and tip; bitter pasty taste in the mouth; four or five small evacuations in the course of the twenty-four hours, producing a sensation of scalding in the anus; pulse 120, soft.—



*To take twenty grains of calomel and one grain of the extract of opium immediately ; and effervescing saline draughts when the thirst induces her to drink.* For three or four hours after taking the calomel and opium, the vomiting was arrested, and the patient slept, but the skin became dry, the pulse quicker, and the tongue redder at the edges, and dry. 5th. Nine o'clock A. M. The vomiting has returned, and the patient is evidently worse ; no evacuation of the bowels since taking the calomel ; sense of great exhaustion ; skin hot and dry, urine small in quantity, tinging the linen.—*To take three grains of antimonial emetic in two pints of sour orange beverage.* Noon. The patient has taken the emetic, which has produced a powerful and most beneficial effect. The tongue and skin are again moist, the nausea has disappeared, and she expresses herself very grateful for the relief she has obtained.—Castor oil, barley-water. 6th. Much better ; tongue nearly clean, and moist ; skin cool, pulse 80 ; urine clear, with lateritious sediment at the bottom of the chamber-pot. Complains of exhaustion and debility, and earnestly demands nourishment, and a little wine.—Beef-tea, arrowroot, with a small quantity of Madeira wine in it. 7th. No heat of the skin, but the thirst and quickness of the pulse have returned ; the tongue more furred, and reddish at the tip ; has had two copious stools.—*To cease the wine, and to take beef-tea and arrowroot ; a pill composed of P. ipecac. calomel. āā gr. i. pulv. rhæi opt. gr. ii. thrice a day.* 9th. Perfectly well ; appetite voracious ; moderate diet.

*Remarks.*—This case was one of duodeno-hepatitis, occurring in an aged person ; there was no evidence of marshy origin, and it is to be seen in all warm countries where marsh is unknown. Would the sulphate of quinine have been serviceable ? In young and more athletic persons the plan of treatment which was here so beneficial would not have succeeded—on the contrary, I should have resorted, if not to the lancet, at least to the application of leeches to the hæmorrhoidal veins. The hyperhemia of the mucous membrane of the small intestine was not active, but passive. I mean that engorgement of the system of the vena porta preceded the hyperhemia of the mucous membrane, and gave rise to it ; and I know no means so



powerful in overcoming this and promoting a free circulation through the liver in these cases, as the employment of the tartrate of antimony. The operation of this medicine is considerably increased by the free use of vegetable acids; this is well known to all the old women in these countries, and its employment is invariably preceded by tisannes containing the juice of the Seville or sour orange.

CASE XXIV.—*Double tertian; from gastric and hepatic irritation.*—Rosalie, aged 16, of nervous temperament, native of Martinique, was seized at seven o'clock in the morning of the 14th November, 1831, with severe rigors, which continuing about an hour, were succeeded by heat and dryness of the skin, frontal headache, pains in the extremities and loins; nausea, embarras gastrique, but no vomiting; tongue clean and moist; thirst; at two o'clock P. M. profuse perspiration, and subsidence of the paroxysm. 15th November, two o'clock P. M. A return of the paroxysm, at noon, after an intermission of nearly twenty-two hours; the cold stage has been severe, and is just subsiding. Evening. Skin very hot and dry, great headache, vomiting of bile, of a grass-green colour; tongue furred, red at the edges and tip, epigastrium painful on pressure; has had since the commencement of the first paroxysm two or three evacuations daily. 16th. Eight o'clock. Second paroxysm still continuing. Barley-water, emollient injections; hot fomentations to the abdomen. Five o'clock P. M. A slight calm; skin moist, but very hot; stomach less irritable; tongue moist, and less red at the edges and tip.—*To commence the sulphate of quinine immediately.* 17th. Apyretic, has taken thirty grains of the sulphate, which has produced a singing in the ears.—*Beef-tea, barley-water.* 18th. Well.

*Remarks.*—The only treatment observed during the paroxysms in this case was a strict abstinence and demulcent drinks; the stomach was irritable, and rejected whatever was taken into it. Quinine prevented the return of the paroxysm; and the patient recovered perfectly though the treatment was so simple. It shows us also that the quinine may be given with advantage before the paroxysm has completely subsided.



Purgatives could not have produced any good effect; but might they not have produced a bad one?

CASE XXV. — *Remittent gastro meningitis*. — G. —, Esq., a native of the West Indies, after riding two or three hours on horseback, exposed to a very powerful sun, suddenly felt a coldness in the lower extremities, which terminated in rigors, with excessive headache and stupor. I saw him about four hours from the commencement of the attack. Skin very hot and dry, intense headache, difficulty in collecting his ideas, faintness on assuming the erect posture; countenance dusky red; injection of the conjunctivæ; intolerance of light and noise; complains of great debility, thirst, tongue clean and moist; insensibility of the epigastrium; abdomen supple, pulse 110. — *Venesection to 3 xii.* produced fainting; blood as in health. *Hirudines xx. temporibus.* Nine o'clock P. M. Paroxysm continuing, but the cerebral symptoms less severe. — *Enema purg. statim; heat to the feet; to encourage the bleeding from the leech-bites; cold to the scalp.* 2nd. Morning. Skin moist, symptoms mitigated. Noon. Return of the symptoms as yesterday, with vomiting of yellow and green bile; tongue red at edges and tip; sighing; supination, crossing the arms over the epigastrium, pulse 120. Evening. Same state, constipation, the patient is very ill. — *Fomentations to the abdomen, emollient clysters, cold to the head.* 3rd. Morning. Has passed a bad night; but there is now a remission, the skin is moist, and the cerebral and gastric symptoms very much relieved. — *To commence the sulp. quinae immediately, in six-grain doses, every two hours.* Noon. Perspiring freely, much better, has taken xviii. gr. of the medicine, which he is to continue in two-grain doses every two hours. 4th. Convalescent.

*Remarks.* — We see again a case in which both irritation of the meninges and of the stomach existed in an acute form: an antiphlogistic treatment was highly beneficial in moderating the symptoms but did not prevent their return. No medicine except quinine was administered by the mouth; and this salt given at the time of the subsiding of the second paroxysm, did not increase the local symptoms, and effectually prevented their return.



CASE XXVI. *Gastro-meningitis*. — J. T., Esq., aged 23, native of the West Indies, has been complaining for the two preceding days of languor, lassitude, &c. ; he yesterday rode as far as Pigeon Island exposed to a powerful sun ; on his return he had a severe febrile paroxysm, which is still continuing. Nine o'clock, A. M., 1st May. The countenance is of a dusky red colour, eyes brilliant, conjunctivæ injected, acute frontal headache, severe pains in the loins and inferior extremities, particularly at the knees. No delirium, but considerable restlessness ; no uneasiness on pressing the epigastrium ; neither vomiting, nor nausea. Tongue white and moist, heat and dryness of the skin, pulse quick and somewhat hard. *V. S.*  $\frac{3}{4}$  xii. *Hirud.* xx. *to the temples.* *Calomel* gr. v. *a slightly purgative ænema every two hours.* Four P. M. The blood is florid, and as in health ; the patient is evidently no better and complains very much of his head. — *Applic. cucur. cruent. nuchæ. Magnes. calcin.*  $\frac{3}{4}$  ii. *statim.* Eight P. M. Much in the same state ; ideas clear, but when he attempts to sleep fancies he is falling over a precipice, and wakes with a start. Epigastrium now sensible, tongue red at the tip and edges. *Rep. v. s.* The blood somewhat buffy. *Cold to the head.* 2nd May, seven o'clock A. M. Has passed a good night, and is now almost apyretic ; no headache, bowels purged. — *To commence the quinine.* Eight o'clock P. M. The patient has taken twenty-four grains of quinine, but another paroxysm came on about four o'clock, preceded by sense of coldness and slight læsions ; the skin is now hot and dry ; the patient complains of frontal headache, some uneasiness on pressing the epigastrium ; but the symptoms are considerably more mild than during the last paroxysm. 3rd May. Eight o'clock A. M. The second paroxysm continuing ; has made water tolerably freely during the whole course of the disease ; no stool since yesterday ; tongue furred at the root, moist, and no redness now at the tip. — *Calomel, gr. v. statim ; epsom salts at noon.* Eight P. M. Paroxysm continuing ; bowels freely open ; headache more severe than this morning ; tongue red at the tip and edges, belly supple ; epigastrium indolent : patient complains of want of sleep from the violence of the headache ; there is now no tendency to delirium, and the



pain seems nervous. — *Laudanum and water to the scalp, pediluvium.* 4th. Apyretic, headache gone. Quinine. 5th. Convalescent.

*Remarks.*—Gastro-meningitis from insolation. Irritation of the stomach in this case preceded the exposure to the sun two days; but from this time meningeal irritation was the principal feature of the disease; whenever purgatives were administered by the mouth, their immediate effects seemed to be the increase of the gastric symptoms for a time. The quinine, though administered in tolerably large quantities, did not prevent the return of the paroxysm; the second, however, was much less severe than the first.

CASE XXVII. *Intermittent from gastritis.*—B. M., aged 18, native of St. Lucia, of a nervous temperament, and delicate constitution was seized suddenly, without previous indisposition, early yesterday morning, with severe rigors, amounting almost to convulsive spasms, followed by fever and perspiration; during the night she says she was without fever of any inconvenience. At seven o'clock this morning, June 3, 1832, the paroxysm returned, preceded, as yesterday, by a cold stage, which though severe was less so than the one of yesterday. I saw her at noon, when she presented the following symptoms: Supination, crossing the arms over the epigastrium; stomach cough; moaning; intense but dull pain in the epigastrium; great thirst; repeated vomiting of a grass-green liquid, extremely sour; pulse small, quick, concentrated; extremities cold and damp; chest and abdomen intensely hot and dry; countenance pale and very anxious; tongue slimy and white; has had two stools.—Hot fomentations to the abdomen; emollient clysters. Evening. Better; skin cool and moist; but the quickness of the pulse, pain of the epigastrium, nausea, and supination, remain.—To take three grains of the sulphate of quinine every hour. 4th. Has taken eight doses of quinine; two of which were ejected from the stomach; pain of the epigastrium nearly gone, tongue clean and pale, pulse apyretic.—To continue until noon. Eight P. M. Convalescent. 6th. Has had no return; appetite and digestion good. Moderate allowance of animal food.



*Remarks.*—In this case both the cold and hot stages were well marked: it is probable that the severity of the former was one cause, at least, of the violence of the gastric symptoms. The exciting cause had not only operated upon the cerebro-spinal system, but upon the mucous membrane of the stomach also. These cases very frequently terminate fatally during the third paroxysm, or when they do not, we seldom see after this period any further intermission of the symptoms. A practitioner unacquainted with these diseases would scarcely have administered the quinine in this case, yet we have seen that all the symptoms disappeared under its influence. Purgatives would have done incalculable mischief; even supposing that they had not increased the local disease, we should have lost time in their administration—time which is of so much consequence in these cases.

CASE XXVIII. *Remittent from gastritis.* — Madlle. O., aged 17, nervous temperament, but in the enjoyment of good health, has been ill four days with fever, presenting a daily exacerbation at noon; a calm, but not a complete intermission during the night and following morning. I saw her 18th September, 1832, at eight o'clock P. M. This paroxysm, instead of subsiding as the others had done, was followed by a *redoublement* at seven o'clock, and the patient is said to be much worse than she has yet been. Cephalalgia, pain in the loins and extremities; hot skin, quick but soft pulse, *embarras gastrique*, with pain and heat of the epigastrium; belly supple; tongue white and mucous, edges slightly red.—*To take three grains of tartar emetic, en lavage.* 19th. Seven A. M. Much worse than yesterday; the emetic operated very powerfully, both by the mouth and anus, and the patient has vomited a considerable quantity of bile; the stools are very yellow, and produce a sense of scalding; supination, sighing; considerable pain on pressing the epigastrium; tongue rather dry, red at the tip and edges.—*Applic. Hirudines xxx. epigast. regioni, barley-water, warm fomentations.* One o'clock A. M. The patient is better; though only fifteen leeches have been applied; they are bleeding freely, however.—*To have twelve others applied: and to continue the fomentations.* Eight P. M.



Much better; pain of the epigastrium nearly gone; tongue much the same, but moist; fever continuing; bowels have been twice open since noon.—*To have a warm bath, and to continue the fomentations if necessary when the patient has come out of the bath; strict abstinence from anything in the shape of food except barley-water.* 20th. The febrile symptoms have almost subsided, and the patient feels, as she expresses it, nearly well. Evening. The calm continued all day; but another paroxysm set in about six o'clock P. M.; it is, however, very slight. 21st. Almost apyretic; but the skin is dry and rather warm.—*To commence the sulph. quinquæ.* Evening. Has taken eighteen grains of quinine; there is still some heat and dryness of the skin, and the patient has vomited once or twice; but there is no cardialgia nor uneasiness on pressing the epigastrium. 22nd. In a state of convalescence. 23rd. Cured.

*Remarks.*—I was anxious to try the effects of an emetic in this case, and they were anything but advantageous; the gastric symptoms were made worse; they were relieved by the application of leeches and warm fomentations. It is valuable on this account, as it tends to prove that gastric irritation beyond a certain point can be treated advantageously only by these means; we shall frequently find, however, that leeches are useless in some cases, and that in these the symptoms are best combatted by an emetic. So much for the exclusive treatment of either Broussais or Tomassini.

CASE XXIX. *Intermittent-gastritis.*—Miss C., aged 17, of a nervo-lymphatic temperament, native of Antigua, having resided some years in England, returned to the West Indies (to St. Lucia) about eight months ago; has been unwell for some days with nausea, loss of appetite, malaise, and slight colicky pains at the lower part of the abdomen. She was seized this morning with rigors, followed by fever. The tongue is white and mucous, bowels costive, pain in the abdomen from menstruation, which commenced with the rigors. *Castor oil, pediluvium.* 2nd day, Friday. Tolerably well; one evacuation from the oil; menstruation continuing. *Calomel, gr. v. and to repeat the castor-oil in four hours.* Evening, seven o'clock. Another paroxysm with rigors; no stool.



since morning; skin very hot and dry, tongue red, frequent moaning. *Warm bath and emollient clysters.* 3rd day. Paroxysm continuing; has had three or four emollient clysters, but no stool; supination, tongue red. Morning. Cannot bear pressure on the epigastrium. Noon. Stupor, insensibility, tongue dry, red at the edges and tip. *Twenty leeches to the epigastrium.* Evening, dangerously ill, v. s.  $\bar{3}$ xii. fainting; the skin immediately became moist, and the intelligence improved, but the stupor remains; blood as in health. To commence the quinine immediately. 4th day. The patient has taken twenty-four grains of the medicine, and is apyretic, but very weak; the stomach still irritable. Evening. Thirty-six grains of the quinine have been administered, which have produced singing in the ears, and deafness. *Perfect quietness, and abstinence from food.* 5th day. Convalescent; tongue clean and moist, slight appetite, but the patient can scarcely be said to have had a stool, as she has only once parted with a small quantity of fœcal matter after a clyster; and as the friends are anxious that the bowels should be moved, the patient is ordered to take the following pills to-night. Calomel gr. ii. ext. colocynth. c. gr. vj. in pil. ii. dividend. Wednesday. The patient has taken the pills, which have griped her a good deal, and have produced two or three small evacuations; the skin is warm and dry, the tongue red at the tip, the stomach irritable with efforts to vomit; thirst. Emollient clysters. Evening. Symptoms subsiding. Thursday. Free from complaints of any kind. Beef-tea and quietness. Friday. Cured.

*Remarks.*—Few remarks are necessary in this case; the gastro-enteric symptoms were very severe, and no doubt rendered so from the medicines administered; they were combated by an antiphlogistic treatment; and the next paroxysm prevented by the use of quinine. Of the effects of purgatives we may have some idea from those produced by the pills, when the stomach had almost returned to its natural state. Constipation may be an evil, but the treatment commonly resorted to for the purpose of overcoming it is far too often a much greater one.

CASE XXX. *Intermittent gastro-enteritis.* — N. M'R.,



aged 19, of a sanguineo-lymphatic temperament, native of Scotland, in St. Lucia four years. Has had two attacks of quotidian intermittent, each commencing at four o'clock in the afternoon, and terminating before the following morning. I saw him at noon, 14th Sept. 1833. He is labouring under the effects of the third paroxysm, which commenced last evening at the usual hour, and was preceded by rigors; instead of subsiding, there was an exacerbation or *redoublement* this morning at six o'clock. The patient is now very unwell; frequent vomiting of yellow bile in considerable quantities; sense of great prostration, headache, general pains; the surface of the body is warm, but moist; pulse 130, soft. Tongue loaded with a thick yellowish fur, is red at the edges and tip; slight pain on pressure over the epigastrium and right hypochondrium. Urine coffee-coloured, strongly acid. Expression of the countenance good; cough from slight bronchial irritation. Percussion and auscultation denote nothing remarkable; bowels costive, abdomen somewhat distended. *To take two grains of tartar emetic, and ten of ipecacuan immediately.* Evening. Has vomited freely from the effects of the emetic, and thrown up considerable quantities of yellow bile, since which the nausea and headache have been much relieved; he has perspired freely, and changed his linen twice; the tongue is very much loaded, though less red; but there is a disposition to stupor, alternating with jactation of the arms, and general restlessness. Epigastrium still painful on pressure, right hypochondrium indolent, pulse very quick, skin moist and cooler, no stool, no particular heat over the epigastrium.—*To take aloes gr. x. calomel gr. iii. immediately.* 15th, eight A. M. Same state as last night; the skin is moist but the pulse quick; there is vomiting and red tongue. To commence quinine. Evening. The quinine has not been given, and another exacerbation has taken place; headache, vomiting of grass-green fluid; tongue has a tendency to become dry; pain and heat of the epigastrium, great thirst, bowels freely open from the effects of the pills. *Demulcent drinks, fomentations to the abdomen.* 16th. Slight mitigation of symptoms; the skin is again moist; *to commence quinine immediately.* Two doses of this medicine were given,



but the symptoms redoubled with violence; and at noon, supination, epigastrium very sensible, great thirst, restlessness, alternating with stupor; sense of debility, and difficulty in collecting his ideas; tongue dry, brown, and red at the tip; incessant vomiting. I find that his friends have been administering burnt brandy, with a view of stopping the vomiting. Abstinence from everything except barley-water, fomentations to the abdomen, emollient clysters. 17th. The skin is again moist, the other symptoms are the same. Sulph. quinæ gr. x. omni horâ. Noon. Profuse perspiration; ringing of the ears, deafness.—To continue the medicine in small doses, and at longer intervals. Towards night the skin became dry and warm, but these symptoms soon subsided. 18th. No other symptom than debility; tongue nearly clean. *Arrow-root, and to take a grain of quinine every two or three hours.* 19th. Well.

*Remarks.*—The emetic and purgatives in this case seemed to have done no good; and yet it was a case in which we should have expected benefit from their employment. The paroxysms returned each time with greater violence. Quinine was given, and although the local symptoms were severe they disappeared under its influence. The urine was darker than is usual in these cases, and tinged litmus paper instantly. The paroxysms were at first intermittent; towards the close they ran into one another; the patient was never free from fever for a moment from the period of my attendance.

CASE XXXI. *Remittent gastritis.*—J. W., Esq., aged 42, born in England, inhabiting the West Indies some years, of a nervo-sanguineous temperament, muscular system well developed. After suffering for some days from malaise and loss of appetite, suddenly felt a sense of cold at the extremities of the fingers, which soon extended to the whole body, accompanied by severe rigors. In a short time these were followed by fever; the paroxysm was characterized by bilious symptoms, foul tongue, fulness of the hypochondrium, some distension of the abdomen, nausea and vomiting; constipation, pulse full and quick: terminated the same evening. 28th Nov. 1833. The following morning, the gastric symp-



toms continuing, though unaccompanied by fever, he took an emetic, which operated freely, and on its subsiding, he took a dose of senna and salts, from which he fancied that he obtained benefit, as he says he got rid of a quantity of bile; but the uneasiness of the epigastrium, and thirst, continued. At seven o'clock P. M. rigors returned, followed by heat of skin, which continued all night; and at eight A. M., 29th of Nov., he was in the following state. Skin hot and dry; pain and heat in the stomach; supination, quick respiration, frequent sighing. Noon. The skin is moist, but there is great agitation and anxiety; the respiration is very short and frequent; nothing observable on auscultation. Evening. Perspiring freely, has changed his linen thrice, but the countenance is anxious, and the other symptoms continue the same; has had three dark-black stools resembling those in mœlina.—*To commence the quinine.* 30th. Skin cool and moist, but other symptoms continue; has taken twenty-four grains of quinine. Evening. Has taken thirty-six grains of the salt; agitation very great; skin dry and hot; vomiting occasionally; great thirst, heat in the mouth, throat, and stomach; urine small in quantity, red. Dec. 1st, eight, A. M. The patient is worse, but the skin remains cool and moist; thirst; great anxiety, breathes as if suffocating; constant demand for drink; tongue natural; the slightest pressure on the epigastrium cannot be supported.—*Forty leeches to the epigastrium, hot fomentations to the abdomen.* Evening. Leech-bites still bleeding; is considerably better.—*To recommence the quinine, and to continue the fomentations.* 2nd. Convalescent; slight appetite. 3rd. Desire for food. Well.

*Remarks.*—In this case the quinine was ineffectual in preventing a return, until the severity of the gastric symptoms had been relieved by the leeches.

CASE XXXII. *Remittent-gastritis.*—P., a girl, aged 10, has suffered for the last three days from a paroxysm of fever, with irregular exacerbation and remission, until yesterday afternoon, when another paroxysm set in after a short, but as far as I can hear, a perfect intermission, preceded by rigors; this paroxysm is still continuing. The face is alter-



nately flushed and pale; skin hot and dry; pulse quick and small, great thirst, and constant vomiting of matters taken into the stomach, but no bile; belly distended, epigastrium painful on pressure, tongue white in the centre, red at the tip and edges; constipation. *To take calomel gr. v. immediately, to have warm fomentations to the abdomen, and emollient clysters.* Evening. Much the same state; no stool. *Castor-oil.* Dec. 8th. The castor-oil has been rejected; no stool; same symptoms, coupled with griping. *Senna and salts.* Noon. Has been freely evacuated; paroxysm subsiding; at two o'clock a *redoublement*, preceded by a slight rigor. Evening. Skin hot and dry, tongue red and somewhat dry; supination, anxiety, sighing, vomiting, sense of heat in the stomach, pulse quick; operation of the medicine continuing, urine rare and high-coloured. *Warm-bath immediately; afterwards fomentations to the abdomen, emollient clysters, barley-water.* 9th. The paroxysm continued until four o'clock this evening, when a calm succeeded, and the skin became moist. *To commence the quinine*, under which treatment the patient recovered; and on the 11th was convalescent.

CASE XXXIII. *Gastro-meningitis-nephritis.*—L. F., aged 30, native of England, in the island some months, has been complaining for some days of a pain in the lumbar region, accompanied by an irritation of the kidneys, with scanty and very high-coloured urine, depositing a quantity of red gravel. He is, he says, subject to this complaint. Last evening, after a slight rigor, fever came on, with headache and pain of the extremities; and this morning, Feb. 8th, 1831, he is in the following state. Skin hot but moist, except on the forehead and abdomen, where it is hotter than elsewhere, and dry; face flushed, conjunctivæ injected; frequent efforts to vomit, and discharge of grass-green liquid, mixed with yellow bile; abdomen and epigastrium insensible to pressure; constipation, no great thirst, tongue moist, slightly furred at the root, and reddish at the tip and edges; pulse very quick, and occasionally intermitting; slight stupor; and considerable frontal headache. He has taken three grains of emetic, in sour orange beverage, early this morning, by the advice of an old



woman, which produced a discharge of thick yellow bile, but has been followed by no relief of symptoms.—To take ten grains of calomel immediately. Nine o'clock P. M. Patient much worse; the headache more severe; eyes more injected; slight delirium, and occasional stupor or drowsiness. The constipation and vomiting continue. Has not complained of his loins particularly since the attack of fever commenced, and the urine is such as is generally voided in febrile cases.—*To be bled to  $\bar{z}$  xx., to have twenty leeches applied to the temples, cold to the head, hot bricks to the feet, purgative cœnemata, and a dose of castor-oil.* Eleven o'clock. Much better; blood buffy and cupped; the delirium and stupor have disappeared; he can regard the light without flinching; the stomach has retained the castor-oil, and the skin is now more moist. 9th, six o'clock A. M. Has been freely purged, and says he is better. The face is pale; less headache; eyes less injected; no delirium, but a degree of stupor, with impatience on being roused, and the quickness and irregularity of the pulse remain, and there is great thirst; redness of tongue; desire for acids, and pain on pressing the epigastrium, with occasional vomiting; the skin is moist. Nine P. M. The patient continued in the above state all day, until about an hour ago, when an exacerbation took place, without rigor. The skin is hot and dry; stupor, seldom changing his position or taking notice of surrounding objects, except when he asks for drink; bowels are still acted upon, and pressure on the epigastrium makes him start. V. S.  $\bar{z}$  xvi. *cold to the head, blister between the shoulders, hot bricks to the feet.* 10th. Blood buffy and cupped; mitigation of symptoms; the intellect is clear; there is little stupor; skin warmer than natural, and irregularly dry and moist, except on the feet, which are colder than natural, moist and clammy. *Stimulating embrocation to the legs.* Noon, in much the same state. My friend Dr. Chevalier now saw him, and *advised the commencement of the quinine.* Nine P. M. Has had another exacerbation after the second dose of quinine; the skin is now getting moist and cold, except over the epigastrium, where it is hot and dry; has had several dark-coloured stools; stupor alternating with



restlessness and occasional delirium; makes water freely.—*Twenty leeches to the epigastrium; sinapisms to the calves of the legs.* 11th. No better; is said to have had a convulsion in the night; extremities warmer; epigastrium hot; the patient complains of no pain, and says he is pretty well; impatient on being disturbed, and instantly falls into the former state of stupor; pulse very rapid, and occasionally intermittent; tongue red at the edges and tip, moist; occasional vomiting of grass-green fluid; depression of the upper eye-lid; pupils dilated, and somewhat insensible to the light; speech thick and indistinct.—*To have the following ointment constantly rubbed into the inside of the arms and thighs.* R *Adipis suillæ*,  $\bar{3}$  i; *sulph. quincæ*,  $\bar{5}$  i. Nine P. M. Has been gradually getting worse all day. About seven this evening another exacerbation; the skin is now hot; the face flushed; delirium, and attempts to get out of bed; occasional vomiting; shrinks from the hand on pressure on the abdomen; passes his urine and fæces involuntarily. Midnight. Body moist and cool, except over the epigastrium, where it is hot and dry; stupor; insensibility; he was bled at the last visit; the blood buffy and cupped. 12th. Gradually sinking; died at noon, after a severe struggle, with convulsions.

*Sectio Cadaveris, four hours after death.*—The body muscular and rigid; still warm; no bleeding in cutting through the scalp; on removing the calvarium the brain seemed to rise as if too large for the cavity, which contained it; dura mater healthy; its sinuses containing a quantity of blood; the arachnoid thick, and converted into a gelatiniform substance from effusion of albumen between its two surfaces; subarachnoid cellular texture very vascular, and its capillaries engorged with bright red blood; the cerebral convolutions adherent; hyperhemia of both structures of the brain; the capillaries containing red blood appeared very numerous, as the surface of the divided portion seemed literally sprinkled over with red points, from which minute particles of blood escaped; about two ounces of clear serum in the ventricles; the membranes at the base much less affected than on the surface; cerebellum and its membranes healthy. Thorax:



lungs perfectly sound; heart natural in appearance; in both cavities fibrinous clots, extending into the larger blood-vessels. Abdomen: mucous membrane of the stomach of a diffused redness throughout, (rougeur pointillée,) thickened; a small quantity of a grass-green fluid, mixed with mucosities, strongly acid, in its cavities, but the mucous membrane was in no degree softened. Duodenum and jejunum healthy. Lower end of the ileon somewhat inflamed; liver of its natural size, its parenchyma containing yellowish bile; gall-bladder distended with a dark thick syrupy bile; left kidney in a state of hyperhemia; right healthy; lining membrane of the bladder presented five or six spots of rougeur pointillée, about the size of a small split bean; blood natural.

CASE XXXIV. *Gastro-meningitis*.—Major-General D. S., aged about 56, of a sanguineous temperament, inhabiting St. Lucia ten months. After transacting business of an unpleasant kind with one of the public officers, suddenly felt himself indisposed, and went to bed, where he had rigors, accompanied by stupor and insensibility, followed by a hot stage. The symptoms were such as to lead to the suspicion of his having taken an over-dose of laudanum. The following day, Thursday, return to health. Friday. Another paroxysm, similar to the first. On Saturday I saw him. He is lying in his bed reading a book, and offers no symptoms of disease; the pulse is quiet and the intellect clear; but he says he feels a difficulty in fixing his ideas on the subject before him; he should be out of bed, but that he has been requested to remain quiet by his medical attendant. Sunday at noon. Another paroxysm, preceded by slight rigors. Seven o'clock, P. M., in the following state: face dusky red; intolerance of light; stupor, alternating with restlessness and jactitation; intelligence perfect when roused, but suddenly falls into the same state after answering the questions put to him; sense of fulness in the head, but says he has no pain in any part of the body, but great debility; towards morning amelioration, and on Monday at ten o'clock, A. M., apyretic, but with some confusion in his ideas; is taking quinine. Five, P. M. Another paroxysm, similar to the former. Tuesday morning. Paroxysm continu-



ing; stupor; insensibility; stertor; pulse quick and hard; occasional vomiting; skin hot, and dry and moist alternately; bowels open; for the first time the patient is sensible to pressure on the epigastrium; the tongue pale, but red at the tip. V. S.  $\bar{3}$  xxx. Blood buffy and cupped. Evening. Same state; there has been a slight amelioration during the day. Leeches behind the ears; blisters between the shoulders. Wednesday. Much the same state, except that he answers correctly when roused, and invariably says he has no pain in any part of the body. Evening. Worse; blister to the head. Thursday. Cerebral symptoms worse; stomach more insensible to pressure; tongue dry, red at the tip and edges; pulse irregular and intermitting; bowels constipated; passes his urine involuntarily. Evening. Same state. Friday morning. Return of consciousness, and is aware of his situation; every symptom worse. Noon. Dying.

*Sectio Cadaveris, eighteen hours after death, December 19th, 1829.*—Inner surface of the skull of a light diffused red colour, corresponding with the part to which the blister had been applied; serous surface of the dura mater in its normal state; arachnoid in some places two lines in thickness, from albuminous effusion, having the appearance of the buffy coat of the blood in cases of inflammation; subarachnoid cell. texture very vascular; brain in its normal state; slight effusion into the ventricles; plexus chloroides pale and macerated in appearance; arachnoid at the base thickened and opaque, but not to such an extent as on the surface; cerebellum and membranes healthy; slight vascularity of the pia mater surrounding the medulla oblongata. Thorax: lungs healthy; heart healthy, except that there was a slight earthy deposit in the semi-lunar valve of the pulmonary artery. Abdomen: stomach distended with fluids which had been swallowed; mucous membrane thickened, and of a deep scarlet colour throughout, particularly at the left cul de sac; here and there ecchymosis of the sub-mucous cell. tissue; valvulæ conniventes of the small intestine somewhat developed; in no other respect did the mucous membrane appear affected; gall-bladder con-



taining a quantity of dark thick bile; the blood healthy; no bleeding from division of the vessels of the integuments.

*Remarks.*—As I had little to do with the treatment of this case in consequence of a difference of opinion which existed as to its nature at the commencement, I have abstained from giving all the details, and have condensed the history as much as I could, consistently with perspicuity.

CASE XXXV. *Gastritis; inflammation of the gall-bladder; meningitis.*—C., Esq., native of England, an officer of the navy; has spent the greater part of his life at sea; of a nervous temperament; the muscular structure developed; inhabiting St. Lucia a few months; addicted to the use of ardent spirits. After a state of intoxication for nearly a week he was suddenly seized with severe rigors yesterday about midnight, and this morning at ten o'clock; is in the following state: countenance that of a man in a state of intoxication; skin hot, but moist; complains of frontal headache; a sensation of burning inside the skull, and insupportable malaise; great apparent anxiety; restlessness; tumbling about in his bed; convulsive nodding of the head; occasional stupor; pain over the whole abdomen on pressure; incessant vomiting of yellow bile, with considerable effort; tongue broad, moist, and clean; occasional delirium and strange delusions, but conscious that his ideas are delusive; rolling off his mattress on to the floor, and says that he has been mad for the last three weeks, though his friends did not perceive it. Three P. M. Restlessness increased; running about his bed-room and making attempts to go down stairs, earnestly demanding brandy and water or wine; vomiting continues, with thirst, and sense of burning at the pit of the stomach; countenance flushed, or stamped with an expression of fear; pulse 120 and hard. V. S.  $\frac{3}{4}$  xvi. into three several vessels. In the first which was taken the blood was inflammatory, less so in the second, and not at all in the third. The restlessness has increased since the bleeding, and the delusions are more marked. Eight, P. M. The patient is much better; the skin is moist and cool; no agitation; ideas clear. He says that he found a bottle of



Madeira, and that he has drank the greater part of it ; but the pulse is 130, and feeble. After my departure a friend of his sent another practitioner to see him, who bled him in the foot, and ordered the wine to be discontinued. The restlessness and delirium returned shortly afterwards ; and towards morning, after a severe struggle and screaming for brandy and water, the patient died.

*Sectio cadaveris, six hours after death.*—Body rigid and muscular ; suffused with yellow, of a very light greenish tinge ; patches of extravasation in the scrotum and back of the neck. Thorax : all the viscera sound ; the left ventricle contained a firm colourless clot. Abdomen : peritoneum and appendages healthy. Stomach externally pale, distended with gas, and a small quantity of chocolate-looking fluid, of a strongly vinous smell, which proved to be claret, mixed with mucosities, which his nurse had given him some time before death ; mucous membrane thickened throughout its whole extent, and somewhat indurated ; at the lower part of the œsophagus and left extremity, it was of a deep crimson, produced by the rougeur pointillée and ecchymosis of the sub-mucous cellular tissue ; in certain places or patches, the left half was of a dark or blackish-grey colour ; near the pylorus and in the duodenum it again became red ; the rest of the canal was healthy, and contained a quantity of bilious matter. Liver hypertrophied ; tissue firm and granular ; of a nutmeg colour and appearance on fracture ; friable. The gall-bladder distended with dark bile ; its mucous coat thickened, and towards the apex inflamed ; the calibre of the duct small, requiring considerable pressure to force the bile from the bladder through it. Bile yellow, on diffusion through water. Spleen in a state of disorganization from *ramollissement* ; its capsule thickened. Cranium very thin ; dura mater healthy ; its sinuses containing a quantity of dark blood ; effusion of serum between it and the arachnoid ; pia mater exceedingly vascular ; in certain places where the vascularity was greatest there was observed a *ramollissement rouge* of the subjacent surface of the convolution of the brain, but very superficial ; in other respects the brain was exceedingly



firm, almost approaching to induration; a small quantity of serum in the ventricles. The pia mater at the base more vascular than on the surface, particularly on the pons varolii and around the medulla oblongata. The whole mass emitted a strong vinous smell. The pia mater of the cerebellum vascular. This latter body presented a peculiar appearance; it was indurated, but of its natural colour; on slightly moving it through water the convolutions at the posterior part separated from each other, and produced the appearance of a bundle of white worms or candle-wicks; its medullary portion of a shining white.

*Remarks.*—In this case chronic inflammation of the stomach had existed for some time, and no doubt put on the acute form in consequence of the habits of the patient, aided by climate. The appearances found after death in the membrane of the brain sufficiently explain the nervous symptoms. In cases of fever occurring in drunkards, in which the symptoms of the disease called delirium tremens have been well marked, I have invariably found meningitis to a greater or less extent. For the most part they are fatal. In the case before us the restlessness and agitation increased after the bleeding, and subsided upon the administration of stimulants, corresponding with what is observed in the usual forms of this disease. The states of the brain and cerebellum were also such as are found frequently in habitual drunkards. The vinous smell which these organs possessed is not, however, common, though I believe that it has been occasionally remarked. This unfortunate gentleman attributed his excesses to an insupportable feeling of wretchedness, resulting from a consciousness of complete impotence, caused by masturbation. To this was added a constant desire for women, and a morbidly voluptuous imagination. It is possible that the vinous smell existed more or less throughout the body, but it was in the brain and stomach only that I could perceive it.

CASE XXXVI. *Acute gastritis, with black vomit.*—K., aged 45, of a strong constitution, native of France, some time in the West Indies, has suffered from an attack of fever, which left him in a state of ailing convalescence with embarras



gastrique ; nausea ; no appetite, and occasional febrile flushes. After exposure to the sun all the morning had a slight rigor, followed by heat of skin. I saw him two hours from the commencement. December 22, 1830. Considerable agitation ; says he is very unwell ; face dark red colour ; breathing laborious ; intense pain, and heat of the epigastrium ; tremors of the arms ; cannot lift a cup to his mouth ; no head-ache ; tongue clean, pale, and broad ; skin intensely hot, but covered with warm perspiration. V. S.  $\frac{3}{4}$  xx. blood as in health. Evening, much in the same state, except that the vomiting is more frequent. The matters thrown off the stomach are composed of the fluids swallowed, and mucosities ; they are neither acid nor alkaline. Agitation extreme ; skin occasionally hot and dry, occasionally in a state of perspiration ; supination ; sighing and moaning. Complains of the lower part of the throat and stomach. *Rep. V. S., emollient clysters* : blood florid. Midnight, worse ; vomiting matter like snuff and water, mixed with mucus. 23rd. Four o'clock A. M. Coffee-ground vomit, in quantity, without effort. Perfect consciousness ; extreme agitation ; no head-ache ; extremities covered with clammy perspiration ; abdomen and chest hot and dry. Eight o'clock : agitation ; strength prodigious ; gets out of bed, and says he will not die ; vomiting coffee-ground matter every instant without effort ; is dying. 11th. Died after a severe struggle.

*Sectio Cadaveris, four hours after death.*—Body rigid, marbled on the back, neck, and loins, from cadaveric extravasations ; slight tinge of yellowness of the alæ nasi ; viscera of the skull and chest in a healthy state ; blood in the large vessels fluid, but coagulated in a basin ; considerable bleeding from the divided vessels of the brain, and the parietes of the body ; stomach pale externally ; distended with chocolate-looking matter ; a layer of dark mucus covered its interior, through which appeared large spots of a dusky red. When this layer was removed the whole mucous membrane was of an intense redness, principally at the lower part of the œsophagus and left extremity, becoming paler towards the pylorus ; easily detached from the muscular coat, and softened in



certain places very considerably; here and there its surface was abraded, and in these places the softening was almost pulpy; the contents were not acid, and did not act either upon litmus or turmeric paper. The intestines contained a quantity of this black matter; in other respects they were healthy. Gall bladder contained a dark thick bile.

*Remarks.*—This case is remarkable for the violence of the gastric inflammation, and from its extraordinary rapidity. I have never seen the disease in any other instance run so rapid a course. The history of this case, however, throws a light upon it. The patient had suffered already from an attack of fever, which had left behind it a considerable degree of gastric irritation. From some cause or other this irritation suddenly assumed a more acute form, and destroyed the patient in a space of time scarcely exceeding twenty-two hours. During life the blood presented no trace of alteration, and could not have been distinguished from that taken from the arm of a healthy man in England. After death it was found fluid, but coagulated when received in a basin, and separated into its two portions, though the crassamentum was not firm, and the serum contained a certain quantity of the colouring matter. Are we not to call this a case of yellow fever? If we are, in what respect does it differ from the preceding cases? There is nothing mysterious about it; the symptoms during life and the examination after death were perfectly consistent, and agreed with each other. Black vomit has been seen in cases during the febrile epidemics of Rome, and even in France.

CASE XXXVII. *Gastro-enteritis, with pleuro-pneumonia.*—L., native of England, aged 36, of dissolute habits, and addicted to the use of ardent spirits, inhabiting St. Lucia eight months; had been ill three days when I saw him. 18th September, 1832. Heat of skin; head-ache; slight redness of the countenance; nausea; occasional efforts to vomit, with a great deal of shivering; belly and epigastrium indolent and supple; bowels open; tongue pale and moist; short dry cough, increased on inspiration; no pain in any part of the chest. V. S.  $\frac{3}{4}$ xvi., *warm bath, barley-water.* Evening, much



the same; blood natural. 19th. Better; cough less troublesome; skin moist; pulse almost apyretic.—*To take barley-water, into which a small quantity of gum-arabic is dissolved.* 20th. Return of paroxysm without rigor during the night; vomiting of bilious matter occasionally, no uneasiness of epigastrium; cough increased, without pain; chest sonorous; *râle crepitant*, which hides the respiratory murmur, about the centre of the right lung. V. S.  $\frac{3}{4}$  xx.: to continue the barley-water. Evening. Same state; blood slightly buffy on the surface.—Warm-bath. 21st. Has passed a good night, and perspired somewhat; he is almost apyretic; chest in the same state; cough less troublesome.—Noon. *Quinine.* An exacerbation, which has prevented the quinine being given. Evening. Skin hot and dry; pulse 120; head-ache; muttering during his sleep; eyes slightly injected; pain over the epigastrium on pressure; has vomited two or three times a small quantity of bile; tongue red at the edges and tip; bowels still open; no pain in the side, but the cough troublesome, *son mât*; respiratory murmur not perceptible over the centre of the left lung; *râle crepitant* around this part. *Cupped over the side affected; leeches to the temples; pediluvium.* 22nd. Abatement of symptoms; but before the quinine could be given another exacerbation took place. Evening. The disease is making progress; the tongue dry and red at the tip and edges; muttering delirium; skin hot and dry; *son mât* over a greater portion of the chest; epigastrium sensible on pressure; inspiration produces cough, but the patient does not complain of pain; bowels open; abdomen supple; makes water freely.—*To take one of the following powders every hour.* R Hydrarg. subm. gr. xii; antim. tart. gr. iv; sacch. alb. qs. in chart. xii. dividend. 23rd. Has taken the powders, which have increased the vomiting; the cough is somewhat better, but not more so than can be expected, as this is the period of remission; chest in same state; skin is hot though moist. Noon. The patient is very ill; right side of the chest dull almost throughout on percussion; tongue dry; great restlessness; respiration at the upper extremity of the lung bronchial. Evening. Muttering delirium;



stupor; supination. 24th. The patient is very ill; stupor; unconsciousness; an eruption of small pustules, which form a dark scab round the corners of the mouth. Noon. Worse. Evening. Delirium, singing and talking incoherently; epigastrium insensible. Died at half-past nine o'clock.

*Sectio Cadaveris ten hours after death.*—Body stiff and cold; no bleeding in cutting through the thoracic and abdominal parietes. Thorax: intimate adhesion between the right lung and wall of the thorax; the middle and lower lobes united, of a dirty grey colour, so soft that they tore with the slightest cause, infiltrated with purulent matter; on squeezing the parenchyma it was converted into a disorganized soft pulp; grey hepatization of the lower portion of the upper lobe, but the upper portion was less completely disorganized, and presented the appearance of red hepatization; left lung healthy; heart contained in its left side tolerably firm coagula. Abdomen: mucous membrane of the stomach from the œsophagus to the pylorus, on the larger curvature, of a deep red colour, (*rougeur pointillée*,) thickened; inflammation of the lower portion of the mucous membrane of the ileon, but not very intense; other organs sound. Head. Effusion of a small quantity of serum between the arachnoid and pia mater; sub-arachnoid cellular tissue somewhat more vascular than usual; about an ounce of serum in the ventricles; no other appearance of disease in the encephalon.

*Remarks.*—Except by auscultation and percussion it would have been impossible to have discovered during life that such acute disease was going forward in the chest, the patient complained of no pain, and his only symptom was cough. This is anything but a rare case; I have seen several such, and I cannot sufficiently impress upon medical men the absolute necessity of examining the chest in all cases of tropical fever. Though by far the most prominent of the necroscopic appearances, pneumonia in this case was superadded, and was not the original cause of the fever; it appeared to have come on during the second day of the disease, and when I saw him on the third was not very far advanced. I have no doubt that the proper administration of quinine during one of the early remis-



sions would have prevented a return of the paroxysms, and the patient would have been saved. The calomel and tartar emetic aggravated the gastric symptoms, and it was found impossible to continue it in consequence.

CASE XXXVIII.—*Gastro-enteritis meningitis and pneumonia ; softening of the stomach.*—J. C., aged 32, of a nervous temperament ; native of England, inhabiting St. Lucia six or seven years ; short in stature, but muscular. On his convalescence from a severe attack of fever went into the country for change of air, his mouth still sore from mercury, which he had taken during his illness. After a sojourn of about a fortnight he returned to his usual employment, that of clerk of the works in the engineer-department. Having business at Gros-islet, he rode out there and returned the same day, being a distance of sixteen miles, exposed to a powerful sun : he complained of fatigue, for which he took a warm-bath and went to bed ; during the night he was seized with slight rigors, followed by fever, which with irregular exacerbations has continued seven days. Present state, 16th August 1830, the seventh day of the disease. Mercurial foetor of the breath ; gums swollen and ulcerated ; skin warm but moist ; tongue redder than natural ; he complains of malaise, but suffers no pain ; pulse 116 ; in health it ranges from fifty to sixty pulsations in a minute ; abdomen distended ; the patient flinches from slight pressure over the epigastrium ; intellect obtuse ; restlessness and constant change of posture, speech thick and inarticulate, pupils dilated and not easily made to contract.—Hirudines xx. to the anus and behind the ears ; warm fomentations to the belly ; cold to the head. 17th. Has passed a tolerable night and is better this morning ; pulse 78 : the restlessness, anxious countenance, and dulness of intellect continue ; pupils dilated ; has vomited once or twice from large doses of James's powder, which I find has been continued through the night, uncombined with calomel. Evening. The paroxysm has returned ; skin hot and dry ; delirium ; extremities cold and covered with a clammy perspiration ; head, chest, and abdomen hot and dry. Midnight. Same state, added to which is great agitation ; twitching of the arms, attempts to get out



of bed, pulse quick and weak, tongue tremulous when thrust out of the mouth. An ænema containing thirty drops of laudanum produced a change; the delirium and agitation are changed for a state of coma, from which he was with difficulty roused for a moment. 18th. Eight A. M. Same state, by the means of stimulating applications to the extremities the patient became sensible, but he continued to sink, and died at noon.

*Sectio Cadaveris.* — Body muscular and rigid; vessels of the superficies empty; no bleeding in cutting through the parietes; chest and heart healthy; dark coagula in the right side; right lung and investing membranes sound. Pleura costalis and pulmonaries of the left side adhering in all their extent; the two lobes adhering and highly inflamed, of a dark colour, soft, impervious to air, pultaceous. Abdomen: stomach pale externally; mucous membrane of a light brown colour throughout, with patches of bright redness here and there, much thickened and so soft as to be scraped off the subjacent tissue by scratching it with the finger nail; it appeared to be converted into a disorganized pulp both upon the upper and lower surface. Duodenum and jejunum healthy; lower portion of the ileon very much contracted, and patches of inflammation here and there of its mucous tissue. Head: dura mater healthy; arachnoid wheyish looking and thickened; slight effusion of sero-albuminous fluid between it and the pia mater; subarachnoid cellular tissue vascular, adhesions between the cerebral convolutions in some places, the vascularity greatest at the base and round the medulla oblongata; about two ounces of clear serum in the ventricles. Blood denoted no changes in its chemical properties.

*Remarks.*—Inflammation had gone on in one entire lung producing the ramollissement rouge, without having been at all suspected during life. The appearance found in the stomach, I have observed in several other cases which have been treated by mercury; it has no appearance in common with the gelatiniform softening of Cruveilhier, and resembles more closely the ramollissement pultacé of this gentleman. Had this stomach been opened without its mucous membrane having been more closely examined, I am certain that it would



have been thrown on one side and reported healthy. I shall, however, take another opportunity of speaking of this species of ramollissement; and shall content myself by stating, that in this case it was neither produced by the acid contents of the stomach, nor by the commencement of putrefaction, but that it existed during life, and owed its origin to the irritating effects of calomel on a mucous membrane already highly inflamed.

CASE XXXIX. — *Gastro-enteritis; meningitis; malformation of the colon.*—M. Gen. M —, aged 53, robust habit, and sanguineous temperament, inhabiting St. Lucia two months; but during the early period of his life passed some years in the West Indies; has been ill six days with fever and obstinate constipation; the febrile symptoms were slight, and seem to have been lost sight of in the more evident and apparently more serious phenomena. It was observed at the commencement, that the mild medicines employed were insufficient to remove the constipation under which the patient laboured; and more active remedies were resorted to without success until yesterday, when the bowels were freely moved, and have continued open ever since. The medical gentlemen attending him suppose this constipation to be the result of stricture or narrowing of some part of the descending colon: since the bowels have been moved the patient has felt himself better; the principal feature of the case being now a sense of great debility and faintness when he assumes an erect posture; on which account he cannot use the garde robe, such an attempt being succeeded by syncope. The patient suffered from a severe attack of constipation when in Newfoundland some years ago, but since that period has been free, and his bowels have been regular; he is ignorant of any cause which can have given rise to it. I saw him on the 5th March, 1831. Has had a slight febrile paroxysm during the last night accompanied with thirst; some pain in the epigastrium; flushed countenance; great restlessness; tongue slightly red at the tip and edges: he complains of great faintness, there is some stupor, and restlessness occasionally. During the night of the 5th, he made an attempt to get out of bed, and fainted; on his recovery he



talked incoherently, and then fell into a state of stupor. 6th. Stupor alternating with restlessness, muscles of respiration labouring; unconsciousness; answers incoherently; pupils dilated; occasionally putting his hand to his forehead. Countenance dark red, or livid; pulse 110, weak; skin warm, moist.—*Cupped at the back of the neck; stimulating applications to the extremities.* Noon, worse.—*Wine and calves-foot jelly.* Evening. More sensible, and has been conversing with a friend. 9 o'clock. Sinking. Died about two o'clock on the morning of the 7th.

*Sectio Cadaveris.* — Thorax: lungs and their connexions sound, the heart loaded with fat, particularly on the right side; parietes of the right auricle and ventricle very thin, and these cavities dilated; left side normal. Abdomen: adipose tissue covering the abdominal muscles three inches thick. Peritoneum and appendages sound; stomach pale externally, and distended with gas, and a small quantity of a thin mucous fluid; its whole inner surface of a dark-red colour, formed by confluent spots; redness deeper in the centre of each; slight ecchymosis here and there of the submucous cellular tissue; mucous coat in some places much thickened and easily detached. The intestinal canal contained only a few yellow mucosities; the upper third of the small intestine presented here and there patches of inflammation, much less red than in the stomach; valvulae conniventes enlarged. The ileon had an appendix attached to it about two inches long, and of the diameter of the gut. The colon presented nothing remarkable, until we came to the sigmoid flexure, at which place it became suddenly narrow, about three quarters of an inch in diameter; this narrowing continued three or four inches, and the gut suddenly widened, but not to its natural calibre. At the commencement of the rectum, another narrowing took place so suddenly that the point of the finger was stopped by the folds of the membrane, as if there had been a cul de sac; the diameter here did not exceed half an inch, and did not admit the finger without great difficulty. These narrowings did not resemble stricture, properly so called; the mucous membrane was sound; they were formed by the peritoneal



coat, which was contracted in these places, thickened, dense, and unyielding; the longitudinal bands enlarged and welted, but its serous surface however was smooth and glossy, exhibiting no trace of disease. The lower portion of the rectum was inflamed; liver hypertrophied, but its tissue natural; the gall-bladder contained a thick syrupy dark bile. Cranium: dura mater healthy; arachnoid thickened and opaque; effusion between it and the pia mater. Pia mater very vascular, adhesions between many of the convolutions. Both grey and white tissues of the brain contained an unusual quantity of blood. Considerable effusion into the ventricles; velum vasculosum and plexus choroides vascular, and studded with vesicular bodies; cerebellum and membranes sound.

CASE LX. *Gastro-enteritis, and softening of the mucous membrane; meningites.*—W. M., native of England, but has resided in the West Indies some time; of irregular habits, but robust constitution. After exposure to the sun during the whole day, felt himself indisposed at night, and took a strong dose of medicine. The following day he is said to have been very ill, and has continued so until now, the third day. 15th of August, 1831. Face grim and dusky; stupor; peevishness when roused; says he is very ill, but does not suffer from pain; a sense of giddiness and faintness on assuming the upright posture; complaining of inability to sleep. No embarras gastrique, nor nausea; no uneasiness of the epigastrium; abdomen supple, intellect clear, but during the night there is a slight delirium and agitation; the tongue is moist and broad, and covered with a yellowish fur at the base; skin hot but moist; pulse 120. *V.S.*  $\bar{3}$  xxx. Evening. The blood is as in health; great amelioration; perspiration profuse, but there is not an intermission; the bowels are freely open. 16th. During the night, return of fever with vomiting; eyes injected, stupor alternating, with restlessness and delirium; answers correctly when spoken to, but immediately wanders from the subject. No pain, makes water freely, tongue slightly red at the tip and edges. *Rep. V.S.*  $\bar{3}$  xii. and to take one grain of calomel every hour. Evening. The blood as in health; no better; has taken eight grains of calo-



mel.—*To continue.* 17th. The patient is worse; vomiting of grass-green matter, which he says is very sour; it acts powerfully on litmus paper. Morning. Supination; stupors alternating with great restlessness; skin moist; pulse weak, and 120; bowels open, pain on pressing the epigastrium; tongue pointed, red at the tip and edges.—*To continue.* Evening. Has continued in the same state all day; gastro-enteritis in an acute form.—*Fomentation to the abdomen; mercurial ointment to be rubbed into the thighs.* Has taken altogether about thirty grains of calomel; no mercurial fœtor of the breath; gums not affected. 18th. Bad night; extreme restlessness and agitation; great thirst, which nothing satisfies; moaning; no pain, but great anxiety of countenance and expression of fear; skin hot and dry; perfect consciousness; tongue hot and dry. Noon. Same state; slight fœtor of the breath; complains of his gums, which are spongy. Evening. Extremities cold and clammy; intense heat of chest and abdomen; supination; crossing the arms over the chest; rigidity of the articulations, the arm being extended with a jerk. Consciousness; tongue pale and broad, moister than it was; the patient does not return it into the mouth, and the lower jaw remains partially open. 19th. The patient continued in the state described all night, and died at eleven o'clock to-day.

*Sectio Cadaveris, four hour after death.*—Body pale and rigid; slight bleeding from the divided vessels of the scalp. Dura mater healthy; arachnoid thickened, effusion between it and the pia mater; sub-arachnoid cellular tissue vascular; slight effusion into the ventricles, membranes at the base healthy. Brain and cerebellum in their normal state. Thorax: lungs healthy, heart somewhat flabby, hot, communicating a tingling sensation to the fingers when touched; dark clots and colourless coagula in the right cavities. Abdomen: stomach externally pale; its parietes appeared on taking them up between the fingers somewhat thickened; mucous membrane of a greyish brown colour throughout, except at the cardia and extremity of the œsophagus on one end, and at the pylorus at the other, where it was intensely red, softened throughout and thickened; for the



most part the softening extended through the entire thickness of the tissue; in other places the superficies of the mucous coat seemed converted into a thick gelatiniform mucus, which, when removed, exhibited the remaining portion of this tissue of a bright red, in patches about the size of a shilling; its surface abraded as if excoriated; the muscular and peritoneal coats sound. The whole mucous coat was easily scratched off with the finger-nail, or handle of the scalpel; it was pulpy, and, except in the places where the red inflammation existed, appeared disorganized. Duodenum containing a yellow bile; valvulæ conniventes developed; mucous coat thickened and softened, but not to such an extent as in the stomach; lower portion of the ileon of a dusky colour, and the mucous coat softened and friable. Patches of red inflammation in the large intestine; the mucous membrane softened most in those places where the inflammation was greatest. The other viscera sound. Blood in the larger abdominal and thoracic veins thickened; it coagulated firmly when received into a basin.

*Remarks.*—This case commenced as one of gastro-meningitis from insolation; the stomach however did not appear to be severely affected. At first the blood was in its healthy state; it never presented the buffed appearance as in inflammation, nor the opposite state, as described by some late authors. From the moment that the calomel was commenced the symptoms of gastro-enteritis advanced with rapidity, and continued to increase, although the mouth became affected. After death, ramollissement, with disorganization, was found nearly in the whole extent of the mucous membrane of the stomach. Were there any symptoms to lead us to suppose when this affection took place? I do not know that there were; the coldness of the extremities, the thirst, the semi-flexed and rigid state of the fore-arms and legs; the sighing and anxious expression of the countenance were probably more pronounced in this case than in the most acute form of red inflammation. But still I confess it would be difficult, if not impossible, to do more than guess at ramollissement during life. This fact may, however, assist us. I never recol-



lect seeing this appearance in any case where mercury had not been administered in frequent doses by the mouth.

CASE XLI. *Gastritis; slight meningitis.* — J. aged 42, native of England, of a sanguineous temperament, in St. Lucia four months, awoke early on the morning of the 13th November, 1832, with coldness, chilliness, and nausea, which he attributed to a current of air from his bed-room window; he however went about his usual occupations after taking a dose of seidlitz powder. At five o'clock P. M. I saw him. The patient does not appear seriously ill, but he is very apprehensive of the result; nausea, dry cough, efforts to vomit, malaise, skin warmer than natural, but moist; slight headache, pulse 90. V. S.  $\bar{3}$  x. produced fainting and vomiting. The patient is anxious to take an emetic, which, as the gastric symptoms are not very intense, he is allowed to do. Evening, ten o'clock. The emetic has operated powerfully, and a large quantity of yellow bilious matter has been thrown off the stomach; the head is less painful; the patient is still under its influence, and is perspiring freely. 14th. Face flushed; headache; vertigo in assuming an erect posture; epigastrium insensible to pressure; nausea; occasional vomiting; tongue moist, broad, and white; skin warm; perspiration profuse. Noon. Vertigo; impossibility of keeping the head on the pillow; face dusky-red; conjunctivæ injected; stomach irritable, but no pain on pressing the epigastrium; no heat or uneasiness over this region. The bowels have been freely opened by calomel and colocynth, which he took this morning. V. S.  $\bar{3}$  xxx. fainting; relief. Evening. Blood natural in appearance, somewhat sizy on the surface. The patient was better some time after the bleeding, but the symptoms have returned; vomiting almost incessantly a grass-green fluid; anxiety, thirst, but no uneasiness of the epigastrium; headache and vertigo less; tongue natural.—*To take thirty drops of laudanum in a small quantity of orange-flower water; hot fomentations to the belly; hot bricks to the feet.* 15th. Morning. Says he has passed a tolerable night, but in attempting to get up this morning he fainted; the result of vertigo, he says, which he feels on assuming an upright position, or even on lifting his head off the pillow; he com-



plaints of no pain; there has been nausea, but no vomiting since last night; great thirst; tongue white; skin warm, and moist; pulse 100 soft. Noon. The vomiting has returned, and consists of mucosities; no pain on pressing the epigastrium; intellect clear, vertigo less.—Hot bricks to the feet; fomentations to the abdomen. Evening. The nausea continues; vomiting occasionally with effort; supination; sighing, but no pain of the epigastrium.—To be cupped on the epigastrium; warm bath. 16th. Pulse more quick, 120; expression of anxiety; face more flushed; complains for the first time of weight and oppression of the epigastrium; tongue moist, pale.—Forty leeches to the epigastrium; warm fomentation. Noon. Leech-bites bleeding; complains of faintness, but is evidently better. Evening. Thirst, anxiety, and oppression of the epigastrium have disappeared, some of the leech-bites still bleeding; face pale; body cool; pulse 90; expression of countenance good. 17th. Bad night; the patient is worse than ever; vomiting mucosities; coldness of the extremities, hic-cough; epigastrium painful on pressure; pulse irregular and rapid. Noon. The patient is deluged in cold perspiration; has once vomited a matter resembling snuff and water; is sensible, but very restless; supination, sighing; complains of burning in the stomach; the matters ejected not acid; has made water regularly throughout the course of the disease. Evening. Agony came on suddenly about an hour ago; the patient is speechless, but conscious, and is evidently occupied in praying. Died at ten o'clock.

*Sectio Cadaveris, ten hours after death.*—Body rigid, and muscular. Head: dura mater healthy; slight serous effusion between it and the arachnoid; this membrane slightly opaque, and not to be separated from the pia mater; no other trace of disease within the skull. Thorax: all the viscera sound; heart containing fibrinous clots. Abdomen: stomach pale externally; its coats appear thickened; it is somewhat distended with gas, and semi-coagulated black blood; the whole mucous membrane red and thickened; inflammation greatest at the left extremity; intestines healthy; gall bladder distended with a dark coloured bile; other viscera, as in health; blood presented no remarkable change.



CASE XLII. *Gastro-enteritis; hyperhemia of the brain and membranes; ramollissement of the spleen.*—P., a Creole of one of the neighbouring islands, been ill two days, and attended by Dr. C. I cannot learn a clear history of the case; the patient is now delirious, and with difficulty retained in bed; the conjunctivæ somewhat injected, and the eye sparkling and brilliant; he vomits occasionally a grass-green matter; no pain on pressing upon the epigastrium; the bowels have been freely vacuated by some powders he has taken, I believe calomel and rhubarb. Evening. The patient is now sensible; he complains of heat and pain in the stomach; vomiting of the same kind of matters; skin hot and dry; supination, crossing the arms over the chest; moaning, great restlessness. 5th. Morning. Delirium returned in the night; at present there is stupor; the extremities are cold and moist; chest and abdomen hot and dry; twitchings of the muscles of the fore-arm; has passed his urine and fæces involuntarily, and the attendants are now changing his linen; carpalgia and muttering delirium when roused. Died about noon.

*Sectio Cadaveris.*—Body still warm. Cranium: in taking off the calvarium, the saw had entered into the junction of the longitudinal into the lateral sinus; and a quantity of dark blood escaped, almost filling a common sized tea basin; dura mater healthy; arachnoid transparent and separated from the pia mater by an effusion of serous fluid; the latter membrane extremely vascular, and its capillaries turgid; veins covering the surface distended with dark blood. Structure of the brain very firm; numerous bloody spots from the division of its capillaries; slight effusion into the ventricles. Pia mater: at the base, on the medulla oblongata and cerebellum inflamed, but less so than on the surface. All the viscera of the thorax healthy. Muscular structure of the thoracic and abdominal parietes very red; liver hypertrophied, granulated. Spleen somewhat enlarged, pulpy, resembling grumous blood or red currant jam. Stomach pale externally; containing about four ounces of semi-coagulated blood; the whole mucous membrane dark red, (*rougeur pointillée*,) thickened, with difficulty detached from the subjacent tissue. Mucous mem-



brane of the small and great intestines rosy throughout; the other viscera sound. The blood fluid in some of the large veins and cerebral sinuses, but coagulating in a basin.

CASE XLIII. *Gastro-meningitis*.—Col. M. aged 50, native of Ireland, sanguineous temperament, inhabiting the West Indies two years, in St. Lucia six months, has suffered, for the last few days, great uneasiness about his wife, who has been labouring under a smart attack of fever, but who is now convalescent; for the last two nights his agitation has prevented his sleeping. 9th December. On getting up found himself indisposed, with malaise, pain over the forehead, back, and extremities, which frequently obliged him to lie down on a sofa; towards evening a paroxysm with hot skin, quick pulse, and augmentation of the symptoms; he took a warm-bath and a dose of calomel. 10th. No better, but the skin moist; some degree of stupor; gives way to pressure on the epigastrium; pains of the head, back, and extremities, described as rheumatismal; countenance dark red and full; bowels open. Evening. An exacerbation with increase of symptoms.—V. S.  $\frac{3}{4}$  vi. and three or four leeches to the temples. 11th. The patient is very ill, and if prompt measures are not adopted I fear for the result. Stupor; insensibility to pain, but ideas clear, when roused; sense of weakness or exhaustion; countenance dark, swollen, and grim; pulse full, hard, and wanting in freedom; epigastrium sensible on pressure; tongue broad and moist; bowels freely open; unfortunately, in spite of my remonstrance, these symptoms are considered as the result of direct debility, and wine and soup are given. Evening; worse. 11th. Bad night; stupor increased; answers correctly, but immediately relapses into his drowsy state; eyelids closed; face of a purplish brown colour; says he has no pain in any part of the body; but complains of great exhaustion, particularly when the head is lifted off the pillow; belly somewhat distended, insensible on pressure; bowels open; has taken twenty grains of calomel; skin moist; tongue getting red at the tip, and pointed; has taken quinine and wine and water. Evening. Exacerbation; increase of symptoms; persistence in the treatment; the patient has taken a bottle of Madeira dur-



ing the day. 12th. Respiration quick and laborious; stomach-cough; supination; frequent sighing; tongue dry and red; stupor.—V. S.  $\frac{3}{4}$  x.; blood flowed from the arm with difficulty; thick and buffy.—*Calomel gr. ii. omni horâ; to continue the wine.* In consequence of the difference which had existed between myself and the medical attendant of the patient, Dr. Chevalier saw him at noon. Supination; sense of great exhaustion; face dark coloured; eyes closed; tongue dry and harsh; pulse small, hard, and contracted; extremities cool, body warm; skin moist; respiration short and laborious. Dr. Chevalier and myself, not agreeing with the gentleman who has charge of the case, and who can see nothing in it but debility, can only remonstrate; the same treatment is pursued. Nine P.M. Has taken a bottle of champagne, half a bottle of Madeira, besides brandy and water: the patient cannot recover. Died on the morning of the 13th, at five o'clock, after a short agony.

*Sectio Cadaveris, six hours after death.*—Body remarkably muscular; vessels of the surface do not throw out blood on being divided; muscular tissue red and firm. Head: dura mater healthy; arachnoid thickened considerably; opaque albuminous effusion uniting it to the pia mater; subarachnoid cell. tissue extremely vascular. Hyperhemia of the brain and cerebellum; about two ounces of fluid in the ventricles, the lining membrane of these cavities rosy; arachnoid at the base thickened from violent inflammation. Thorax: heart hot, communicating a tingling unpleasant feel to the hand; distended very much on both sides, with blood and colourless coagula; veins on its surface engorged; lungs sound. Abdomen: stomach somewhat distended, containing gas, and a quantity of fluid of a greenish-brown colour and vinous smell; mucous membrane intensely inflamed and thickened, particularly at the left cul de sac, and pylorus, and easily separated from the subjacent tissue; mucous membrane of the duodenum rosy. The ascending and sigmoid portions of the colon slightly inflamed. Pancreas, injected and red; other viscera sound.

*Remarks.*—Had the treatment in this case been more rational I have no doubt that the result would have been very dif-



ferent ; unfortunately a symptom which is very common and which invariably indicates a considerable degree of meningeal engorgement, I mean that blunted sensibility, that unconsciousness of pain, which were so marked here, coupled, as it most generally is, with a sense of extreme weakness, and often with syncope on assuming an erect posture, was mistaken for direct debility. The extreme state of plethora observable on dissection, the distention of the larger veins and both cavities of the heart, were more pronounced than I ever remember to have seen in any other case. It not unfrequently happens that the abstraction of *a small* quantity of blood under these circumstances is attended with syncope, and this not a little strengthens the opinion of the medical man in favour of debility ; but if the arm be bound up for a short time until the heart has recovered its action, and then the bleeding be repeated, we shall in all probability find that after the patient has lost several ounces of blood, far from producing fainting, it will be followed by an increase of strength.

CASE XLIV. *Gastro-enteritis treated with calomel.*—A boy, aged 16, sailor on board the Magnet, has been ill three days with fever, presenting an exacerbation every day at noon. September, 14, 1831, third day of the disease. Heat of the skin ; headache ; pain in the back and extremities ; pulse quick and somewhat hard ; tongue somewhat brown at the base, red at the tip, tenderness of the epigastrium ; abdomen supple ; has taken a dose of calomel last night, and castor-oil this morning, which have operated freely, and produced *several bilious stools.*—*To take three grains of calomel every hour.* 15th. Eight A. M. Tongue pointed, red at the tip, rather dry ; giddiness and vertigo, when he attempts to get up to the bucket ; has vomited several times during the night a grass-green fluid ; epigastrium more tender, skin hot and dry.—*Warm-bath, and to continue the calomel,* which has not produced much purgation. Evening. Has taken, since yesterday, about thirty grains of calomel, and has had his warm-bath ; skin warm, but moist ; he says he is much better ; pulse less quick ; vomiting has ceased, there is a slight calm ; tongue moist and foul, less red ; the epigastrium sensible ; has perspired a great



deal since coming out of the bath. 16th. Nine A. M. The patient has taken six doses of calomel during the night; and is much worse; supination; frequent sighing; epigastrium very painful on pressure; tongue brown, red at the tip; vomiting mucosities; has not had an evacuation from the rectum, nor passed his urine since last night; pulse 100.—*Hirudines xxx. epigastrio; hot fomentations to the abdomen; mercurial frictions inside the thighs; to continue the calomel.* Noon. No evacuation from the bladder or rectum; leech-bites bleeding freely; some relief; slight mercurial foetor.—*To continue.* Evening. Same state, tongue whitish and moist, gums somewhat sore. 17th. Has made water once during the night; supination; extreme sensibility of the abdomen, which is distended; complains of pain in the stomach; intense desire for cool drink, abdomen hot and dry; extremities covered with cold clammy sweats; rigid.—*Rep. hirudines; warm fomentations; to discontinue the calomel; stimulating frictions to the extremities.* Evening. Same state, but the symptoms more pronounced; arms crossed over the chest; cannot protrude the tongue, which appears pale and broad; mouth half open, and when shut by the hand of an attendant, it passively opens again, two stools; vomiting occasionally a grass-green liquid: extremities semi-flexed and rigid, extended with a jerk. Died about six o'clock the following morning.

*Sectio Cadaveris.*—Body rigid, warm. Head: some little oozing of blood from the divided vessels of the scalp; nothing remarkable in the cavity of the skull. Thorax: viscera of this cavity also healthy. Abdomen: stomach pale externally; somewhat distended with a black matter resembling snuff and water; mucous membrane thickened, of a dusky grey colour, extremely soft, pultaceous, separated from the subjacent coat by scratching with the finger nail; the softening extended throughout the whole of its surface. Duodenum containing a small quantity of yellow bile; mucous coat softened, but not to such an extent as in the stomach, nor extending through the entire thickness of this tissue; in these places the mucous membrane which remained was red underneath, though grey and pultaceous on the surface; jejunum



softened, and here and there patches of red inflammation; one portion in a state of vagination; below this to the ileo-cæcal valve were not fewer than six other portions of vaginated intestine; in these places the gut was red or of a dusky-purple colour, easily reduced to a pulp by friction between the fingers; in the intervening portions the mucous membrane alone was softened and grey, the other tissues normal; one worm, (*ascaris lumbricoides*) was found in the lower and most extensive invagination. The mucous membrane of the colon of a bright crimson colour almost throughout its extent, and extremely softened. Liver hypertrophied, other viscera sound.

*Remarks.*—We here have another case in which we find ramollissement of the mucous membrane of the stomach and intestine after the administration of colomel. My friend Dr. Levacher, now in Paris, accompanied me in my visits to the patient a few hours previous to death, and assisted me in the examination; I am happy in stating that the experience of this gentleman, who practised in St. Lucia three years, leads him to an opinion similar to my own, that these softenings are the result of intense inflammation induced by the administration of repeated doses of mercury.

CASE XLV. *Gastro-meningitis.*—Betsey, a dark-coloured young woman, aged 24, of a sanguineous temperament and robust constitution, after washing clothes at the river all day, exposed to a hot sun, returned in the evening fatigued and perspiring; she undressed, and exposed herself to the air; somewhat severe rigor, followed by fever, came on, and the symptoms have continued until to-day, the fifth day of the disease, when she presents the following symptoms:—moaning and lying on her belly and face; answers incoherently; skin hot and dry; pulse 110; when turned appears almost like a person intoxicated; face pale, the conjunctivæ injected; belly supple, but epigastrium tender on pressure. Has taken medicine, which has evacuated her bowels freely; has had warm baths and clysters.—*Bled to ̄ xii.; blood sixty; twenty leeches to be applied to the mastoid process of each side.* Sixth day. The patient has passed a bad night, has vomited



once or twice, and is now in a state of agitation, alternating with coma. Evening. Coma, from which she is with difficulty roused; answers incorrectly, and relapses into her former state; extremities cold and clammy; subsultus tendinum, carpalgia; passes fæces and urine involuntarily. Seventh day. The patient is dying. Died about eleven o'clock A. M.

*Sectio cadaveris, five hours after death.*—Arachnoid opaque and thickened; pia mater vascular. At the base, on the tuber annulare and inferior surface of the cerebellum, and around the medulla oblongata, the pia mater extremely engorged with effusion of lymph on both surfaces of the arachnoid, in certain places, giving to the membranes a thickened and gelatiniform appearance; the structure of the brain and cerebellum healthy. Thorax: heart natural; firm, colourless clots of fibrine in both cavities. Abdomen: Rougeur pointillée of the left cul de sac of the stomach; mucous membrane thickened and opaque, and more easily separated from the subjacent coat than usual; patches of rosy redness in different parts of the small intestine. Other viscera healthy.

*Remarks.*—At the time I saw this girl little could be done for her. She presented symptoms more like those seen in certain cases of typhus in England than I have ever met with in cases in the West Indies. The quiet and drunken expression of countenance, the low nervous symptoms, subsultus, and carpalgia, though occasionally seen, are not common, and are generally combined with others, which give a different appearance to the disease. The blood had not undergone any other change than that which attends meningeal inflammation. After death it presented nothing remarkable.

CASE XLVI. *Gastro-meningitis.*—The following case was furnished by my friend Dr. Lloyd, who had charge of it. I visited the patient only towards the close of the malady. The symptoms were actively combated, but in consequence of disease of the brain of long standing, and from a worn-out constitution, without success.

Disease, *Febris remittens.*—Major-general F. arrived in the island of St Lucia March 20th, 1832; the following month,



on the 7th of April, in consequence principally of great mental anxiety, and much exertion from a pressure of colonial business, he became the subject of remittent fever, which, by prompt and active treatment, in a few days assumed the intermittent type, and shortly afterwards he resumed the important duties of governor. In December 1832, and June 1833, he again suffered from intermittent fever, and in consequence of these attacks he proceeded to Pigeon Island for convalescence, and, having remained a fortnight at that post, he returned to the Pavilion, in the enjoyment of tolerable health. Very soon after recovering from the above-mentioned attack of remittent fever, his vision became much impaired, apparently from amaurosis. In a few weeks afterwards he was seized with ophthalmitis of both eyes, ending in capsular membranous cataract of left eye, the amaurotic symptoms at the same time being much aggravated.

In consequence of the above malady, and his constitution being much impaired, he was particularly recommended by me, in April 1833, to return to Europe, for the recovery of his health, with a prospect, in some degree, of restoring his vision; and at his own desire I drew up a statement of his case, which he transmitted to the Secretary of State for the Colonies; to which his excellency received an answer, stating, "that his valuable services could not be dispensed with at that moment in the *then* unsettled state of the island."

It now becomes my painful duty to state the particulars of his present illness:—On Friday, the 17th of January, he felt a certain degree of indisposition, with general lassitude and slight chills, soon followed by pains in many of the joints, which he attributed to rheumatism, arising from exposure to the late very severe and wet weather. On Sunday he was confined to bed with some degree of febrile excitement, but did not report his illness until Monday morning, at seven o'clock; when he was visited by me for the first time. I then found him complaining of the foregoing symptoms. He told me that at times he felt very cold and aguish, with pains in the shoulder and other joints; at this time there was but little febrile excitement and not much thirst. Early in the



morning, previous to my visit, he had very injudiciously taken a copious draught of hot Madeira sangaree, which was immediately rejected from the stomach, followed by considerable bilious vomiting, the matter ejected exhibiting a bluish-green appearance. I found no pain or tenderness on pressure in the epigastrium; countenance somewhat anxious, with considerable restlessness; tongue slightly coated with yellowish-white fur; bowels much constipated; pulse 84, feeble and soft.—He was ordered the following medicine: *R. Massæ pilulæ hydrargyri, extract. colocynthi, comp. āā gr. iv.; pulv. rhei., gr. iii; misce fiant pilulæ duæ, statim sumendæ—postea injiciatur enema purgans amplum, ex sulphat. magnesiæ et oleo ricini secundis horis, donec alvus responderet.* Five P. M. Has had several slight alvine evacuations, very offensive, dark, and scybalous; appears much relieved, but still complains of pains in many of the joints, accompanied with general lassitude and much anxiety; tongue slightly moist at its edges; some thirst; no gastric irritation, or cephalalgia; pulse 80, and soft.—*Descendat in balneum tepidum hâc vespere; postea sumatur pulvis sudoricus ex calomelanos, gr. sex, cum pulveris ipecacuanhæ compositi, ʒj.* Tuesday, 21st January, eight A. M. Passed a comfortable night and slept well, perspired copiously, and appears apyretic, but complains of a sense of fulness in the abdomen, with distension of the colon; appears extremely restless, but there is no head-ache, or tenderness on pressure in the epigastrium; tongue moist, somewhat contracted, and slightly coated with yellow mucus; pulse 80, and slightly intermittent; bowels have been torpid during the night: urine scanty and high coloured.—*R Potassæ supertartratis, pulv. rad. jalapæ āā ʒ ss; rhei, gr. vi; zinziberis, gr. iv. Misce, fiat pulvis statim capiendus, post horas duas. Injiciatur enema emolliens.* Two P. M. Medicine has produced a few alvine discharges; appears much relieved. Symptoms as before. Five P. M. Seems apyretic, but considerably agitated, having been unfortunately occupied in the discussion of colonial business with some of the public officers; makes no complaint. Symptoms nearly removed.—*Utatur pediluvium tepidum horâ septimâ.* Wed-



nesday, 22nd January, eight A. M. The mental excitement above alluded to continued to increase; during the night he became very restless, and had no sleep; spoke in an incoherent manner, alluding to circumstances connected with the business which was the subject of yesterday's conversation. At present he has no fever, but labours under low muttering delirium; countenance intensely anxious; no headache, but considerable prostration of strength; stomach retentive; abdomen very much distended, but no uneasiness or pain in the epigastrium; no alvine evacuations; tongue dry, urgent thirst; pulse 80, and somewhat feeble.—*Repetantur pilulæ aperientes et enemata ut olim.* Eleven A. M. No effect from the medicine; great mental agitation, and constant jactitation. Continues to speak incoherently. Countenance wild and anxious; skin moist, and pulse soft, of natural frequency; tongue dry, with whitish fur, and much thirst; no irritation of stomach, nor cephalic symptoms. *Applicetur emplastrum lyttæ amplum occipiti et nuchæ, sumantur olei crotonis, tiglii guttæ tres; contin. enemata tertiis horis si opus sit.* Five P. M. Continues much the same. Medicine has produced several fæculent and very offensive stools, of a brown colour.—*Repetatur enema emolliens.* Seven P. M. Appears much worse. Considerable heat in the epigastric region, but no gastric irritation; extreme restlessness and morbid excitement; intense thirst, and continues to exhibit great mental agitation; pulse 90, small and compressible; skin hot and somewhat parched; tongue slightly red at its edges, and coated with yellowish brown matter; bowels free.—*To be cupped on the epigastrium to 3̄ xxiv. Repetatur enema amplum.* Nine P. M. Suffers from strangury; cerebral symptoms much the same; considerable pyrexia; continues to talk incessantly and incoherently, with excessive nervous agitation; pulse 120, very soft, and slightly intermittent; slight heat at epigastrium. Eleven P. M. Still worse. Symptoms of cerebral effusion now begin to manifest themselves; nervous excitement gradually lessening, succeeded by increasing stupor, with occasional moaning; temperature of the skin considerably diminished, with slight clammy perspiration; feet somewhat



cold, but hands warm and moist; much appearance of prostration; pulse 120, small and intermitting; tongue moist, of natural appearance.—R. Aquæ ammoniæ acetatis,  $\bar{z}$  iv.; misturæ camphoræ; aquæ fontanæ,  $\bar{a}\bar{a}$   $\bar{z}$  ii.; tinct. opii,  $\bar{z}$  i ss; misce Sumatur uncia secundis horis, applicentur cataplasmata sinapis pedibus. Thursday, 23rd of January, three A. M. Has slept very little; continues silent, and apparently comatose, but frequently changing his position; symptoms rather aggravated; has taken the whole of the mixture without any relief, but skin and tongue are moist.—R Sulphatis quinæ,  $\bar{z}$  i.; aquæ fontanæ,  $\bar{z}$  xii.; acid sulph. dilut.  $\bar{z}$  i. ss; tinct. cardam comp.  $\bar{z}$  ii; misce. Detur uncia omni horâ. Six A. M. Cerebral effusion appears completely established. Remains in a constant state of coma, unless violently roused. Symptoms as before, but much aggravated, with every appearance of approaching dissolution. Pulse 120, and intermitting. Temperature of skin as above.—Applicentur cataplasmata sinapeos femoribus et continuetur mistura sulphatis quinæ ut supra prescripta. Eleven A. M. Continues much the same. Coma gradually increasing, with great prostration of strength.—Moderate quantities of chicken broth, port wine, and sago, are at intervals administered, and quinine continued as directed. Four P. M. Gradually sinking. Coma complete, with occasional moaning; urine passed in bed; tongue covered with a dark crust, and parched; pulse feeble, almost imperceptible at the wrist; temperature of surface begins to diminish; prostration extreme.—Champagne wine in small quantities is given every quarter of an hour, and the sinapisms to the feet removed.—Omittantur medicamenta. Six P. M. Rapidly approaching to dissolution. Countenance extremely sunk and haggard. Half-past seven. Has just expired, after a violent convulsion, with loud screaming.

*Necroscopic examination of the body, fourteen hours after death.*—General appearance: Stature about five feet nine inches, of a spare and muscular habit, and slightly bilious temperament. Body and extremities not much extenuated. Head: on removing the calvarium, dura mater appeared



natural; arachnoid membrane preternaturally strong and thickened, slightly opaque, but with no appearance of its having undergone recent inflammation; veins of the hemispheres extended; pia mater extremely congested throughout, with copious serous effusion into the sub-arachnoid cellular tissue and among the convolutions of the brain; cerebrum externally felt unusually soft, and on cutting into the cortical substance it appeared very soft, and of a yellowish-brown colour; medullary matter also soft, and of a greyish-yellow colour, the line of separation between the cortical and medullary substances being much less strongly marked than usual; both lateral ventricles found distended with serous fluid, to the extent of four ounces; plexus choroides flaccid, much enlarged, congested, and containing a number of minute hydatids. On raising the anterior lobes of the brain, the olfactory nerves were found particularly soft, and of a much less brilliant white than natural; optic nerves preternaturally small, and at their entrance into the "foramen opticum" extremely firm, with the neurilema very much thickened and strong, and surrounded apparently by a sort of adventitious cellular tissue, connecting it with the opposite layer of the arachnoid coat; optic commissure also hardened, but the tractus opticus on each side extremely soft, of a yellowish colour, and becoming very indistinct at its connexion with the thalamus; the pia mater immediately adjacent to the softened tractus opticus exhibited signs of previous active inflammation; the fibrous structure of the thalami much separated and extremely distinct; a copious effusion of serum was found in the base of the cranium; cerebellum slightly soft, but much less altered than cerebrum. Thorax: substance of both lungs healthy and crepitous; left lung adhering by old adhesions to the opposite pleural surface, with slight effusion of serum. Pericardium covered with adipose tissue, and containing a quantity of serous fluid, to the extent of six ounces. Heart natural in its structure, loaded with adipose matter, and containing very firm coagula of fibrine in the right side. Abdomen: stomach much distended with gas, villous coat throughout; extremely vascular; much indurated, with par-



tial ecchymosis towards the pyloric termination; small intestines nearly natural; mucous membrane of cæcum had no appearance of vascularity, but was studded throughout with numberless dark spots, and partially lined with dark viscid mucus. Liver of its natural size, slightly dark in colour, with effusion of bile into its structure. Gall-bladder distended with dark viscid bile. Spleen completely disorganized, resembling a large soft coagulum of blood; its capsule easily separated; kidneys and pelvic viscera natural.

CASE XLVII.—*Acute gastro-enteritis produced by purgation.*—May 22, 1829. W. M., aged 29, tall, of a lymphatic temperament, and scrofulous constitution, inhabiting St. Lucia two years, by profession a planter; has laboured under a tertian intermittent of mild form for the last ten days, for which he has come to his friends in town. The last paroxysm, he says, resembled the former ones. It commenced about seven o'clock this morning, with coldness and rigors. These symptoms continued about an hour, were followed by a hot stage, with headache, nausea, pain in the back and extremities, which terminated in sweating in a short time, and at noon he was perfectly apyretic, and got out of bed. The following morning, being the day of calm, I examined him, and could trace no symptoms of disease, except that his appetite was impaired, his tongue somewhat foul, and his belly constipated. I ordered him to take ten grains of calomel, and a dose of senna and salts. These remedies griped him severely, but produced only three small evacuations, and the following paroxysm was rendered worse. The day following the last paroxysm he took quinine, which prevented a return. A week from the above period, I was again called to the patient, whom I found very ill. He says that he remained without fever until the day before yesterday; that as he was constipated, and could not have what he called a free evacuation, he took a dose of calomel, followed by senna and salts; that he vomited the medicine, and towards evening he had rigors, followed by a hot stage; but the paroxysm subsided yesterday morning, when he took another dose of his medicine; that at noon a second paroxysm came on without rigor,



and has continued ever since. That he has had two or three evacuations from his medicine which he has been taking, but that they were small and attended with griping. Present state, 2nd April, twenty-four hours since the commencement of the paroxysm. Heat of skin, distension of the belly; supination; nausea, and occasional vomiting; some headache; pulse 100, and soft; desire to go to stool; pain on pressing the epigastrium; tongue yellowish at the root; reddish at the tip.—*Three grains of tartar emetic in a large jug of sour orange beverage.* Evening. Has vomited a considerable quantity of bilious matter, and has been twice to the garde-robe.—*To take six grains of calomel immediately, and a dose of castor-oil six hours afterwards.* 3rd. Patient is much worse; abdomen more distended; skin very hot and dry; pulse 120; thirst; tenderness over the whole abdomen, tenesmus, fœtid mucous stools; has been on the closetool seven times during the night; nausea; tongue red at the tip and edges.—*To take the following draught every three hours, R. Magnesicæ cal. pulv. rhæi. misce gr. i. aquæ menthæ ʒ ii.* Evening. Much worse; an exacerbation at six o'clock. The medicines have been vomited, and the vomiting continues. *To take one of the following pills every three hours. R. hydrarg. submuriat. gr. ii. Ext. opii. gr. ¼ misce.* 4th. The patient has spent a bad night, and has taken three of the pills; belly extended and painful; tenesmus; stools frequent and fœtid; skin hot and dry; thirst; tongue dry and red; pulse 120.—*To continue.* Evening. Same state. 5th. Skin burning hot; vomiting of grass-green fluid; acute pain over the whole abdomen; tongue covered with a dark-brown crust, except at the tip and edges, which are intensely red; pulse 120.—*Pulv. jacobii, gr. ii. Hydrarg. sub. gr. i. Potassæ nitrat. gr. iii. omni secundâ horâ.* Effervescing saline draughts for drink. Evening. Worse; tongue browner and more dry.—*To continue.* 6th. In the same state, except that there is a perceptible tumor extending from the margin of Roupart's ligament, to a line drawn from the superior spinous process of the ileum to the mesial line of the abdomen; it is painful, circumscribed, even, elastic and pale. Evening. The tumor more



elevated, and the patient worse. Constant diarrhœa, but has not made water since morning. 7th. The patient worse than ever; skin hot and dry; tongue dark-brown, except at the tip; vomiting of grass-green fluid; great pain over the tumor; difficult and painful micturition; pulse 140. Intelligence perfect; diarrhœa; stools mucous, exceedingly fetid. Up to this period the treatment had consisted of calomel, united with opium or James's powder, my object being to change the secretions if possible. The patient becoming worse, I requested further advice. Tonics were proposed and given, viz. small doses of the sulphate of quinine in an infusion of cinchona. Evening. Very ill; subsultus; muttering delirium; fluctuation indistinct in the tumor. 8th. Much better; slight perspiration took place towards morning, and the patient has recovered his intelligence; has only had two evacuations during the night, which were passed in bed; has made water freely; tumor painful, and cannot support the weight of a poultice. Noon. Better. 10th. Has continued improving until to-day; the tumor has almost disappeared under the pressure of a bandage, which has been applied to it. 11th. On going to stool has passed upwards of a pint of purulent matter; without pain. 12th. A discharge of pus by stool in small quantity; the tumor has disappeared, and the belly is flaccid; the patient has been able to walk about with assistance since the 10th. 13th. Has had a stool without any mixture of pus, and is far advanced in convalescence.

*Remarks.* This case tells a history, and unfortunately but too common a one. It occurred to me shortly after my arrival in St. Lucia, which is the only excuse I can offer for my treatment. I then considered fever, as I had been taught to consider it, a disease of itself; and I had also been taught that the way to cure it was to alter the secretions, which were morbid, by a certain class of medicines, called alteratives, amongst which I was also taught, that the preparations of mercury stood pre-eminent. I shall offer no further remarks, but let the case speak for itself.

CASE XLVIII. *Gastro-hepatitis cured by calomel.*—The



captain of a brig from Demerara to Quebec, was taken ill shortly after his departure from the former place, in consequence of which the vessel came to anchor in the harbour of Castries. When I saw the patient he had been ill five days with a quotidian remittent, an exacerbation occurring every day at noon; the tongue was foul and yellow; bitter taste in the mouth; nausea; distension of the abdomen; pain in the epigastrium and right hypochondrium. Skin hot and dry; bowels constipated; pulse quick.—*To take three grains of the tartarized antimony immediately. Barley-water and a dose of castor-oil when the emetic has done operating.* Evening. The patient has taken his medicines, which have operated copiously, and he is now almost apyretic; the skin is perspiring.—*Barley-water.* 6th. Apyretic; slight embarras gastrique.—*Quinine, gr. iii. every two hours.* 7th. Early this morning another paroxysm set in, preceded by rigor; the skin hot and dry; nausea; embarras gastrique; tongue slightly red at the edges and tip, but much cleaner than before the operation of the emetic.—*Barley-water, emollient glysters.* Evening. Same state.—*To continue.* 8th. The paroxysm is continuing; no stool; nausea and once or twice vomiting; right hypochondrium painful on pressure; urine high coloured; skin hot but moist.—*To continue.* Evening. Another exacerbation without mitigation of symptoms; no stool; conjunctivæ yellow; bilious vomiting.—*To take two grains of calomel every two hours.* 9th. Better.—*To continue.* Noon. Almost apyretic; the patient has had two exceedingly copious dark stools. Evening. Bowels open; no fever, other symptoms disappearing. 10th. Bilious diarrhœa without pain or fever; the patient nearly well. 11th. Convalescent, and sailed on the 12th.

CASE XLIX. *Remittent cured by calomel.*—H. C., a boy, aged 13, after playing in the sun was seized with slight rigor, followed by fever. The paroxysm continued sixty hours, and then subsided, but without perspiration; the intermission appeared complete, but lasted only eight hours. During the paroxysm, headache, nausea, and vomiting of bile; embarras gastrique; constipation.—He took two grains of tartar emetic,



*en lavage*, which seemed to have materially assisted in producing the intermission; he also took a dose of castor-oil. During the intermission quinine was administered, but the second paroxysm took place in spite of every effort. It continued thirty-six hours, the symptoms being similar to the first, and was followed by a complete intermission of twelve hours.—Quinine was again uselessly employed. A third paroxysm made its appearance, and also continued thirty-six hours: in short, the disease became a double tertian, and seemed to be totally uninfluenced by the quinine; the only symptom worthy of remark being tenderness of the right hypochondrium, distended abdomen, and frequent small mucobilious stools, which had succeeded the administration of the emetic and castor-oil. After the third paroxysm one grain of calomel was given every hour; after the sixth dose the patient had a large dark offensive stool. The medicine was continued, and the bowels became freely evacuated. The fourth paroxysm was very slight, and continued only six or eight hours. The calomel was discontinued, and the patient never had a return.

*Remarks.*—These certainly are not the only cases of fever which I have seen give way to calomel when the sulphate of quinine has failed. I believe that during a practice of seven years I have seen two or three others, and in these the calomel has decidedly effected a cure, apparently by its action upon the liver and mucous coat of the intestinal canal. In all the other cases this medicine either was injurious, or else so far beneficial that it was an eligible purgative, and paved the way to the administration of the quinine; but it by no means prevented a return of the paroxysms, even when pushed so far as to produce ptyalism. We may therefore conclude that in some very few cases of intermittent or remittent fevers calomel can affect a cure, but that in the majority of cases it is either injurious or else beneficial, inasmuch as it is a purgative.

CASE L. *Gastro-meningitis*.—De L., aged 45, native of Martinique, of a sanguineous temperament, residing in St. Lucia six weeks, whilst on a visit in the country was seized



with fever, preceded by rigor. It appears to have been a remittent of a double tertian type. This is the only history I can obtain of the case. He was brought to town last night in a boat, and I saw him this morning. 27th June, 1835, the eleventh day of the disease. Yellow suffusion of the whole body; supination; moaning; frequent sighing. Says he feels no pain, but a sense of great exhaustion; tears falling over the outer angle of the right eye on to the cheek. No pain on pressing the epigastrium or hypochondrium, but great thirst; rejection of everything taken into the stomach. Complains of heat of the whole body, and desire to lie on the cool floor; yet the skin is cool throughout, though dry; the pulse regular, firm, and only 80; urine clear. During the night a little rambling delirium, but now answers correctly, and expresses great fear of the result; tongue white and slimy, slightly red at the edges and tip.—*Warm-bath; warm fomentations to the abdomen; emollient injections; barley-water; thirty leeches to the epigastrium immediately.* Evening. No better; stupor; speech thick, and somewhat difficult; skin febrile; pulse 96.—*Calomel, gr. v, castor-oil six hours afterwards.* 28th, morning. Has had two or three small offensive evacuations, but is worse; the skin hotter and more dry; pulse 110; tongue more red at the tip; thirst insatiable; intelligence much as last night.—*Hirudines xx. temp.; cold to the head, warmth to the feet; Seltzer water.* Evening. The disease making progress.—*V. S.  $\frac{3}{4}$  xii. Empl. lyttæ inter scapulas.* The patient cannot bear any thing warm to any part of the body. 29th. Has slept somewhat during the night; the blood as in health, stomach tranquil; no vomiting; less thirst, but more stupor; difficulty of speech increased, cannot easily protrude his tongue; bowels open.—*Rep. V. S.* Blood as in health.—*Cold to the head.* The yellowness of the skin nearly gone. Evening. Much the same all day; has made water freely since the commencement; complains of a sense of suffocation and want of air; he finds relief from the constant application of cold to the head and constant fanning. 30th. Bad night; intellect obtuse, face and neck dusky red; the cerebral symptoms more pronounced; the gastric evidently



better: he tells me that he has an *épanchement cérébral* and that he is *un homme perdu*.—*Hirudines xxx. behind the ears; enema purg. c. antim. tart. gr. xx.; and to have a stream of water constantly poured upon the head.* Evening. Better; the bed is saturated with water, but the patient insists upon his attendants continuing pouring the water upon his head. July 1. Better; has slept; and expresses great relief; he describes his wet bed as being exceedingly agreeable; his skin is cold to the touch, pulse 90. Evening. In every respect better; has had an evacuation from the bowels natural in appearance, but complains of want of air and oppression in breathing.—*To continue the applications of the water in the same manner.* 2nd. Improving; intellect clear; speech easy; skin cool. Towards evening, a return of the symptoms as last night; oppression; want of air, faintness, &c.; after vomiting a quantity of bilious matter they subsided. 3rd. Sitting up; troubled with wind on the stomach.—*Arrowroot, panado, &c.* 4th. Convalescent.

*Remarks.*—When I first saw this case the whole surface was suffused with yellow, which disappeared before convalescence, and seemed to subside with the gastric symptoms. The urine, when this colour was deepest, was clear and light coloured, and did not resemble that found usually in cases of jaundice.

CASE LI. *Fever with hæmatemesis and epistaxis.*—H., a sailor, Swede by birth, of a sanguineous temperament and robust habit, arrived in the brig Magnet, about six weeks ago, after leaving off work last night, found himself suddenly indisposed; slight rigor with pains in the head, back, and extremities; nausea, and a sense of coldness of the whole body; he vomited once or twice, and brought up a considerable quantity of fluid blood; during the night he got worse; the skin became hot and dry, the pains in the loins and inferior extremities were excruciating, and there was occasional vomiting of blood mixed with yellow bilious matter; the following morning he took a dose of salts, which was instantly rejected, but without the admixture of blood. Towards noon he suddenly lost consciousness, hæmorrhage, took place from the nose, and he re-



sembled a person who was struck with apoplexy. Such is the history of this case as detailed to me by the sailors on board. At two o'clock I found him in the following state: Face and neck covered with blood, skin pale, countenance anxious; conjunctivæ injected; pupils insensible; respiration quick and hurried, muscles of the neck and chest labouring; stupor, unconsciousness, occasionally sudden starting and catching hold of any object near him convulsively; epitaxis ceased, skin hot and dry, particularly over the chest and abdomen; pulse full and hard, 70.—V. S.  $\bar{3}$  xxx. blood sizzly, not buffy. Two hours after the bleeding is evidently better; he puts out his tongue when required; great pain under the ensiform cartilage increased on pressure, arms and legs colder than natural, chest and abdomen intensely hot and dry; pulse 100, and weaker. Sinapisms to the calves and inside the thighs. Nine o'clock P. M. Much better; ideas clear, slept a little, respiration quick, tendency to stupor, pupils contract and dilate, but light is oppressive; pain of the epigastrium, back, and extremities unrelieved; tongue reddish at the tip, and edges somewhat pointed; thirst; skin cool and moist all over; pulse 96; no stool for two days; makes water freely, urine high coloured; clear, and strongly acid.—*Rep.* V. S.  $\bar{3}$  xx. Blood sizzly somewhat buffy.—Fomentations to the abdomen, purgative cænemata. 17th August. Has passed a good night; one or two small evacuations after the glysters; better; all the symptoms mitigated; to be removed on deck. Noon. An exacerbation, skin somewhat warmer than natural, headache, ideas clear; tongue moist; no stool.—*Rep.* V. S.  $\bar{3}$  xvi. *Calomel*, gr. xx. Evening. Much the same; no stool. Castor-oil. 18th. Three evacuations, which are dark and offensive; doing well. 19th. Sitting up, and apparently doing well; but the tongue is red at the tip, and pressure on the epigastrium produces pain; bowels open, with some griping; skin cool but dry. Warm-bath. 20th. Early this morning severe rigor, followed by hot skin, &c.; thirst; redness of the tongue and pain in the epigastrium; the paroxysm subsided towards evening. 21st. Apyretic. 22nd. Return of the paroxysm as on the 20th; and 23rd taking the sulphate of quinine. 26th. Cured. Has never had a return. Nourishing diet; porter.



*Remarks.*—The tendency to congestion in this case has been much greater than is commonly observed; we had first congestion or hyperhemia of the stomach, with hemorrhage from the mucous membrane; and afterward cerebral congestion with epistaxis. In spite of a vigorous treatment, the gastric hyperhemia terminated in inflammation, at first continued and afterwards becoming intermittent; it was ultimately cured by quinine. The blood presented scarcely any change in its appearance, certainly nothing uncommon; it was more sily than in health, but not more so than from the nature of the case we should expect to find it; the coagulum was firm, and the serum clear, and in its usual proportion.

*CASES in which the blood has undergone a remarkable change, either having been found dark and fluid in the vessels after death, or uncoagulable, dark and syrupy looking when drawn from the arm during life.*

In the foregoing cases the blood presented no very evident marks of the effects of malaria; it did not resemble that found in the vessels of animals in which death has ensued from the injection of putrid fluids into the circulation; at least this change was not well marked, and if it existed at all, only in two of the cases; in the others, either the blood was found as in health, or presenting the appearances usually seen in cases of inflammation of an organ. In the cases we are going to examine, the blood presented that peculiar change in its appearance, which has lately led to a great deal of discussion.

*CASES LII. Malignant intermmittent, cured by tonics.*—B., aged 23, of a lymphatic temperament and scrofulous constitution, inhabiting St. Lucia eighteen months, and of regular habits; suffered two paroxysms of tertian intermittent about three weeks ago; since which period he has enjoyed good health. Early this morning, December 21, 1830, had a severe rigor, with great pain in the back and vomiting; these symptoms, however, continued only about half an hour, and were succeeded by fever. I saw him at noon, four hours from the commencement. Countenance very anxious and pale, nose



pinched, *alæ nasi* in a state of agitation; belly and chest hot and dry; the extremities covered with a cold clammy perspiration; epigastrium and both hypochondria painful on pressure; vomiting the liquids taken into the stomach; pain in the forehead and loins; pulse weak, 130; tongue covered with a white mucous coat.—*To take three grains of tart. antim. in a jug of sour orange-beverage.* Evening. The emetic has operated several times both by the mouth and anus; the patient has not vomited any bile, but passed a quantity downwards; the symptoms are mitigated; the efforts to vomit are not so frequent, nor the nausea so harassing — *To take ten grs. of calomel immediately, and salts in the morning.* 22nd. Apyretic; the paroxysm of yesterday terminated by perspiration, which had an offensive smell.—*To take a drachm of bark every hour.* Evening. Another paroxysm at noon, which resembles the last; the tongue white and mucous; anxiety and restlessness very great; great uneasiness at the epigastrium; skin alternately burning hot, and covered with oily perspiration except a circle of five inches in diameter, having the *scrobiculus cordis* for the centre; pulse 130, weak; bowels still operated upon; urine free and pale in colour. — Emollient clysters every two hours; hot fomentations to the abdomen; strict diet. 23rd. Symptoms more aggravated; the next intermission may be expected at noon. Noon. Until two P. M., an intermission, and the patient took ten grains of quinine; but about this hour another paroxysm took place; and at eight o'clock in the evening, skin hot and occasionally covered with a greasy sweat, vibices on the neck, shoulders, and thighs; almost incessant vomiting of a grass-green fluid; pulse 140; very weak, no pain in the head; tongue slightly red at the tip, white and moist on the rest of its surface; venesection was performed with caution; blood almost black, and remained in the basin, thickened but not coagulated; it appeared as if it contained some greasy substance; no separation of its parts. Midnight. Same state; has made water, which contains a deposit of dark blood.—*To have a bath of the decoction of the bark of the cinchona piton and leaves of the pimento, and to remain in as long as possible.* Decoction of the *cinchona oblongifolia*



administered in a glyster every two hours. 24th. No better ; could not support the bath longer than five minutes ; extremities cold and greasy ; epigastrium painful on pressure and burning hot ; pulse rapid.—To continue the bark injections. Noon. A slight remission with another exacerbation at two P.M. Evening. Almost incessant vomiting of a matter resembling snuff sprinkled through clear water ; skin alternately hot and clammy ; epigastrium hot, and communicating a tingling sensation on touching it ; pulse imperceptible at the wrist or ankle, the heart appears to flutter rather than beat ; petechiæ on the arms and chest ; the vibices of a dusky red ; ideas clear.—Stimulating frictions to the extremities ; sinapisms to the inside of each thigh ; poultices of bark to the abdomen ; and the following injection every hour.—R pulv. cinchon. oblong. ʒ ii. decoct. cinchonæ ʒ vii. sulp. quinæ. gr. vi. Midnight. Better, pulse 140 ; has passed about 0 ss. of high coloured urine of an offensive smell. 25th. Eight o'clock A.M. Skin warm and covered with a gentle perspiration ; tongue moist and less red at the tip ; vomiting has ceased since last night ; pulse 130.—To take gr. iv. of sulph. quinæ, every two hours ; and to continue the injections. Evening. Has taken the quinine and injections as prescribed ; is somewhat deaf ; pulse 120 ; skin warm and moist. 26th. Pulse 110, and firm ; skin warm and moist ; expression of countenance natural ; feels great relief ; bowels regular ; two evacuations in the twenty-four hours ; urine depositing a lateritious sediment ; vibices have disappeared ; petechiæ almost imperceptible. 27th. May be considered convalescent, though exceedingly weak. Mutton-broth, beef-tea.

*Remarks.*—In this case, superadded to a gastro-enteritis, the symptoms of which were well pronounced, we find a change had taken place in the blood, which had lost its power of coagulating, was dark and syrupy, but wanted that plastic feel which it usually possesses. The symptoms of extreme prostration which the patient exhibited were not produced by an inflammation of any organ alone ; the fluids seemed to play a part in their production. The treatment was decidedly tonic, and carried as far as possible : the effects produced were in the



highest degree satisfactory. Had we trusted to the administration of the muriate of soda, or any neutral or alkaline salt, should we have obtained so favourable a result? I have no hesitation in believing that under any other treatment than the one pursued, so far as our present knowledge extends, the termination would have been unfavourable; with respect to the saline treatment, in the greater number of cases I conceive it to be quite inadmissible.

CASE LIII. *Gastro-enteritis; blood fluid; yellow suffusion; ramollissement rouge of left lung; slight arachnitis; inflammation of the lining membrane of the heart; ramollissement of the spleen; death.*—H. M., aged 29, inhabiting St. Lucia some years; has been ill five days with fever, the history of which I cannot obtain, except that it seems to have been of a remittent or continued type; and the patient has progressively got worse. Present state, December 24, 1830. The whole surface of the body is covered with a dusky yellow suffusion, as well as the conjunctivæ; the skin is warm and moist throughout; eye-lids drooping over the eyes; falling of the tears on to the cheek; countenance of a dull unpleasant appearance; does not complain of any pain; the abdomen is hard and unyielding, but not distended; a blister has been applied over the epigastrium, which prevents me from ascertaining if there be uneasiness from any other cause on pressure upon that part. tongue clean with a tendency to become dry; slightly red at the edges and tip; pulse extremely irregular and intermitting, but I cannot learn how long this has existed; urine and the serum from the blistered surface of a deep yellow colour, tinging the linen; perfect consciousness; intellect not affected; hiccough; here and there rosy petechiæ.—Decoction of country bark and bay leaves in form of a bath. Noon. Much the same; could not support the bath longer than two or three minutes. The extremities are cold, and covered with clammy sweat.—Frictions of the tincture of bark and camphor. Evening. Skin hot and dry; calor mordicans; slight delirium; has been once on the bed-pan; evacuation small; hiccough. Continued much in the same state throughout the night; and the follow-



ing morning, without agony, the patient sank and died about eight o'clock.

*Sectio cadaveris, six hours after death.*—Chest and abdomen still warm externally; surface of the body of a deep orange colour; ecchymosis into the cutis and subcutaneous cellular tissue in patches of considerable extent; oozing of blood from the divided vessels of the surface. Thorax: a small quantity of yellow serum in the pericardium; pericardial coat of the heart exhibiting rosy blushes, particularly on the left side; its structure flabby; atrophy of the right parietes, with dilatation of the auricle; the right cavities contained a quantity of black uncoagulated oily looking blood; the lining membrane exhibited rosy spots and stripes, particularly on the septum, and on the auriculo-ventricular valves, on the tuberculum loweri, extending into the two venæ cavæ, and from the valve of eustachius into the coronary vein. The cavity of the left auricle and ventricle contained, and appeared to be entirely filled up, by a fibrinous clot, which run into the muscular net work, and was attached to the parietes intimately by means of small vessels; it terminated in a floating extremity of an inch in length in the aorta. Aorta presenting streaks of a rosy hue in its inner surface; left lung adhering to the pleura costalis, by firm though recent adhesions; the two lobes adhering; gorged with dark-coloured blood throughout; the anterior portion crepitant, but the posterior seemed to have undergone a complete disorganization; it resembled some spleens, or grumous blood, and was impermeable to air, (*ramollissement rouge pultacé.*) Right lung healthy. Abdomen: omentum loaded with fat, the veins on its surface, and in the mesentery engorged with dark fluid blood. The mucous membrane of the stomach studded here and there with minute spots in clusters, of a deep red colour, particularly at the left extremity; in these places this tissue was thicker and softer than in the remaining portions, which appeared to have undergone little change. Mucous membrane of the duodenum jejunum and ileon presented marks of inflammation, but not to a great extent; the inferior portion of the ileon of a dark purple colour;



all its coats were thin and easily lacerated; friction between the fingers reduced them to a pulp; this part of the gut was contracted. Spleen enlarged somewhat and completely disorganized, its texture resembling blood half coagulated. Liver hypertrophied, but its tissue presenting no appearance of disease; the trunk and intestinal branches of the vena porta contained black fluid blood, which did not coagulate on exposure to the air. Gall-bladder healthy, containing a quantity of dark syrupy bile becoming yellow on diffusion through water. Skull: dura mater healthy; arachnoid wheyish with slight serous effusion between its surfaces; slight degree of vascularity of subarachnoid cellular tissue; slight effusion of yellow serum in the ventricles.

*Remarks.*—The examination after death showed similar appearances to those we have already seen in the preceding case. Perhaps the stomach was less affected, and the small intestine more so than is usual. The heart and some of the large vessels presented those appearances which are generally considered as resulting from previous inflammation. Was the organized clot found in the left cavities of the heart the result of exudation from the irritated surface, or was it produced as are those found in aneurismal sacs, from the blood itself? It would perhaps be impossible to answer correctly this question, but I am disposed to think it was the result of inflammation. Animal chemistry has not as yet made a sufficient advance to enable us to ascertain the changes which the blood has undergone in these cases. Whatever they may be, the fibrine seems to be affected in a singular manner, which the deficiency in the quantity of a salt can scarcely be supposed to account for.

CASE LIV. *Double tertian; blood fluid; gastritis.*—J. G., aged 28, has been confined in the common jail for a week, during which time he has had two paroxysms of double tertian intermittent. The third commenced this morning at nine o'clock, preceded by rigors, which continued about two hours; at noon I found him in the following state. Skin slightly yellow; countenance expressing extreme anxiety; nausea; almost incessant vomiting of yellow bile; headache;



intense thirst; he is stated to have drunk upwards of two gallons of fluid since the commencement; no pain nor heat in the stomach, but he cannot support the slightest pressure on the epigastrium. Evening. The patient has been removed from the jail to the house of a friend; he is in a state of profound stupor, lying on his back; eyes pale and haggard, pupils of the natural size, but insensible. Nothing rouses him, except pressure upon the epigastrium, from which he immediately winces and groans as from sensibility to pain.—*Hirudines xxx. to the epigastrium, a purgative enema, warm fomentations to the abdomen.* Midnight. The patient is sensible; the leech-bites are bleeding, and cannot easily be stopped; the blood which oozes from them is black, thin, wanting plasticity, resembles serum in which the colouring matter is diffused; the skin is cooler, but dry; the pulse 130; supports pressure upon the epigastrium; tongue pale, and trembling; has made water, in which is a dark fetid deposit, resembling putrid animal matter; it is acid. The following morning. The patient had an exacerbation after I saw him, which is now leaving him; he is perspiring profusely; the perspiration fetid; to take ten grains of quinine immediately, and to repeat it in two hours. Evening. To take the following mixture: *Decoct. cinchonæ. ℥i. sulph. quinquæ. gr. i. acid sulph. dil. m. ii.* every two hours. This patient recovered without a return of fever.

CASE LV. *Intermittent, with gastritis, softening of spleen, and fluidity of the blood.*—March 18, 1830. P., a gend'arme, aged 32, of a robust constitution, has had two paroxysms of quotidian intermittent, each commencing with severe rigors about four o'clock in the evening, and continuing until eight or nine the following morning. I saw him for the first time to-day, at eleven o'clock A. M.: the second paroxysm had terminated by profuse and fetid perspiration. The body is of a dirty yellow colour, cool and moist; the patient does not suffer pain, but the pulse is 120, and weak; the abdomen is distended; uneasiness on pressing the epigastrium; great restlessness; countenance pale, grim, and anxious.—*To take three grains of quinine every hour.* Evening. The same



state.—*The patient has taken only three doses of quinine.* 19th. Six A. M. The third paroxysm came on during the night; great restlessness; supination; oozing of a dark fluid blood from both nostrils; skin intensely hot and biting, of a grimy white or yellow colour. Noon. Countenance very anxious, pale, and covered with beads of perspiration; the extremities cold and greasy; abdomen hot, dry, and pungent; supination; muttering delirium; pulse 140, weak; inattention to surrounding objects, eyes partially closed.—*Blisters between the shoulders, sinapisms inside the thigh, fomentations to the belly.* Four o'clock P. M. Countenance cadaverous; has made about half-a-pint of urine, in which a quantity of fluid blood is deposited, at least what appears to be blood: and his attendants declare that the blood came from the urethra pure and in gushes. Died about nine o'clock, P. M.

*Sectio cadaveris at six o'clock on the following morning, nine hours after death.* Assisted by Dr. Chevalier.—Body of a pale livid yellow, large patches of purple on the face, neck, breast, back, and limbs; rigidity of the members. Thorax: heart flabby and soft; the right cavities containing dark fluid blood, which thickened but did not coagulate in a basin; left cavities empty; rosy blushes on the lining membrane of both sides, extending into the aorta and the two venæ cavæ; lungs sound, but containing a quantity of dark blood at their base. Abdomen: mucous membrane of the stomach of a dusky red, thickened and softened, but not considerably; easily separated from the subjacent tissue. Small intestine containing a greenish coloured fluid; lower part of the ileon of a dusky red from injection of all the tissues. This I attribute to cadaveric transudation and engorgement of the smaller vessels; liver somewhat larger and softer than usual, containing in the vessels of its parenchyma a quantity of dark fluid blood. Vena porta distended, with dark uncoagulable blood, apparently divested of fibrine; spleen softened, larger than in health, and its parenchyma converted into a bloody-looking pulp. Bladder contracted, containing about an ounce of an offensive smelling thick urine, the mucous coat thickened and inflamed in small patches about the size of a six-



pence. Left kidney very vascular, and considerably engorged with blood; a small quantity of fluid blood in the pelvis. Other viscera sound. Skull: dura mater healthy; arachnoid wheyish in places; subarachnoid cell. texture towards the back of the head somewhat darker than usual from cadaveric engorgement of the small vessels; the texture of the brain and cerebellum rather soft. In cutting through the different parts during the operation, the oozing of blood was so considerable as to incommode me very much, and before continuing my examination of the chest and abdomen, I opened the head, took out the contents, and by keeping this part in a depending position, got rid of a considerable quantity of blood, and continued the dissection with less inconvenience.

*Remarks.*—This case presents a very fair specimen of the history and diseased appearances constituting what may with great propriety be called malignant intermittent. Can we in such a case tell which are the particular symptoms attributable to the organic læsions, and which belong more particularly to the change which the blood has undergone? I am afraid we cannot. It is exceedingly gratifying, however, to know that though these cases, which, if left to themselves, for the most part terminate fatally after the third or fifth paroxysm, (and in fact which, during the early period of European practice in the West Indies, constituted the majority of the fatal cases observed, as we learn from Pouppe Desportes, one of the earliest of the French practitioners in St. Domingo, who has given us an account of its diseases,) we now have them more completely in our power than any other disease of equal danger with which I am acquainted. It is rarely indeed that these cases terminate fatally, if seen during the first paroxysm. During the febrile commotion little can be done, it is true—nothing without a distinct indication, and a certainty that we are doing no harm; but the moment the patient becomes apyretic, or in cases of great danger, even before the paroxysm has completely subsided, we can do a great deal. The sulphate of quinine is a specific on which every reliance can be placed; this medicine must be administered in large doses, and at short intervals, and continued



until the patient complains of deafness and a singing in the ears. If this medicine cannot be administered by the mouth, we must use it in form of glysters, combined with a decoction of cinchona bark.

CASE LVI. *Intermittent; blood fluid.*—G. B., Esq., a planter, residing on an estate in the neighbourhood of an extensive marsh, and having several pools of water, or marigots, immediately to windward of his house, has suffered several attacks of intermittent, and twice been subject to delirium tremens. I saw him, June 17, 1831, shortly after the commencement of the third paroxysm of a tertian intermittent, which set in with severe rigors about ten o'clock this morning; the cold stage has been very severe, and of long continuance; at present the skin is warm on the extremities, intensely hot on the chest and abdomen; supination; great restlessness; tension of the abdomen; pain or pressure over the epigastrium; considerable thirst; vomiting of everything taken into the stomach; tongue clean and moist; pulse 120, and weak; conjunctivæ yellow; countenance anxious, fear of death.—*To take ten grains of calomel, and if the bowels are not moved in six hours, to take a dose of senna and salts.* Nine o'clock. There has been a slight remission, which however was of very short continuance, followed by an exacerbation; belly open; stools bilious; has made water, but cannot inform me what it is like. 18th, morning. Countenance very anxious; the whole body of a deep yellow colour; patches of cutaneous ecchymosis, here and there of a purple colour; skin intensely hot and pungent; has passed a quantity of urine of a black or port-wine colour, thick and turbid; this colour depends upon a dark-coloured substance diffused through it, and which, when allowed to repose, falls to the bottom of the tumbler in the form of a dark precipitate, resembling black snuff; the super-jacent urine becoming clear and of a dark-red colour; both the urine and the precipitate changed litmus paper red. Four ounces of blood were taken from the arm, and suffered to stand in the vessel in which it was received; it never coagulated, but became thick and syrupy, and had the appearance of being greasy. Twelve hours after being drawn



away it emitted a putrid odour. Noon. Much the same; the heat of the skin, however, more natural; towards three o'clock slight moisture over the whole surface of the body; at four o'clock perspiration of an offensive smell.—*To take four grains of quinine every hour.* Nine o'clock, P. M. The first dose of the medicine has been rejected, and the others retained with difficulty; perspiration profuse, has changed his linen three times; pulse 100, and weak.—*To have a glyster containing ʒ vi. of dect. cinchon, and ten grains of the sulph. quinae. every hour.* 19th. Deafness; yellowness; skin cool and moist; pulse 110; great debility. To take the decoction of bark, acidulated with nitric acid. 20th. Convalescent; desire for broth or beef-tea; yellowness disappearing, but the ecchymosis remaining. The patient has shown me the external part of his thigh, which is almost black from extensive cutaneous extravasation; he is afraid that it is mortification. 26th. Patient is well, the yellowness and extravasations have completely disappeared. I took away a small quantity of blood from the arm; it was dark, and though it coagulated and its parts separated, the crassamentum was soft, and the serum contained a quantity of the colouring matter.

CASE LVII. *Gastro-enteritis, blood fluid.*—John Apley, sailor, on board the *Andromeda*, aged 45, of debauched habits, in St. Lucia about a month, has been on shore once only. Whilst at his work yesterday, had a severe rigor, which came on suddenly, and without any known cause; continued two hours, and was followed by heat of skin, vomiting, &c. I saw him the following day, the second of the disease, 2nd of May, 1832. Yellow suffusion of the conjunctivæ and the surface of the body; temperature of the skin little increased, moist; every fluid taken into the stomach is immediately rejected; great thirst, and desire for cold water; epigastrium painful on pressure; bowels constipated; great pain in the thighs and loins; none in the head; the tongue coated with a yellowish fur, red at the edges and tip, moist.—*Ordered on shore, and to take a dose of calomel immediately.* Evening. He walked to his lodgings, and is fatigued.—*Warm-bath, fomentations to the abdomen, emollient glysters.*



3rd, morning. Has been freely purged during the night; stools present nothing remarkable in their appearance; skin of its natural temperature, and covered with perspiration; pulse 120, and weak; suffusion of a deeper yellow; urine scanty and red, does not tinge the linen; delirious dreams.—V. S.  $\frac{3}{4}$  x. produced fainting; blood dark, greasy, and uncoagulated. Evening. Since the bleeding, the patient has been delirious; he has strange fancies, says that the rain falls through his bed-curtains upon his bed; but appears happy, smiles and talks incoherently to his shipmates, and jokes as if in health; he says he is not ill, and that the captain has a wish to turn him out of the ship. To these symptoms are added pain on pressure over the epigastrium; vomiting of a grass-green fluid; pulse quick and weak; extremities cooling.—*Empl. lyttæ. nuchæ. Empl. sinap. inter crures.* 4th. Has been furiously delirious during the night, and obliged to be detained in bed by means of a strait-waistcoat. The countenance has an anxious and enraged expression, but the eyes are dull and glazed; extremities colder; pulse irregular, and quick; occasional efforts to vomit; gives way to the slightest pressure on the epigastrium.—*Laudanum and Madeira wine.* Noon. Stupor; passes fœces, and urine involuntarily; Died at four o'clock P. M.

*Sectio cadaveris, eighteen hours after death.*—Yellow suffusion; purple cutaneous ecchymosis of the chest, abdomen, back, neck, and extremities; very little rigidity; body exhaling a putrid odour. In cutting through the integuments of the posterior part of the head, they were found to be infiltrated with an immense quantity of dark semi-putrid blood; slight effusion of yellow serum between the dura mater and arachnoid. In other respects the membrane healthy. The subarachnoid cellular tissue probably more vascular than usual; the brain and cerebellum softened, from commencing decomposition. Thorax: lungs healthy; cadaveric engorgement at their posterior part; heart flabby, about two ounces of yellowish serum in the pericardium; the right cavities and the two venæ cavæ distended with dark fluid blood, which thickened but did not coagulate, after being placed in a basin;



lining membrane of the heart and large blood vessels pale. Abdomen: peritoneum and appendages sound; stomach distended with a chocolate-looking fluid and gas. The whole of the mucous coat covered with a viscid grey mucus, which was not removed by shaking the stomach through water, but easily with the back of the scalpel. The mucous coat itself being exposed was of a dusky red appearance, both upon the omental and diaphragmatic margins; here and there its surface was abraded to the extent, perhaps, of a sixpence; it was thickened, and evidently much softened; but how far the softening might be owing to the changes which had taken place since death I do not know. Upper portion of the small intestine healthy; the inferior extremity of the ileon of a dusky purple, resembling a piece of strangulated intestine; friable, and easily rubbed to pieces between the fingers; the mucous membrane not more affected than the other tissues. No perceptible change in the other organs.

*Remarks.*—The appearance of the lower portion of the ileon resembled the dependent portion of a link of intestine hung up from its extremities until all the blood has left the mesenteric veins, and from its gravity has engorged the capillaries of the convex surface—the “*injection hypostatique*” of Andral; but I am disposed to attribute it to a vital cause: in fact, to inflammation. I have seen it in other cases, where it would be impossible to suppose that it was cadaveric.

CASE LVIII. *Similar to the last.*—This occurred in the steward of the same vessel to which the subject of the last case belonged, and about the same time. He was an habitual drunkard, but of an apparently healthy constitution, of a bilious complexion, dark hair and skin. He has had two paroxysms of intermittent since his arrival, but for the last fortnight has enjoyed tolerable health. Last evening, the 5th May. All the men in the fore-castle were disturbed by the patient, who having left his own bed had attempted to get into the hammocks of his shipmates. He says he dare not sleep alone, as he is haunted with horrid dreams. This is the only history I can obtain. At noon on the 6th I saw him. He is sitting on the poop under the awning, and expresses a desire to work



with the men. He is dressed, and in appearance is what he says he is, quite well, except that his skin is of a deep orange colour. When we examine him more closely, however, he presents the following appearances: he does not suffer any pain, his skin is moist, and little above the normal standard, but his countenance is that of a maniac, or a person drunk, and his pulse is 120.—*Ordered on shore; warm-bath; calomel.* Evening. Is much in the same state; is dressed, and refuses to go to bed; he has no delirium properly so called, and reasons correctly, but his ideas are false; his eyes are wild; he has vomited three or four times a grass-green fluid; tongue pale; epigastrium painful on pressure; says he is not ill, and is peevish and annoyed when I ask him if he suffers any pain; has not made water, but he immediately took the chamber-pot and voided about  $\frac{3}{4}$  vi. of urine in no respect altered.—*To continue his calomel, gr. iii. every hour; empl. lyttæ nuchæ.* 6th. Morning, same state.—*To continue.* Noon. Much the same state; skin hot and dry; vomiting continues; delirium, becomes furious when annoyed; has rolled up his mattress and carried it into the street, saying, that he will change his ship. He takes his bed for the cabin, and on asking him for wine he seeks about for the keys of the lockers, and not finding them he says his captain has them. He, however, knows every one about him. His strength is extraordinary. He walks about the room without difficulty, and seems to vomit without inconvenience.—*To take calomel, gr. ii. acet. morph. gr.  $\frac{1}{4}$ , every two hours.* Evening. The patient is beginning to sink: coma and muttering delirium alternating; extremities cold; chest and abdomen burning hot and dry; vomiting of coffee-ground matter without effort. Died without agony at midnight.

*Sectio cadaveris, eight hours after death.*—Little rigidity of the members; yellow suffusion, mixed with cutaneous extravasation, giving a marbled appearance to the neck, chest, and thighs; considerable oozing of blood from the vessels of the scalp; dura mater healthy, its sinuses gorged with fluid blood; arachnoid thickened, somewhat adhering to the pia mater; subarachnoid cellular tissue vascular; some of the



cerebral convolutions adhering, others separated from each other by a slight, yellow, serous effusion, and somewhat hypertrophied; the tissue of the brain much firmer than usual, particularly in these places; effusion of yellow serum into the ventricles; choroid plexus pale. In removing the brain from the skull the quantity of blood which escaped was extraordinary, almost filling a small wash-hand basin: it underwent no change from exposure, but remained dark, fluid, and wanting in plasticity. Thorax: no perceptible change in the viscera of this cavity, except that the structure of the heart was, perhaps, more flabby than natural. Abdomen: stomach was distended with gas and a small quantity of chocolate-looking fluid; its mucous membrane of a slate colour, except on the great cul de sac, where it was very red. Rougeur pointillée: throughout it was thickened and softened: in some places the softening was so great as to admit of being scraped off from the subjacent coat with the back of the scalpel; the softening was not greatest where the redness was more pronounced, but was found in places along the whole of the omental margin of the stomach. The whole of the small intestine contracted: little altered from what it is in health. Liver enlarged: "hypertrophie de la tissue rouge." Other viscera sound.

*Remarks.*—This is a singular case, and a very rare one, at least as far as my experience goes. Rochoux mentions the existence of this kind of delirium, and Chisholm almost regarded it as proper to yellow fever. It has, however, occurred to me only in these two last cases, and another, the notes of which I have lost. They were all three sailors, and habitual drunkards; and I am disposed to attribute it to a species of delirium tremens, rather than to an inflammation either of the brain or its membranes. The yellowness made its appearance apparently with the commencement of the disease; this is also a rare circumstance, and difficult, I think, to explain. It has, however, been a received axiom from the time of Hippocrates (Aphor. 63, lib. 4) to the present time, that the appearance of yellowness, the first or second day of the disease, is a fatal symptom. The disease continued only forty-eight



hours, and it was not until the second day that the surface of the body was hot, or even febrile ; the pulse, when I first saw him, was rapid, and the general appearance indicated extreme danger, though it would be difficult to explain why.

CASE LIX. *Gastro-meningitis ; blood fluid.*— On the afternoon of the 15th September 1830, I was called to see Alleyn, a man attached to the engineer department. He was a native of Scotland, had resided some time in St. Lucia, and was in the habit of drinking small quantities of undiluted spirit or strong punch, though never intoxicated. I found him lying in bed in a state of the greatest agitation, suddenly starting and sitting up, staring about with an expression of intense anxiety. He fancies that he is surrounded by serpents and other noxious reptiles. He answers rationally to questions put to him, but in an agitated and abrupt manner—eyes haggard and wild ; the skin covered with cold clammy sweat from head to foot, but there is some degree of warmth on the forehead, chest, and abdomen ; pulse very rapid ; tongue broad and moist, without fur. He says that he experiences no pain when I press firmly on the epigastrium, but he gives way to it. He has had two paroxysms of tertian intermittent, which are described as having been very slight, and the intervening days he was at his work. Yesterday he was as usual at the engineers' yard superintending the workmen ; he came home apparently well, and went to bed, after taking, as was his custom, a glass of hot brandy-and-water. In the course of the night he had severe rigors, which continued about two hours, and were followed by heat of skin, vomiting, and delirium. About noon he began to perspire, but instead of the symptoms ameliorating he gradually fell into the state in which I found him. At six o'clock in the evening I met Dr. Scott, the principal medical officer of the garrison, in consultation. The patient is much the same, but the symptoms are more pronounced, whilst the heart's action is so violent, and the pulse so rapid, that Dr. Scott was induced to examine this organ by means of the stethoscope. The delirium is less violent, and the patient is aware of his danger. Agitation is extreme, fear of death, and the countenance dreadfully



marked with anxiety; has not made water, nor had an alvine evacuation since yesterday. Died at nine o'clock P. M.

*Sectio cadaveris, twelve hours after death.*—Body slightly stiffened; a few rosy patechiæ on the chest and arms; extravasations of blood into the cutis on the neck, face, chest, belly, and legs. Thorax: the lungs studded with small calcareous granulations about the size of millet-seeds throughout the whole of their parenchyma; they presented no other trace of disease; heart pale and flabby, its cavities on both sides filled with dark fluid blood, which, on being received into a basin, thickened but did not coagulate; slight rosy blushes on the lining membrane of both sides, extending into the great vessels, particularly evident in the aorta, which, throughout its whole course, down to its division into the iliacs, presented here and there rosy streaks and patches, as if painted. Abdomen: stomach externally pale, and somewhat distended with a fœtid gas and a small quantity of mucosities; its mucous membrane from the cardia over the whole of the left half, of a dusky red, towards the pylorus of a brown colour; thickened throughout, and so softened as to admit of its being scraped off the subjacent tissue by the finger-nail. Nothing remarkable in the other viscera, except the gall-bladder, which was considerably distended with dark syrupy bile; its mucous coat thickened; red at the apex and commencement of the cystic duct, the orifice of which was diminished in its calibre, and offered considerable resistance to the passage of the thickened bile. Skull: dura mater healthy; slight serous effusion between it and the arachnoid; serous infiltration into the subarachnoid cellular tissue, with slight increase of vascularity or rather engorgement of the capillaries; structure of the brain somewhat softened; cerebellum less so. At the base the membranes presented the same appearances as on the surface. The effusion of fluid blood from the vessels of the surface was very considerable. Before the examination, in cutting over the femoral and brachial arteries, the effusion of blood was such as to hide the vessels underneath; the incision required to be wiped out with a sponge, though neither the saphœna nor basilic vein was wounded.



CASE LX. *Gastro-meningitis; blood fluid in the body, but coagulating when received into a basin; yellow suffusion; black vomit.*—Bastian, aged 34, mixed race, between the European and Indian of the Spanish main, has enjoyed but very indifferent health during the last twelve months; has had two attacks of pleuro-pneumonia on the right side; habituated to the use of ardent spirits. On the 19th of October was bitten by a small monkey on the first and second finger of the right hand, but not severely, the cuticle being abraded merely. The following day the hand became very painful, and somewhat inflamed; the inflammation extended along the course of the absorbents to the axilla, and the lymphatic glands in this part were tumefied and tender. On the 21st, the hand and arm being in the state described yesterday, he had slight rigors, which were followed by fever, but the paroxysms terminated towards evening. 22nd. The hand and arm nearly well, but another paroxysm came on early in the day, and I saw him at noon. Severe diffused headache; shooting pains from the forehead to the occiput; excruciating pain in the back and extremities; a sense of heat and pain in the epigastrium; incessant vomiting of fluids taken into the stomach, mixed with bilious mucosities; thirst, and constant demand for cold drink; purging of grass-green matter; pain corresponding with the posterior inferior margin of the liver; abdomen slightly distended; tongue moist and pale; pulse 110, somewhat full and hard; urine small in quantity, and of a deep colour.—*Ten grains of calomel*, which he ejected three successive times, but the fourth dose remained. Evening. Same state. Skin very hot and dry, and the vomiting less frequent.—*To take a dose of Epsom salts.* 23rd. Symptoms continuing; the salts were rejected.—*Emollient glysters: warm fomentations to the abdomen.* Towards evening mitigation of symptoms; slight perspiration.—*Calomel, gr. iii. omni horâ.* 24th. Skin cool and moist, but the vomiting continues, though not severely; epigastrium sensible.—*To take calomel, gr. iii. extr. opii. i. omni tertiâ horâ.* Evening. The vomiting has ceased, and the patient is better. 25th. Apyretic; sitting up; epigastrium sensible; tongue slimy; some thirst.—*To*



*continue.* 26th. Is sitting up; salivation; some uneasiness on pressing the epigastrium, with eructations; sense of great weakness; appears to be doing well. At noon, rigors, succeeded by heat of skin; vomiting; great heat and pain in the stomach and œsophagus; distension of the abdomen; diarrhœa; pulse 110; respiration hurried; tongue moist, but red at the edges and tip; salivation continuing.—*Barley-water; to continue the pills, and compresses of vinegar and water to the epigastrium.* Nine p. m. Pulse rapid and feeble; eye-balls turned upward; eye-lids drooping; falling of tears on the cheek; abdomen hot and dry; extremities cold and clammy; rigidity of the joints; flexion and extension of the arm and leg performed with difficulty; difficulty in extending the tongue from the mouth; hiccough; ideas clear; appears to be dying.—*Sinapisms to the inside of each thigh; brandy-and-water*, which was immediately thrown up, followed by a gush of dark coffee-ground matter and fluid blood; the vessels of the conjunctivæ turgid; the matter thrown up of a peculiar smell, and communicating its odour to everything in the apartment; salivation has ceased; but the mercurial fœtor, ulceration, and softening of the gums, swelling of the lips, and engorgement and pain in the salivary glands continue.—*To take five grains of the confection of opium every two hours.* 27th. Much in the same state; has passed a bad night; surface of the body of a yellow colour.—*Madeira wine.* Noon. Re-action has taken place; the skin is warm throughout; pungent over the epigastrium; the vomiting continues, but the patient does not complain so much of his stomach; ideas clear, but intelligence obtuse. 28th. Same state. Expresses a wish for *champagne, which is given, mixed with water.* Evening. The patient rallies under stimulants, but sinks when they are discontinued; vomiting as before. 29th. No stool, nor has he passed his urine since last night; pulse 80, and tolerably firm; other symptoms as yesterday. Evening. Is sinking, but has not vomited since morning; made water once.—*Sinapisms to the calves; brandy-and-water.* 30th. Has passed a quiet night, but is much in the same state; has not vomited, but has twice



evacuated his bowels, and passed an immense quantity of black inodorous fluid, similar to what he before vomited; tongue dry, horny; urine clear, and of an amber colour. Evening. Has passed several times in the course of the day the same kind of fluid; he is gradually sinking. Died early on the morning of the 31st.

*Sectio cadaveris, six hours after death.*—Body cold, but not rigid; yellowness deeper than during life; extensive ecchymosis on the face, neck, chest, back, abdomen, and extremities; considerable oozing of dark fluid blood from the divided vessels of the scalp; upwards of two pints were collected from this part alone, and a much greater quantity in taking out the brain. The bleeding was encouraged by depressing the head and elevating the trunk. A quantity of this blood, collected in a basin and allowed to stand quietly some time, coagulated tolerably firmly. The serum was of a yellow colour, and the crassamentum exhibited a slightly inflammatory crust, which was tremulous, and resembled half-boiled calves'-feet jelly. The membranes of the brain yellow; slight fibrinous adhesions between the arachnoid and dura mater, on each side the longitudinal sinus. Arachnoid thickened, opaque. Pia mater extremely vascular; when raised from the surface of the brain it appeared a congeries of vessels, and presented an almost uniform scarlet colour; small patches of red softening on the surface of some of the convolutions, which however was very superficial, and appeared to exist where the pia mater was the most intensely inflamed; many of the convolutions adhering by extremely vascular adhesions. Both textures of the brain and cerebellum in other respects sound. Very small quantity of yellow serosity in the ventricles; plexus choroides paler than usual. Membranes on the base less inflamed than on the surface. Thorax: lungs very pale; here and there marbled; spotted irregularly with ecchymosis; slight cadaveric engorgement at the base. Heart flabby and empty; its lining membrane, as well as that of the great vessels, of a pale cream colour throughout. Abdomen: peritoneum and appendages healthy; veins of the mesentery and omentum somewhat engorged. Stomach ex-



ternally pale, slightly distended; its coats, taken between the fingers, appear to be a good deal thickened; mucous membrane for the most part of a brownish grey colour, much thickened; the grand cul de sac of a dusky red, (rougeur pointillée,) at which place the external surface was abraded to the extent of a half-crown piece; contents—gas, mucosities, and a small quantity of puriform matter; the inferior four inches of the œsophageal mucous membrane of a dusky red; three small patches of superficial ulceration or abrasion; small intestine pale externally, except at the inferior portion of the ileon, where it was of dark or purplish colour from congestion of the veins, and transudation of blood into the surrounding tissues. The mucous coat of the duodenum and upper part of the jejunum presented traces of inflammation: this portion of the canal contained a quantity of black matter adhering to its sides; great intestine healthy, but enormously distended with gas; some of the mesenteric glands enlarged, and in a state of inflammation; the greater number sound. Pancreas hypertrophied: its tissue very much indurated; in other respects it was healthy. Liver larger than usual, but its tissue not diseased. Gall-bladder containing a very small quantity of dark green bile; its mucous membrane inflamed considerably throughout its extent; calibre of the cystic duct diminished. The spleen was divided into three lobes, with a small one distinct from it, but attached to it by means of vessels resembling the vasa brevia; the tissue of the larger one resembled grumous blood, or half-boiled currant jam; that of the smaller one sound. Hyperhemia of both kidneys; injection of the mucous membrane of each pelvis, extending into the ureters. Bladder containing about half-a-pint of apparently healthy urine; its inner coat reddish.

*Remarks.*—This case commenced as a double tertian intermittent, but during the intermissions, or what are generally called such, the gastric irritation continued, though in a milder degree. On the 26th the patient was salivated, but the salivation neither prevented a return of the fever nor mitigated its violence. I am not quite sure that it was not to the administration of this medicine that we owed the



violence of the symptoms which made their appearance on this day ; but I feel certain that by a different mode of treatment this patient would have been saved. The mucous membrane of the stomach was acutely inflamed to a small extent, as well as that of the lower extremity of the œsophagus. It is rare that we see ulceration, superficial though it may be, of this tissue in these cases. Both the arachnoid and pia mater were intensely inflamed. During life, however, there were no symptoms to lead us to suppose the existence of such a læsion. Towards the close there was a kind of dreamy muttering and the intellect was obtuse, but the ideas were clear, and the patient answered questions perfectly sensibly to within a very short period before death. The blood, which was fluid in the body, coagulated tolerably firmly when out. This did not depend upon a difference in the temperature, as the body had cooled down, and the blood in the blood-vessels was  $84^{\circ}$ , whilst the basin in which it was afterwards received was exposed to a medium about half a degree higher. In this case had the blood undergone any change? It most assuredly, whilst fluid, had an appearance different from that of healthy blood under similar circumstances; it had lost its tenacity and plasticity, was thin, watery, and almost black. In the greater number of these cases, both in dogs and men, where the blood is found fluid after death, it coagulates more or less completely when received into a basin; those in which it remains permanently fluid are much more rare. Calomel was administered until ptyalism took place; there, however, was no softening of the gastric mucous membrane. Did the brownish grey colour, with thickening of the almost entire membrane, owe its origin to a pre-existing chronic inflammation?

CASE LXI. *Intermittent; with gastro-enteritis, blood fluid.*—Nov. 2, 1833. J. Ph., 38 years of age, of an eminently lymphatic temperament, either naturally or acquired, native of Ireland, inhabiting St. Lucia many years; has not suffered from fever during the last five years; addicted to the use of punch; has been unwell nearly a week, but has not been confined to the house until the day before yesterday, the 31st of



October, on which day he had a severe paroxysm, commencing with rigors, continuing all day, accompanied by cephalalgia and vomiting, and terminating towards evening. Yesterday morning, the 1st, he took three grains of tartar emetic (*en lavage*,) in a large quantity of sour orange beverage, which produced the discharge of immense quantities of bilious matters by the mouth, several evacuations per anum, with a quantity of dark liquid blood. About noon, another paroxysm came on, preceded by rigors; he spent a very restless night, complaining of his stomach, with occasional delirium. This morning, though very ill, he walked about his chamber, complaining of great weakness, thirst, pain and heat in the stomach. At noon he had another paroxysm, with rigors; and in the evening at seven o'clock I saw him. Countenance cadaverous; nose pinched and pale; extreme quickness of respiration; supination; arms crossed over the stomach; frequent sighing; answers correctly; says he is very ill, and refers his complaints to the epigastrium and forehead; great tenderness of the epigastrium on pressure; abdomen *ballonné*; lower margin of the liver easily described below the ribs; the skin is of its natural temperature, and presents nothing remarkable in its feel; extremities cooler than the trunk, but not much; no rigidity of the members; turns round upon either side when requested, but immediately resumes his former position on his back; surface of a dull white colour; tongue natural; pulse rapid, small, irregular, and occasionally intermitting. When not roused he talks or mutters occasionally about his usual occupations, or of friends who have been some time dead; has vomited twice since morning a grass-green fluid, and has passed about a tea-cup-full of dark fluid blood twice from the rectum. Died during the night.

*Sectio cadaveris, eight hours after death.*—Body cold, stiff, and pale; scalp, face, and neck, livid and immensely swollen, presenting the appearance of the body of a person hanged, from infiltration of the subcutaneous cellular tissue and cutis; extensive ecchymosis of the whole of the back; the buttocks of a dark purple, approaching to black. The cellular tissue filled with half fluid yellow fat; considerable bleeding from



the divided vessels of the surface; muscular fibre deficient in quantity, pale and flabby. Thorax: both lungs engorged with dark blood, particularly at the base, crepitant; this engorgement is not inflammatory; though I am disposed to believe that it took place during life, and that it accounts for the extreme rapidity of the respiratory movements; heart large and pale; a quantity of black fluid blood in both its cavities, divested of its plasticity, and appears to contain no fibrine; when a quantity was received in a basin it did not undergo the slightest change. Abdomen: liver hypertrophied, "*engorgement sanguin*," to a great extent; its tissue red and granulated, with bands of a fibro-cartilaginous structure, intersecting each other, and traversing the right lobe in different directions. Stomach containing a quantity of fluid of a dark-green colour, which, when poured into a glass, threw down a brown precipitate; the superjacent fluid, and the precipitate, reddened litmus paper. It was of a deep red internally; the mucous membrane thickened, when separated from the subjacent coat, and held between the eye and the light it resembled a piece of scarlet cloth. The mucous membrane of the whole of the small intestine inflamed in patches, but to a less degree than that of the stomach; mucous membrane of the gall-bladder inflamed. Great intestines distended with foetid gas; healthy; other viscera sound. Skull: Brain and cerebellum firm and healthy; small quantity of limpid serum in the ventricles.

*Remarks.*—In this case we find, up to the close of life, that the symptoms were those which constitute what the French call *une fièvre d'accès*. There was a paroxysm daily, coming on with a well-marked cold stage at noon, followed by a febrile stage, which, after continuing some hours, terminated at the beginning of the night in perspiration; the general symptoms were those of an intermittent, yet during the intermissions the patient, though better, was not well; the gastric symptoms were relieved, but they nevertheless existed. On the morning preceding his death, the patient was walking about his chamber, and complaining of heat and pain in his stomach. At noon another paroxysm augmented these symp-



toms, and he died in the course of the night from intense inflammation of this organ. The gastric symptoms seemed continued, and it would appear that the congestion which takes place during the cold stage was the cause of the temporary augmentation of the local inflammation, until this ultimately acquired an intensity which destroyed life. In these cases how far does the diseased blood affect the local læsion? I am unable to answer this question; that it must do so most materially I think there can be no doubt; but other researches must be made upon this interesting subject. During the intermission in this form of disease, or what I call intermission for want of a better expression, though the patient may be cool and even perspire profusely, and be in what many would call a state of apyrexia, we are not to suppose that he is free from general symptoms indicative of the local disease. The pulse is much quicker than natural; there is thirst, nausea, frontal headache, malaise, and pain on pressing the epigastrium, and very frequently heat and dryness of the skin over the region of the stomach. It appears to me that the local læsion is not only influenced by the cold stage, but that it, in the greater number of cases, possesses a periodical character of its own. Did the blood in this case prove that the disease had its origin in marsh effluvia? Did it exist from the commencement of the symptoms; if not, at what period does it date its existence? I am not aware that this patient was more exposed to the influence of malaria than the other inhabitants of the town; the disease existed during a very extensive but not very severe epidemic of intermittent of various types, characterized by those symptoms which have been called bilious; the deaths were considerable amongst the aged and infirm, but in very few indeed was the blood found to be altered as in this subject.

CASE LXII. *Gastritis; nephritis; yellow suffusion, blood natural at the commencement of the disease, fluid after death.* A gend'arme, newly arrived, by birth, I believe, English, of sanguineo-lymphatic temperament, stout and muscular, without previous indisposition, was seized in the course of the night, or early in the morning, of the 14th of November, with



slight rigors, quickly followed by heat of skin. At noon I saw him; skin of a dusky red colour throughout, very hot and dry; conjunctivæ injected; intense frontal headache; great pain in the small of the back and knees; vomiting of bilious matter; no pain on pressing the epigastrium; tongue natural; thirst, and desire for acidulated drink; pulse 86, full and hard.—V. S.  $\bar{3}$ xx. *barley-water*. Evening. Amelioration of symptoms; skin moist, but the face is dark, or a brick-red colour; no stool; has not made water during the last twelve hours.—*Purgative enema immediately, and repeated if necessary*. 15th. Skin again hot and dry; vomiting of grass-green fluid; pain in the epigastrium, increased on pressure; intense pain in the head and loins; great thirst; pulse 100, full.—V. S.  $\bar{3}$ xvj. Noon. Symptoms as before. Rep. V. S. Evening. Blood from each bleeding natural; coagulum firm; slight amelioration; skin hot, but moist; countenance dark, grim; great pain and heat in the stomach; vomiting and headache less; has had two stools, each accompanied by a discharge of urine.—*Fomentations to the abdomen; emollient glysters; barley-water*. 16th. Countenance more grim, of a dirty colour; yellowness of the conjunctivæ, and the root of the nose; skin hot and dry; severe headache; supination; restlessness; frequent sighing; nausea, and frequent efforts to vomit, which the patient tries to relieve by putting his finger into the fauces; pain of the stomach less severe.—V. S.  $\bar{3}$  xii. *to continue the fomentations*. Noon. Blood as in health; slight amelioration of symptoms; one bilious evacuation; pulse 100; skin moist; nausea less; but the pain in the loins considerable; made a small quantity of urine when on the pot. Evening. Slight stupor, from which he is easily roused; intellect clear; fear of the result; skin hot and dry; great pain on pressing the epigastrium; occasional vomiting of grass-green matter, in small quantity, mixed with frothy mucosities; pulse 100.—*Cold to the head; to continue the fomentation*. 17th. Apparently much better; skin of the extremities cool and moist; hot over the chest and abdomen; distinct yellowness of the face and neck; says he feels no pain, but has a burning in the stomach, though not



severe; the only thing which troubles him is thirst and vomiting; his pulse is 120; the expression of his countenance is bad, and this amelioration is only apparent; no urine; two stools during the night, which are bilious but not peculiar in any respect. Noon. Yellowness more pronounced; no urine since last night; about two o'clock vomited a small quantity of chocolate-looking matter, mixed with blood; at nine P. M. extremities cold and clammy; abdomen hot and dry; great restlessness, alternating with stupor; countenance extremely anxious; the pulse 120, and somewhat hard; coffee-ground vomit. 18th. Passed a very bad night; vomiting continues; matter thrown up like coffee-grounds or thick snuff and water; perfect consciousness, and knows that he is dying; pulse rapid and small; extremities cold, and covered with greasy perspiration: *calor mordicans* over the region of the stomach. Noon. Tremendous struggling, and fear of death; requires to be held in bed; has passed a quantity of urine in bed; death at three o'clock P. M.

*Sectio cadaveris.*—Body quite warm, of a greenish yellow tint; cutaneous extravasations of the neck and breast; considerable sanguineous extravasation into the cellular tissue, on the outside the left thigh, between the skin and fascia; bleeding from the vessels of the scalp when divided; also from the vessels on taking out the brain; the bleeding was assisted by depressing the head; blood remained a long time fluid, and never coagulated, but the fibrine seemed to collect in shreds; it was very dark and ultimately acquired a thicker consistence; no trace of disease within the cavity of the skull. Thorax: lungs healthy; but their posterior parts gorged with blood. Heart natural; right cavities distended with dark fluid blood; left cavities empty; pericardium contained a small quantity of yellow serum. Abdomen: peritoneum and appendages somewhat yellow, in other respects normal; stomach distended with gas and a quantity of matter similar to that vomited; its mucous membrane to one half of its extent, on the left side, of a dusky red, (*rougeur pointillée*,) thicker than natural, not easily separated, but when a portion was taken off the subjacent tissue and held between the eye and the light it presented an



arborized redness, and was opaque, the other parts of the canal were healthy; liver contained more blood in its tissue than usual; and the mesenteric veins and trunk of the vena porta were somewhat gorged with blood. Gall-bladder contained a small quantity of dark green thick bile, but was quite healthy; both kidneys in a state of considerable hyperhemia, a quantity of dark fluid blood oozed out of the cut surfaces; mucous membrane of each pelvis reddened, the redness extending into each ureter. Bladder contracted and empty. Spleen firm externally, but when cut into seemed to consist of grumous blood contained in a fibrous cyst; other viscera healthy.

*Remarks.*—We find in this case a pretty good example of that form of fever which Dr. Jackson makes the first in his arrangement, characterised by “irritation, tumult, and excitement of the vascular system at the early period—local derangement and disorder of important functions in the latter.” “The invasion,” this author goes on to say, “appears upon a general view to be for the most part sudden or instantaneous; but upon accurate inquiry, languor, headache, or some obscure deviation from health, will usually be found to have preceded the attack by twelve hours; sometimes by a longer space.” Indeed it is not in this form alone that this pre-existing indisposition is found, but probably in all the forms which present themselves to our observation, exception alone being made of those which arise immediately from exposure to concentrated malaria. On the morning of the 17th there appeared to be an amelioration of the symptoms, such as is frequently seen, and which is also noted by Dr. Jackson, p. 183, in his work entitled “An Outline and Cure of Fever:”—he says, “In the abatements which take place towards the close of the first twelve or twenty-four hours of the disease, the appearances are often flattering, and sometimes so ambiguous, as to deceive an inexperienced practitioner. In some instances the changes are so material, the relief so evident, that it only is after much experience, that a person is brought to doubt the existence of remission; indeed, in people accustomed to the climate, such abatements may safely be considered remissions, and acted upon as such :



in Europeans, newly arrived in warm latitudes, they require to be regarded in a favourable light with much caution." Again, p. 185: "The duration of this state of general irritation is uncertain, sometimes not longer than twelve or twenty-four hours, more commonly thirty-six or forty-eight. The increased action of the vascular system abates sometimes suddenly, sometimes gradually; increased heat is not now perceived on the extremities, but is still strong and ardent on the breast and pit of the stomach; the pulse becomes regular, seemingly full, and to superficial observation like the pulse of a man in health." The remarks of this gentleman upon this form of disease are highly judicious and show extensive and persevering observation. I know no work on this subject which gives so impartial and true a description as the one above of the endemic of the West Indies; and though the author is sometimes abstruse, and indulges too much in a fanciful hypothesis, this book should be attentively read by all who wish to make these diseases their study. It is to this form that Dr. Jackson supposes the name of yellow-fever has been given; and certainly, if the above case does not deserve this name, I confess that I am at a loss to know in what the yellow-fever of the West Indies consists. We met here with the two pathognomic symptoms, yellow suffusion and black vomit, which are generally supposed to be the essential attributes of this disease. If it were a case of yellow-fever, I contend that it was not contagious, that it owed its origin to the state of things in the place in which it existed, and that this state of things being almost always similar, cases of this kind must occasionally occur spontaneously, and so they do; during an epidemic of fever attacking the acclimatized inhabitants, should there be several unacclimatized individuals residing in the place, we shall most certainly find one or more suffering from symptoms precisely similar to those above. The causes which produce this form of disease, and those which produce in other individuals merely *une fièvre lente intermittente*, or the slightest form in which fever is known to exist, are identical; and we must look for the difference in the susceptibility of the persons attacked.



CASE LXIII. *Gastro-enteritis ; blood fluid during life.*—A poor man of mixed race, but of white complexion, an inhabitant of the island, enjoying good health, living in the neighbourhood of the swamp, and immediately to windward of it, on getting out of bed felt a giddiness and almost fell down ; he had then severe rigors which lasted only a short time and were followed by fever ; the paroxysms continued until the following morning, when, after profuse perspiration, he found himself so much better as to be enabled to leave his bed. About noon, return of the paroxysm preceded by rigors of short continuance. At five o'clock P. M. I saw him. November 21, 1830. Countenance very anxious and expressive of great distress ; skin pungently hot all over, and dry, of a withered appearance and dusky hue ; incessant vomiting of whatever is taken into the stomach ; sense of heat in the stomach, but not considerable ; great frontal headache ; pains all over the body : great restlessness ; a feeling of soreness in the flesh ; bowels rather relaxed, stools copious ; pulse 110, small.—V. S.  $\frac{3}{4}$  x. Blood flowed from the vein with difficulty ; it was remarkably dark coloured, and remained without coagulating, though it became thicker. Ten P. M. Much the same state ; the slight relief which he felt, or fancied he felt, has disappeared ; skin very hot ; extremities moist and cool.—*Warm bath, fomentations to the epigastrium ; emollient glysters.* 23rd. Incessant vomiting of green fluid, in considerable quantities ; headache less severe ; restlessness ; supination ; frequent sighing ; great pain on pressing the epigastrium, but otherwise no pain in this part ; abdomen distended ; bowels open, stools dark like tar ; great anxiety.—*Bath of bark and bay leaves, bark glysters.* Noon. Was not able to remain in the bath longer than a few minutes, as he fainted ; symptoms the same. Evening. Yellowness of the conjunctivæ ; vomiting increased, if possible ; chest and abdomen intensely hot ; extremities cold, icy, and covered with viscid perspiration ; make water easily ; urine natural, clear.—*To continue the bark injections ; and compresses of flannel, wrung out in a strong decoction of country bark, to be applied to the stomach.* 25th. Heat more diffused, the chest and abdomen only moderately warm ; anxiety,



restlessness, and vomiting mitigated; pulse 120, small.—*To continue and to add six grains of the sulphate of quinine to each glyster.* Noon. Appears much the same.—*To continue.* Evening. The vomiting has returned; every thing taken into the stomach is rejected, mixed with stringy mucosities; great agitation; extremities cold, pulse 130. 26th. Is evidently dying; stupor, from which he is with difficulty roused; answers incoherently; died about noon.

*Sectio cadaveris, four hours after death.*—Body of a grimy dirty colour, with very little rigidity, patches of extensive ecchymosis on the neck, chest, and buttocks. Skull: nothing remarkable in this cavity. Thorax: posterior portion of both lungs extremely gorged with blood; the anterior less so; crepitant. Abdomen: stomach pale externally; the left cul de sac red internally; but the redness is confined to small extent, about the size of a circle of three inches in diameter; it is covered with a viscid mucus, which when removed the colour becomes more intense. Duodenum considerably inflamed; patches of diffused redness here and there in the mucous membrane of the jejunum and ileon. Slight diffused redness of the mucous membrane of the transverse arch of the colon. Spleen distended almost to bursting, appearing hard on pressure, easily ruptured, its internal structure like black currant jam. Liver: marbled yellow and green externally, internally gorged with blood and yellow bile, which oozed out, following the knife; its tissue in other respects not altered; mesenteric veins and trunk of the vena porta engorged with dark blood. A small quantity of dark bile in the gall-bladder; other viscera sound. Blood: the blood found in the right side of the heart, in the venæ cavæ, vena porta, and in the vessels on the surface of the body, was fluid and dark; and remained unchanged when received in a basin.

*Remarks.*—This case resembles many of those which have preceded it; it would be useless therefore to make any further observation.

CASE LXIV. — *Intermittent; gastro-enteritis; meningitis; inflammation of the gall-bladder; blood fluid.*—M., native of the island, aged 42, seized four days ago with rigors,



followed by a hot stage, the paroxysm commencing early in the morning, and terminating towards evening, repeated daily. September, 1830, 4th day of the disease. Skin hot and dry, dusky in colour; restlessness; agitation, some anxiety; supination; pain on pressing the epigastrium. Towards evening these symptoms subsided, and the patient at nine o'clock was in a state of perspiration; tenderness of the epigastrium, though diminished, still remaining in a slight degree, together with nausea; urine high coloured, and clear, without deposit.—*To commence the sulph. quinquæ immediately.* 5th day. The patient passed a good night, and the friends have not given him his medicine; the fifth paroxysm commenced at five o'clock this morning with extremely severe rigors, which continued nearly three hours: at present, eleven A. M., following state; extreme agitation; great restlessness, fear of death, countenance expressive of horror; skin irregularly hot and dry, or covered with a clammy sweat; no pain in any part of the body; bears pressure on the pit of the stomach much better than yesterday; vomiting of a grass green fluid.—*Bath of the bark of the country, glysters of decoction of yellow bark and quinine.* Evening. The patient became delirious in the bath, and was obliged to be taken therefrom almost immediately; the delirium continues; perspiration partial and irregular.—*The abdomen to be fomented with the water of the bath; the injections to be continued.* About midnight, without agony, and certainly without any expectation of such a result by the friends, he died.

*Sectio Cadaveris.*—Head: arachnoid wheyish and in some places thickened, vessels of pia mater engorged with blood; both tissues of the brain healthy. Chest: both the lungs engorged with black fluid blood, which literally rushed out of the vessels of their parenchyma when divided; the lungs, however, are crepitant, and frothy mucus escaped from the air cells and smaller bronchi on pressure; a small quantity of yellowish serum in the pericardium; coronary veins engorged; heart healthy; right cavity distended with fluid black blood; left cavities empty. Abdomen: mucous membrane of the stomach at first view perfectly healthy, but upon scraping off a coat of viscid mucus which lined the whole of the interior of this



organ, it was of a bright red colour, in patches of the size of a half-crown piece here and there, particularly towards the cardia and the pylorus; the lower extremity of the œsophagus of a dusky red to the extent of three inches; where the redness was most intense, as immediately above and below the cardia, the villous surface was somewhat abraded. Mucous membrane of the duodenum inflamed, the redness extending into the biliary canal, and from thence into the cystic and hepatic ducts; the gall-bladder red throughout the whole of its internal surface, and containing a quantity of dark thick bile; the liver externally marbled, of a green and dull red colour; its parenchyma engorged with blood and yellow bile, both of which fluids oozed out copiously on incision. All the other organs healthy. Blood fluid, and did not coagulate when taken from the body.

*Remarks.*—I was not present when the subject of this case died; and though the symptoms were sufficiently severe, I certainly did not expect such a result. Can it be explained by the appearances of the lungs? I think it is to this cause we are to attribute it. I attended a gentleman who, from exposure for some time to the alternate sunshine and heavy rains of one of the days of the hurricane season, was seized with a double tertian intermittent, in which the gastric symptoms were at least as severe as in this case; but upon the whole the case was of a more favourable kind. I was sitting at his bed-side at the close of the third paroxysm, when he suddenly complained of difficulty of breathing, a sense of suffocation, and oppression of the chest; these symptoms increased rapidly, and he died whilst I was applying a cupping-glass to the chest, apparently from asphyxia. The body was not opened, but I think, if it had, the appearances found would have been those we have seen in this case.

CASE LXVII. *Gastro-enteritis; black vomit; blood fluid; destruction of the testis from suppuration; ramollissement of the spleen.*—Capt. H., aged 36, but apparently much older, of a sanguineo-lymphatic temperament, corpulent, of irregular habits, and addicted to the use of ardent spirits, diluted, however, with water, sailed from St. Lucia on the 31st July,



1835, where he had resided for two months; the preceding twelve months being passed on the coast of Africa. When at sea he complained of a fulness in the head and numbness at the tips of the fingers, for which I bled him; the blood was normal in every respect. On the 26th August he again consulted me for gonorrhœa and inflammation of the left testicle, and was again bled; the blood presenting no peculiar appearance. The inflammation continued in spite of the treatment, and on the 2nd September he was in the following state: Countenance somewhat anxious; skin hot, but moist, anorexia; headache; pulse 100; the symptoms becoming worse towards evening, with a slight calm in the morning: the last evening exacerbation was preceded by a sense of coldness; the thirst is considerable; the tongue is clear and somewhat red at the tip; the testicle intensely inflamed and very painful.—*V. S.* § xvi. *Warm fomentations to the testicle; salts, soup, and barley-water.* 3rd. Increase of symptoms; skin hot; supination; vomiting of grass-green fluid; pain under the ensiform cartilage and across both hypochondria; great frontal headache; malaise; restlessness; difficulty of breathing; insatiable thirst; tongue red at the tip; pulse 110.—*V. S.* § xii.; *to take gr. v. of calomel, and salts three hours afterwards.* Evening. All the symptoms advancing rapidly; acute gasteritis.—*Fomentations to the abdomen, emollient clysters, barley-water.* 4th. Respiration laborious: skin hot, but moist; frontal headache, and pain in the epigastrium increased; vomiting of the fluid taken into the stomach, with mucosities; bowels open; urine natural. Evening. Same state, except that the extremities are cool and covered with clammy sweats; pulse 120; complains of heat in the stomach, and a thirst which nothing satisfies; incessant vomiting; articulations rigid.—*To continue the fomentations.* 6th. Bad night; has thrown up a quantity of coffee-ground matter; restlessness extreme; frequent sighing; countenance cadaverous.—*Blisters to the thighs.* Evening. Is evidently dying; the vomiting throughout the day has been incessant, and the matter ejected black, and in very considerable quantities; there appears to be no effort, although the contents of the stomach are thrown up with considerable force,



and to some distance; tongue very dry and brown; the intellect is dull, but perfect; is aware that he is dying, and has made a will. Throughout the night the ideas occasionally disturbed, but appear to be agreeable; "he babbles of green fields," literally, not figuratively. Died at five o'clock on the morning of the 6th without agony.

*Sectio Cadaveris, eight hours after death.*—Body rigid; slightly yellow; extensive cadaveric cutaneous extravasations of blood on the neck, breast, and extremities; great deposit of fat in the subcutaneous cellular tissue; very little, if any, bleeding from the divided vessels of the surface. Thorax: lungs perfectly sound; heart softened and hypertrophied, its cavities of the natural size, and on the right side containing soft red and white clots; about an ounce of milky-looking serum in the pericardium. Abdomen: the mucous membrane of the stomach of an intense red at the cul de sac and cardia, (*rougeur pointillée*); the rest of its extent was covered with a thick coat of greyish mucus, which when removed exposed an inflamed surface underneath; throughout the whole it was thickened and considerably softened, easily scraped off the subjacent cellular tissue; the mucous membrane of the small intestine was inflamed throughout its whole extent, but not intensely; this part of the canal contained bilious mucosities. The large intestine, perfectly sound, contained a small quantity of healthy-looking fœcal matter. The spleen, of its natural size, was converted into a soft grumous mass, resembling black currant jam. Hypertrophy of the red tissue of the liver, which was friable, and harder than natural; but judging from the nature of the lœsion this organ did not appear to have entered into the production of the disease. The other viscera sound. The blood in the large vessels was dark and fluid, and when taken into a basin, and suffered to stand some time, did not even become thicker, much less coagulate. Left testicle completely disorganized; it appeared a mass of purulent matter, containing shreds of cellular tissue, all confined by the dense fibrous envelope.

*Remarks.*—This case is singular; at the commencement it would have been impossible to have foreseen the result which



took place, much less the peculiar symptoms which made their appearance at a later period. The febrile commotion was originally induced by the inflamed testicle, and was such as generally accompanies this læsion; in a short time, however, the stomach seemed to sympathize with the testicle more than is usual, and it was not long before gastritis, in an acute form, made its appearance, accompanied by the vomiting of that peculiar matter which has been considered indicative of yellow fever. Any one who, being acquainted with the diseases of hot and marshy countries, should have witnessed this case two days previously to death, would have recognised their old acquaintance, but certainly would not have suspected an inflammation of the testicle; yet that this was the exciting cause of the disease no one can doubt: at least I, who witnessed the case from its commencement, do not. I know not when the peculiar features of tropical fever set in, and never suspected them until they were so advanced as to be no longer mistaken. Had this patient never resided in a tropical and marshy country, would hernia humoralis have produced such a series of general symptoms? Certainly not. An inflamed testicle may produce sympathetic læsions of other organs, and consequently death; but that it should produce all the symptoms characteristic of the West India endemic is, I think, highly improbable in theory, and contradicted by practical observation. There must, therefore, have been something superadded to the inflamed testicle, to explain the peculiarity of the symptoms; and do we not find that, in the prolonged residence of the subject in countries both tropical and eminently marshy? It is probable that without the inflamed testicle as an exciting cause, fever never would have arisen at all; but the moment the match was applied to the train, a series of symptoms, attributable to marshy influence, were induced, and the patient succumbed to gastritis with black vomit. The state of the blood, however, never indicated this during life, though it was found fluid after death, and did not afterwards coagulate. Can we explain this phenomenon? Certainly not. All that we can say is, that in cases eminently characteristic of marshy origin, the blood is found fluid even during life;



but in others which have arisen from other causes, yet influenced by this agent, the blood, apparently healthy during life, is found altered only on examining the body after death. This change, however, is not cadaveric; it must have existed during life, but the state of our knowledge does not admit of our ascertaining it. Had pleurisy, pneumonia, or inflammation of any other organ taken the place of the inflamed testicle, we should, in all probability, have had a similar series of symptoms and the same result. This we see daily in our practice in St. Lucia, and we are thus enabled to explain many of the cases we meet with, which, without this knowledge, would be difficult.

CASE LXVIII. *Yellow suffusion: adynamia*.—Madame G., aged 60, native of St. Lucia, of a healthy constitution, has been ill five days with fever, in which the exacerbations were well marked but irregular, and the remissions were of very short continuance. The disease, however, presented the phenomenon of an alternate good and bad day: that is, the patient was much worse every second day. She had been attended by a friend of mine, Dr. Levacher, who, going out of town, requested me to see her, when I found her in the following state:—The surface of a deep yellow colour; the countenance sunk; epigastrium sensible to pressure, but not otherwise painful; the abdomen meteorized; subsultus tendinum; petechiæ of a rose colour on the chest, with considerable ecchymosis; the trunk and inferior extremities hot and dry; neck and arms moist; supination; frequent sighing; neither nausea nor vomiting for the last twenty-four hours; thirst; tongue brown and dry; red at tip; difficulty in expressing herself, or in protruding the tongue; speech thick and husky; pulse 120, and weak; bowels open, stools offensive, and resemble tar; urine clear. I ordered her to have a bath prepared of the bark of the country and bay leaves, in strong decoction, and to remain in it three-quarters of an hour. In coming out of the bath she perspired somewhat, and at nine o'clock P. M. I found her much better; the skin was unusually moist, the tongue cleaner, and moist also.—*Rep. balneum*. The following morning apyretic, the skin less yellow, cool



and moist; the petechiæ have disappeared, though the ecchymoses remain; tongue cleaning; pulse 80; a natural stool. From this period convalescence commenced without relapse, and in two days the patient complained of nothing but an urgent desire for food.

CASE LXIX. *Yellow suffusion, bloody urine, &c.*—E. I., aged 24, returned from France, where he was educated, about three years ago; he is a planter, and inhabits a house in the neighbourhood of an extensive swamp. He has suffered two or three times from intermittents, but not of a very severe kind. After spending a great part of the night in the manufactory of the estate he went to bed, and the following morning mounted his horse and rode towards the town. Whilst on his journey he was seized with rather severe rigors, followed by fever, and was obliged to return. The next day he had a return of symptoms, and was attended by Dr. Chevalier. This paroxysm was marked by a long cold stage, with severe rigors, followed by intense heat of skin, vomiting, frontal headache, pain of the loins and inferior extremities. Towards evening the force of the paroxysm became somewhat mitigated, and Dr. Chevalier commenced the sulphate of quinine, first by the mouth, but as each dose was rejected, afterwards by friction; the fever, however, redoubled, and the following morning, December 12th, 1830, I found him as follows:—the conjunctivæ and the surface of the body of a greenish-yellow colour; patches of extravasation on the chest, but not extensive; skin pungently hot, communicating an unpleasant feeling of heat and tingling to the hand; supination; incessant vomiting of green fluid without much effort; slight headache, and some degree of pain in the back and lower extremities, but not considerable; no pain in the epigastrium, though I can make the anterior parietes of the abdomen touch the spine. There is no uneasiness; pulse very quick, small, and feeble; constipation; purgative cœnemata have been returned unmixed with fecal matter; difficulty and pain in micturition; the urine received in a tumbler is thick, turbid, of a dark colour, and deposits a quantity of grumous blood; little or no thirst, and a dislike to Seltzer water or



effervescing draughts. Evening. Worse; the skin is of a deeper colour, and intensely hot; urine as before: it is acid, though of a fœtid smell; has had one stool resembling tar, and at the same time passed a quantity of fluid dark blood. The patient appears to be without hope.—*To have a bath of country bark and bay leaves, and to remain in it as long as possible.* After remaining three-quarters of an hour in the bath the patient expressed a desire to void his urine, which he said he could not do whilst immersed in water; he was therefore taken out and covered with blankets. The urine which he voided was much like the former; however his pulse became less rapid, and he soon began to perspire. At four o'clock in the morning of the 13th the skin had again become dry.—*He was again placed in the bath.* At nine o'clock he was apyretic, and passed his urine, which no longer contained blood, but which threw down a lateritious sediment. Noon. The patient is perfectly easy, has slept, and the skin is perspiring; has had a stool of fœcal matter; stomach quiet.—*To take the following draught every hour: R. Decoct. chinchonæ, ʒ i. ext. chinchonæ, gr. x.* Evening. The patient has taken his medicine twice, but objects strongly to it: he is apyretic, without any other symptom than that of debility.—*To continue; beef tea.* 14th. The colour and ecchymosis disappearing; wishes for food. He is, in fact, convalescent.

CASE LXX. *Intermittent, with adynamia and discharge of blood per anum.*—An old woman, aged about 60, during the last six months has suffered three or four attacks of intermittent; which, however, soon disappeared under a treatment of emetics, purgatives, and quinine. She resides in a very unhealthy neighbourhood, and three days ago was again seized with a paroxysm of quotidian intermittent, commencing early in the morning and terminating towards evening; the second paroxysm continued a longer time than the first, and the third, which commenced yesterday, redoubled in the evening, and is now continuing. The patient has taken some orange beverage, an emetic, and an active purgative, which, instead of relieving her, have, she says, caused the present



symptoms. She has observed a strict diet, having taken nothing into her stomach except the ptisan. The skin is hot and dry, and the conjunctivæ yellow. She is a Mulatress, and the colour of the surface does not appear altered; supination; restlessness, alternating with coma; convulsive twitchings of the muscles of the fore-arm; thirst; no pain in any part of the body; the epigastrium insensible to pressure; no stool since yesterday, when she was freely purged from her medicine; urine clear; pulse 120, and weak.—*Barley-water, and to have the body sponged over with the tincture of bark and water.* Evening. I expected to have found the patient much better, with some sign of an approaching intermission, but a redoublement or exacerbation has taken place, and she is worse. The skin is hot and dry. The restlessness is greater, occasionally alternating with the stupor, which is more pronounced; there is a little delirious babbling, but when roused the intellect is clear, though obtuse; constant twitching of muscles of the fore-arm; tongue dark brown, horny, and dry; frequent demand for drink, but the patient merely moistens her mouth and then spits out her barley-water.—*To continue, and to take the following draught every hour: R. Decoct. cinchonæ, ʒ i., Ext. ejusdem, gr. v.* Fifth day. The symptoms are advancing; adynamia is pronounced; the patient has passed a copious alvine evacuation resembling tar, in which is about half an ounce of pure liquid blood.—*To remain in a bath, composed of a strong decoction of country bark and the leaves of the pimento, as long as possible, and to be well covered up in coming out.* Noon. Remained in the bath nearly an hour. She is much better; the tongue and the skin are moist. She has slept, and the twitchings have disappeared. Evening. The skin is again dry, but the other symptoms better.—*Repetatur balneum.* Sixth day. Has passed a good night and is apyretic; the conjunctivæ less yellow; tongue cleaning; pulse 80; skin cool and moist; a natural stool. 7th. Weakness; desire for food; convalescent.

*Remarks on the three last cases.*—The first and last of these cases present examples of what have been called adynamic intermittent fever. The subject of each was advanced



in age, and the general symptoms were quite out of proportion to the severity of the local inflammation; the latter being scarcely perceptible. It is not, therefore, a gastro-enteritis that we are to consider as the sole cause of the disease, the blood played a conspicuous part in its production. The tonic bath produced in each an effect almost miraculous. The second case of the three presented the character of marsh fever of an intermittent type, and the effects of the bath were equally successful. In some other cases this kind of bath was no less beneficial, but in the greater majority of cases in which I have employed it, its effects have been either useless, or at best doubtful. In justice I must state that I at first expected too much, and applied it either in cases where the local inflammation played the principal character in the disease, or in cases which were too far advanced to be controlled by any treatment with which we are as yet acquainted.

*Cases in which convulsions are added to fever of different types.*

CASE LXXI. *Intermittent; hysteria.*—Madmlle. F.C. aged 26, of a remarkably stout habit and sanguineo-nervous temperament, subject to hysterical attacks, was seized with rigor two days ago, accompanied by hysterical convulsions, which disappeared as the hot stage came on; the paroxysm continued about eight hours, and subsided. The following morning another paroxysm, with similar accidents. This morning, the third since the commencement, the third paroxysm made its appearance; the rigors were very severe, and of long continuance, accompanied with vomiting of bilious matters, distension of the abdomen, eructations of wind, severe headache; convulsive motions of the fingers and muscles of the fore-arm; despondency; a sense of suffocation. As the hot stage made its appearance the symptoms increased; the patient laughed and cried alternately; then came on severe convulsions of the muscles of the back, neck, and flexors of the legs; the body was thrown forcibly backwards, describ-



ing an arch, the extremities of which were the back of the head and heels; loss of consciousness. The medical gentleman who saw her took away twenty ounces of blood from the arm: the symptoms became worse; he repeated the bleeding; fainting was induced; the second bleeding was followed by a further increase in the violence of the symptoms, and I was sent for. I found her lying on a mattress on the floor, labouring under a convulsion so violent as to be retained in her position with great difficulty; as this subsided, she lay perfectly quiet; the face became pale; she lost consciousness; the breathing was quiet, but occasionally snorting or stertorous. In a few minutes she became restless; then she laughed and cried, and shortly was seized with a severe opisthotonic spasm: the skin was cool, and covered with gentle moisture. I prescribed draughts of orange-flower-water, and the tincture of assafoetida, to be repeated every ten minutes; after the third dose, she vomited a quantity of bile and mucosities, had eructations of immense quantities of gas, and the symptoms immediately disappeared; one of the following pills taken every two hours prevented a relapse.—*R. Sulph. quincæ. gr. iii. gum. assafætid. gr. ii.*

CASE LXXII. *Intermittent, with hysteria.*—Mrs. G., of a nervo-lymphatic temperament, the former predominating, has had two paroxysms of quotidian intermittent, commencing about two o'clock in the afternoon, and subsiding at the early part of the night; she has been freely purged, and since the last paroxysm has taken twenty-four grains of sulph. quincæ. To-day, however, 19th July, 1831, at the usual hour, severe rigors came on accompanied by cramps in the legs; *globus hystericus*, eructations; fits of laughing and crying; acute headache. These symptoms continued, with the hot stage, and were combatted by the tincture of assafoetida; but the paroxysm was prolonged until six o'clock the following morning; on its subsidence the patient took two of the following pills every two hours, which prevented a return.—*R. Sulph. quincæ.; gum assafætid. ā gr. iii. divided into two pills.*



*Remarks.*—The two last cases are of common occurrence, and by no means dangerous.

CASE LXXIII. *Intermittent ; hysteria.*—H. B., a girl of colour, aged 26, of an irritable temperament, was suddenly seized this morning, 17th of Oct. 1831, with severe rigors, which continued two hours, and were followed by fever. At noon I saw her; supination; talking to herself; frequently repeating the same word; has the appearance of a person in a state of intoxication; when roused she answers correctly, and complains of a pain in the lower part of the abdomen, headache, a sense of suffocation, and strangling in the throat; she has vomited a quantity of bilious matter several times; great tenderness of the hypogastric and both inguinal regions on pressure; menstruation regular; the last period happened a week ago; skin hot and dry; pulse quick; respiration irregular and hurried; conjunctivæ injected.—*To have xii. leeches applied to the vulva, and to take a purge of aloes and assafœtida.* Evening. Worse; the leeches have bled freely; the patient talks incessantly and incoherently; no longer answers when spoken to.—*Assafœtida glysters; warm fomentations to the abdomen; draughts every two hours of orange flower water, and the tincture of assafœtida.* 20th. Has passed a bad night; stupor, and throwing about her arms alternately; bowels freely open; urine clear and limpid; great tenderness over the region of the womb; skin hot, particularly on the head; pulse small, quick and hard.—*V. S. 3 xvj. produced fainting; cold applications to the head.* Noon. Much better; is now apyretic; blood slightly buffy. Evening. After an intermission of about four hours another paroxysm set in with severe rigor and slight opisthotonic convulsions. She is now much in the same state as last night.—*To have twelve leeches to the vulva; laudanum to the head; warm fomentations to the abdomen.* 21st. Perspired freely during the night, and is now apyretic; she speaks foolishly, though she answers correctly when spoken to.—*To commence the following pills immediately, and to continue them every hour.* R. Gum assafœtida, sulph. quincæ. āā gr. iii., divided into two



*pills.* Evening. A slight paroxysm commenced at noon, and is now subsiding by perspiration.—*To continue the pills.* 22nd. An appearance of the catamenia; all the symptoms have subsided.—*To continue the pills.* 23rd. Cured.

*Remarks.*—This case occurred during an epidemic of remittent with acute meningitis. That the meninges were in a state of considerable irritation I think there can be no doubt, but the primary source of the disease appeared to be the uterus; the symptoms completely subsided as this organ returned to health. The catamenia made their appearance, although the period had passed, and the patient had been regular.

CASE LXXIV. *Meningitis; worms; convulsions; continued fever; death.*—A negro girl, aged 12, of a robust constitution, complained yesterday morning, for the first time, of violent headache; in a short time she became feverish. She continued in this state until this morning, July 7, 1831, when she had a severe convulsion, which continued some time, and then ceased; in the course of an hour she had another, more violent than the former. I was sent for, and saw her at noon in the following state. Countenance swollen, particularly the upper eye-lids; conjunctivæ injected; stupor, from which she is with difficulty roused; answers questions quickly and abruptly, as if suddenly awoke from sleep, but correctly, and immediately falls into her previous state; scalp is hotter than the rest of the body; the temperature of which is above the normal standard, and dry; the head is painful; there is no thirst; the epigastrium is insensible to pressure; abdomen supple; bowels open; pulse 110, small and hard.—*V. S.  $\bar{3}$  x.* During the bleeding she had a severe convulsion, with foaming at the mouth; the head thrown forcibly backward; the hands firmly closed; as the blood flowed the symptoms disappeared, and she fainted. Evening. The patient is better on the whole, but still very unwell; the blood buffy.—*Twelve leeches to the temples; cold to the head; calomel gr. x. immediately; a dose of castor-oil to-morrow morning.* 8th. Has passed a bad night; has had two convulsions; stupor the same as yesterday; bowels freely open; has passed two



worms, (*ascarides lumbricoides*;) skin hot; pulse 120.—*Rep. V. S. cold to the head; calomel gr. iii. immediately; another dose at ten o'clock, and a third at noon.* Evening. Has passed four worms, similar to the former; the stupor is more pronounced; has not had a convulsion since last night; face more swollen; a leech to the inside of each nostril, and to be re-applied occasionally during the night; sinapisms to the calves of the legs.—*Senna and salts if she can be made to swallow.* 9th. Has had several convulsions during the night; could not be made to take the medicine; extremities cold; forehead hot; perfect coma, and insensibility; pulse irregular, and intermittent. After a severe convulsion, death about noon.

*Sectio Cadaveris, four hours after death.*—Body rigid. Thorax: viscera of this cavity perfectly healthy; a colourless clot of fibrine in the right auricle. Abdomen: externally all the viscera appeared healthy; the stomach contained gas; a small quantity of a mucous fluid, and three worms, such as had been passed during life; these worms were embedded in a thick coat of viscid mucus, in which they left their impression when taken away; this mucus when removed exposed the mucous coat underneath perfectly healthy. In the course of the small intestine were found ten other worms, in some places singly, in others in knots of two or three; except that the worms were embedded in a thick mucus there was no peculiar appearance in any of the tissues; the intestine, in short, was perfectly healthy. The large intestine was distended with gas, but in its normal condition. Skull: the scalp contained an unusual quantity of blood; the dura mater adhered to the bone, and was vascular. The arachnoid was thickened considerably and opaque; the tissue of the pia mater engorged with blood. The surface of many of the convolutions were reddish and softened in small patches, but very superficially; the tissues of the brain healthy, but the number of bloody spots produced by dividing the capillaries were very considerable; two ounces of limpid serum in the lateral ventricles. The arachnoid covering the pons varolii exceedingly thickened, and the pia mater at this part ex-



tremely vascular; the inflammation of these membranes extended over the whole of the base of the brain and around the medulla oblongata; cerebellum and its membranes healthy.

CASE LXXV. *Meningitis; ramollissement of the stomach; worms; death.*—John, a Mulatto boy, aged about eight years, of a delicate constitution, after tolerably severe rigors, accompanied with a convulsion, foaming at mouth, loss of consciousness, had intense headache, and hot and dry skin; perspiration came on about eight hours after the commencement of the paroxysm; and throughout the night the patient is described as having been apyretic; he slept well, and did not evince any appearance of illness; in short, I am led to suppose that there was a complete intermission. This morning, 17th October, he was again seized with rigors, during the continuance of which he had two convulsions, though not very severe. The cold stage continued two hours and a half, when the extremities began to feel warmer than in health, and the hot stage may be said to have commenced; during the rigors the forehead and scalp are stated to have been hot, though the rest of the body, particularly the extremities, was icy cold, and the stupor was so profound that the little patient could not be roused without difficulty. At noon, nearly five hours after the commencement of the cold stage, I saw him. Stupor alternating with great restlessness, rolling the head from side to side; jactitation; considerable heat and dryness of the skin; pupils somewhat contracted; sensibility to light; no thirst, no vomiting, no increased sensibility of the epigastrium on pressure; tongue pale and moist; bowels purged from medicine which he has taken; pulse quick and hard.—*V.S. 3 vj.* Evening. Has had another convulsion, which is described as having been very severe; the stupor more profound, alternating with great restlessness and occasional screaming.—*To have eight leeches behind each ear; calomel gr. x., and cold vinegar and water to the head.* About midnight I was called to him; he had three or four severe convulsions, and was recovering from the last when I saw him; in a few minutes he had another; the body was thrown forcibly backwards; the arms rotated inwards; the hands firmly



closed; the countenance distorted; the lower jaw firmly fixed; frothy saliva in the mouth; eyeballs turned obliquely upwards and outwards; pupil insensible and contracted. In a short time, perhaps five minutes, the fit subsided, and gave place to profound coma; after an interval of ten minutes, a return of the convulsions.—R. *V.S.*  $\frac{3}{4}$  vi. Blood in both bleedings perfectly healthy; in the latter the surface of the coagulum was more tenacious than usual, but presented no peculiar appearance whatever. After the bleeding the convulsions subsided, the coma diminished to stupor; the patient when roused answered tolerably accurately; and the skin became moist.—*Hydrarg. submuriat. gr. x. statim. Enema purgans omni tertiâ horâ injiciatur.* 18th. Much as last night; there has, however, been no return of the convulsions; the stupor is profound, though the patient can be roused with some difficulty; passing of the hand before the face; pulse 130, small; has passed two worms.—*To have a leech applied to the inside of each nostril, and the application to be occasionally repeated.* Noon. Is more conscious; has passed another worm, with a quantity of mucus and fœcal matter of an offensive smell.—*To take three doses of calomel of three grains each, with an interval of two hours between the doses.* There is not a symptom of gastritis. Evening. Has had an exacerbation about an hour ago, accompanied by a convulsion, but without any perceptible cold stage; stupor alternating with agitation of the arms; rolling of the head on the pillow, and rambling delirium.—*A blister between the shoulders; an injection of half a pint of warm water, and ten grains of the tartrate of antimony.* 19th. Extremities cold and clammy; strabismus; total insensibility; passes his fœces and urine involuntarily; forehead hot and dry, though cold applications have been continually applied; pulse rapid and weak.—*Sinapisms to the calves of the legs.* Noon. Dying. Died at four o'clock P. M.

*Sectio Cadaveris sixteen hours after death.*—Body rigid. The vessels between the skull and dura mater contain a quantity of blood; sinuses of the dura mater containing red coagula; the arachnoid thickened and opaque, but irregularly



so, from gelatiniform effusion between it and the pia mater; the pia mater extremely vascular; many of the convolutions of the brain adhering from recent but vascular adhesions. Both tissues of the brain in a state of hyperhæmia, but not to a considerable degree; softened universally; the softening, however, I take to be solely cadaveric; about two ounces of clear serum in the lateral ventricles. The texture of the cerebellum, like that of the brain, softened, and from the same cause. The brain, when turned with its base upwards, presented the following appearance: the arachnoid covering the corpora striata, the thalami, and the pons varolii very much thickened, adherent to the pia mater, and converted into a gelatiniform substance of some consistency; the pia mater underneath contained within its structure a sero-sanguineous infiltration, its vessels engorged with blood; *ramollissement rouge* of the most prominent part of the right corpus striatum, but not very considerable. The whole *surface* of the pons varolii was converted into a red pulp, to the depth of nearly half a line; when this pulp was scraped off, the texture of this body was of a rusty tinge, the colour becoming less deep in proportion to its distance from the arachnoid. The arachnoid and pia mater of the medulla oblongata inflamed, but much less so than in the places mentioned above; the structure of this body healthy. Thorax: the viscera of this cavity sound. Abdomen: the stomach distended with gas, contained mucosities and three worms; they were dead, but had not undergone any change; the whole of the mucous membrane was pale, and covered here and there with a coat of viscid mucus; no trace of vascularity beyond its normal condition. On the left extremity the mucous coat was destroyed, or rather converted into a soft inorganic pulp; this softening extended into the cellular, and partly into the mucous coat; it was nearly circular, and about three inches in diameter, easily washed off. The surrounding mucous membrane was softer than in other places, and extended its fringy and thinned borders into the disorganized mass. Examined externally the small intestine appeared of a reddened hue in a few situations, but the whole of the mucous coat, even under these places, was



healthy; this redness appeared to be cadaveric and depended upon the engorgement of the small veins and transudation of blood through their parietes; the canal contained seven worms. The spleen was of its natural size, and apparently healthy externally; but its structure was broken up, and seemed to consist of grumous blood; the other viscera were healthy.

*Remarks.*—In the two last cases the origin of the disease appears to have been in the head exclusively; there were no symptoms which indicated any affection of the intestinal canal, and though the existence of worms might have been suspected, it could only have been from their frequent, or I may say constant, occurrence in children in St. Lucia. I will not stop to inquire whether worms in the intestinal canal are the cause of the nervous symptoms which frequently attend their sojourn in this part, or whether their existence in these cases is merely adventitious. In the second, we met with symptoms which were perfectly explained by the læsions found within the skull after death; but superadded we met with a tolerably fair specimen of that affection of the stomach which has been described by many authors, from the time of Hunter, both in this country and on the continent, but more particularly, and perhaps more accurately, by Cruveilhier. This gentleman, as we know, considers this ramollissement gelatiniforme a distinct disease, characterised by a peculiar set of symptoms, which makes its diagnosis sufficiently clear. He imagines that it is produced by a *special irritation*, the mechanism of which, like all the organic phænomena which take place in the capillaries, is unknown. The symptoms *peculiar* to this læsion, in the case before us, were wanting; we had neither vomiting nor ardent and insatiable thirst; and as to those which were present, and are considered by Cruveilhier, when combined with the former, as diagnostic, viz. “rapid and extreme emaciation, extreme prostration, face pale and decomposed, stupor interrupted by plaintive cries and contortions, extreme ill-temper, pulse slow and irregular, and coldness of extremities:” except the first, which certainly was not considerable, I think they can be attributable only to the state of the brain. There was no symptom of this læsion



having existed during life; must we therefore conclude, with the mass of our countrymen, and particularly Dr. Carswell, that this appearance in the stomach was produced by the action of the gastric acid,—that it was cadaveric? I can only reply, that the three worms which were found in this organ were situated near to, nay almost in close contact with, the disorganized portion; they were dead, but had not undergone the slightest change. Though this patient had taken several large doses of calomel, the softening here did not resemble that found in fevers in which the treatment has been mercurial; in the latter, the origin appears to have been clearly inflammatory, and the disease may be seen in its different stages from acute inflammation to grey or brown pulp.

CASE LXXVI. *Meningitis; convulsions; worms.*—Victorine, a negro child, about seven years of age, was taken suddenly ill with severe convulsions of the extensors of the back and flexors of the fingers, resembling tetanus. I was sent for, but as her residence was at some distance from Castries, I did not see her until evening. She then presented the following symptoms:—great agitation; attempts to rise from the knee of her mother, and rush forwards; loud screaming; conjunctivæ injected; pupils small and contracted; convulsive motions of the face and extremities; unconsciousness; heat and dryness of the skin; pulse hard and quick. Half an hour after my arrival these symptoms subsided, and were replaced by profound stupor, with occasional convulsive twitchings of the legs and arms. In the course of the night she had three or four opisthotonic convulsions, with foaming at the mouth and loud screaming. The following morning she was much better; the skin was somewhat moist, and there was an imperfect consciousness.—*She had been bled to the extent of 3 vi.; had twelve leeches applied behind the ears, and had taken calomel gr. vi., and this morning a dose of castor-oil.* Noon. The bowels have been freely open, and one common round worm has been passed, but the patient is in the same state as last night. She tries to rush from the bed, and makes attempts to bite those who restrain her; constant screaming, and now and then rigid spasms of the flexors of the fore-arm and the muscles of



the calves of the legs, with distortion of the mouth ; the head is hot, and the whole body dry ; the temperature above the normal standard.—*Rep. hirudines ; essence of semen contra*, gtts. viii., *with castor-oil*,  $\bar{3}$  ss., *to be taken immediately*. I was obliged to leave the patient, and did not see her until the following day, the third of the disease. She was then dying, and indeed died about half an hour after my arrival. She is said to have continued in the above state until noon to-day, when she suddenly, after a general convulsion, became motionless, and was considered dead. About three o'clock it was observed that she recommenced to breathe, afterwards to move, and in a short time she had another severe convulsion, followed in a few minutes by death. I saw her at four. Such is the statement of the mother, and the manager of the estate where she resides.

*Sectio Cadaveris, sixteen hours after death.*—Body somewhat rigid. Thorax : the viscera of this cavity perfectly sound. Abdomen : stomach, externally pale, contained a considerable quantity of a yellowish mucous fluid ; the mucous membrane of a greyish colour, with here and there spots of a light dirty red, from four to eight lines in diameter, principally in the left extremity ; they were formed by a congeries of small red points in the mucous coat itself, and not in the subjacent cellular tissue ; the greyish colour was caused by a tough viscid mucus adhering to the mucous coat, and requiring the back of the scalpel to remove ; when this was done the membrane appeared underneath of a light dirty red colour, but not from *rougeur pointillée*, except in the places mentioned above, nor yet from arborization, but seemed as if it had acquired the colour from staining ; there appeared to be no increase of vascularity. This viscid mucus was stamped with the impression of five worms, three of which were living ; and one was found about three inches above the cardia in the œsophagus. The duodenum and jejunum, viewed externally, appeared of a dusky red colour, in different places ; this redness indicated a decided phlogosis of the corresponding portions of the mucous coat, and here were found bundles of three and sometimes four worms. The ileon and large intestine



were healthy and free from these entozoots; the total number of which was twenty-six; species "*ascaris lumbricoides*;" the other viscera in this cavity were healthy. Skull: nothing remarkable in the scalp, pericranium, calvarium, or dura mater; external surface of the arachnoid studded with beads of albumen of tolerably firm consistency, not organized; it was thickened throughout and opaque; inner surface adhering to the pia mater, which was throughout extremely vascular, the veins distended, and the capillaries gorged with red blood. The inflammatory action had been more severe at the base; the membranes covering the pons varolii, the under surface of the cerebellum, and surrounding the medulla oblongata, were intensely inflamed; the tractus opticus on both sides their commissure and the optic nerves themselves, were covered with a coat of gelatinous-looking albumen. The textures of both brain and cerebellum healthy in appearance; about two ounces of clear fluid in the lateral ventricles.

CASE LXXVII. *Meningitis; type intermittent; convulsions; worms.*—Richard, a boy, aged 17, slender and delicate in appearance, though in the habitual enjoyment of good health, was taken ill this morning at four o'clock, October 1, 1832, with vehement headache and fever, unpreceded by rigor or coldness; at ten o'clock A. M. I saw him. Skin moist and dry; stupor; when roused answers correctly, but immediately falls into the same state; complains of the fore and upper parts of the head; eyes dull; belly supple and insensible, tongue white and rather slimy; has vomited a dose of salts given to him this morning; pulse 110, somewhat hard.—*V. S.*  $\frac{2}{3}$  viii. After the bleeding the pulse became more slow; the blood glutinous on the surface of the coagulum, but not buffy.—*Two leeches to be applied behind each ear, and to be constantly repeated; calomel gr. vi. immediately.* Four o'clock P.M. Since the application of the leeches, the number of which has amounted to six, the pulse is both weaker and slower; on the other hand, however, the stupor is more pronounced; he is with difficulty roused, seems like a person in a profound sleep, but answers correctly to questions, and says his head is less painful; he has had a severe convulsion since I last saw



him ; his eyes are dull ; the conjunctivæ not injected ; pupils as in health. Abdomen supple, insensible on pressure ; no stool ; skin only moderately warm.—*Rep. V. S. § viii. and to continue the application of the leeches ; cold applications to the head ; a purgative ænemā.* Seven o'clock P. M. The blood taken away by the last bleeding is healthy ; the skin is warm and covered with a gentle perspiration ; the head, since the application of vinegar and water, is cool ; the application of leeches behind the ears has been continued, and the number amounts to ten ; the bowels have been freely opened by means of the glyster, the evacuation abundant and green. Abdomen is still insensible to pressure, the pulse is weak, and scarcely quicker than during health ; but the stupor is increased, the patient can scarcely be roused, and no longer answers questions.—*To take an ounce of the rectified spirit of turpentine in four doses, of two drachms each, made into an emulsion with mucilage and syrup, observing an interval of ten minutes between each dose.* Nine o'clock P. M. Return of consciousness, with restlessness ; occasional stupor, from which he is easily roused ; answers correctly and complains of his head ; he has taken the whole of the turpentine, yet he has neither vomited nor been purged ; there is not, as far as I can observe, a trace of irritation in the belly. *Castor oil § ii. ; to continue the cold to the head.* 2nd. The patient is apyretic ; the ideas are clear, and the pain in the head has disappeared ; tongue whitish and moist ; has passed four common round worms ; the paroxysm subsided with slight diaphoresis. Three o'clock P. M. About noon a second paroxysm preceded by a sense of coldness in the extremities, but no rigor ; since its commencement the patient has had three convulsions of the muscles of the mouth and hands, accompanied with loss of consciousness ; he complains of headache ; stupor, but not so great as during the last paroxysm ; ideas clear ; pulse weak, but good ; skin hot and dry, tongue white ; has had another stool, and passed two more worms ; about four o'clock return of convulsions ; the surface became cool, the pulse feeble and quick ; face pale.—*Sinapisms to the thighs ; blister between the shoulders.* Seven P. M. Reaction ; skin hot and dry, but the ideas clear,



and the head more free; towards nine o'clock, perspiration with great amelioration of symptoms; an intermission of short continuance at midnight, and the patient was ordered the sulphate of quinine; however, on the morning of the third I found him labouring under a third paroxysm, which commenced with slight convulsions. Noon. Skin very hot and dry; stupor, with sudden starting; belly open, stools bilious, and passed involuntarily; some degree of consciousness; has difficulty in protruding his tongue, which is red at the tip; belly sensible on pressure; mouth half open; eyes fixed, and move only under a strong light; pulse quick and jarring.—To be enveloped in blankets, and drink warm tea. Eight o'clock. Gentle moisture of the skin; symptoms ameliorated; a remission.—*To take three grains of the sulphate of quinine every hour.* 4th. Apyrexia; has taken eighteen grains of the salt.—*To take only two grains every three hours.* Noon. Is apyretic, but has had a slight convulsion of the mouth and hands. 5th. At nine o'clock this morning another paroxysm, very slight, and of very short continuance; it was accompanied merely by slight headache; pulse and tongue good, and bowels open.—To take fifteen grains of quinine, in two-grain doses, every three hours. 7th. Cured; has had no return of paroxysm.

*Remarks.*—The bleedings both local and general were not followed by any apparent benefit; under the administration of the turpentine the symptoms calmed in an extraordinary manner, and though this might be accounted for by the period of the disease, viz. the close of the paroxysm, or rather the time when the paroxysm should close, supposing the type to be quotidian, I cannot divest myself of the belief that the effect of the medicine was highly advantageous, and tended not only to produce the immediate relief which followed the administration of the first dose, but the complete apyrexia which followed, also. It was to the quinine, however, that the ultimate safety of the patient was due, by preventing a return of a paroxysm which in all probability would have been fatal.

CASE LXXVIII. *Remittent; convulsions.*—A girl, aged 9, after eating her breakfast, was seized with convulsions without premonitory symptoms; the fits had continued half an



hour when I saw her, 3rd September, 1833. Perfect insensibility and coma, alternating with severe convulsions of the arms, legs, and extensor muscles of the trunk and neck; face and surface of the body pale and cold; eye-lids closed, eye-balls turned obliquely outwards and upwards; pupils insensible and contracted; pulse quick and small; abdomen supple and insensible; has not had a stool since yesterday.—*Calomel gr. x. immediately, to have twenty leeches applied behind the ears.* Noon. Symptoms little changed; the skin is now hot and dry; the face is flushed; the leeches have bled freely; bowels have not been moved.—*To have twelve additional leeches applied to the same places; vinegar and water to the head; a purgative cœnema; a dose of castor-oil, and the legs to be rubbed with a liniment of ammonia, and the tincture of cantharides.* Evening. The patient is somewhat more sensible, and the intervals between the convulsions are longer. I have an opportunity of seeing the tongue, which is pale and moist; the bowels have not been moved.—*To have the following cœnema administered immediately and repeated in two hours if necessary.* R. *Sodæ sulphatis*,  $\bar{3}$  i.; *ol. ricini*,  $\bar{3}$  i.; *antim. tart. gr. xii.*; *aquæ tepidæ*,  $\bar{3}$  x.; R. *fiat cœnema.* 4th. The bowels have been twice moved from the effects of the glyster, stools abundant and natural; but the patient continues in the same state; a convulsion every half hour, and the intervals marked with profound stupor; the body is pale and cool, occasionally flushed, hot and dry; the pulse quick and weak.—*Empl. lyttæ nuchæ; sinapisms to the legs.* Evening. Throughout the day the patient has continued much in the same state, except that about noon she was somewhat conscious. The convulsions ceased for two hours, and the skin became moist; an exacerbation took place about two p. m., and the patient is now as yesterday.—*To take an ounce of the rectified spirits of turpentine mixed with honey, in four doses, with an interval of a quarter of an hour between each.* Two hours after the administration of the medicine the convulsions had completely subsided, the patient became conscious, and answered correctly when spoken to, but the moaning and some degree of restlessness and agitation still remained; the skin



warm and moist. 5th. No return of the convulsions; consciousness restored; sensibility; the blistered surfaces produce uneasiness; belly loose; fæces and urine impregnated with the smell of the turpentine; stools bilious and mucous; abdomen somewhat sensible on pressure; tongue red at the tip; thirst; skin hotter than natural, but moist.—*To commence the sulphate of quinine immediately, in doses of three grains every two hours. Emollient glysters; warm fomentations to the abdomen, barley-water.* Evening. Has taken eighteen grains of quinine; the nervous symptoms entirely gone, and the irritation of the intestines subsiding.—*The frequency of the doses to be diminished; to continue the other parts of the treatment.* 6th. Convalescent. 7th. Cured.

CASE LXXIX. *Remittent; convulsions.* — A boy, aged 9, son of an unhealthy father, who has suffered for some years from scrofulous abscesses of the lymphatic glands of the neck, and inveterate scaly blotches on the legs resembling psoriasis, had severe rigors on the morning of the 6th May, 1832; in a short time he was attacked with convulsions of the whole body; about an hour from the commencement of the attack the hot stage made its appearance, and I saw him shortly afterwards. He was lying on his back when I entered the room, apparently in a deep sleep; the skin was hot and dry; the face pale and composed; the eye-lids closed; the pupils dilated and insensible; pulse quick; he cannot be roused; in a few minutes, he had a severe convulsion with grinding of the teeth, and foaming of the mouth; the fit lasted about four minutes, and was succeeded by a perfect coma; the pulse immediately after the fit was quick and hurried, but gradually became quieter as the calm continued.—*To have twenty leeches applied to the temples, and to take ten grains of calomel immediately.* Evening. The patient has had a constant succession of convulsions every ten minutes or quarter of an hour, and is much in the same state as he was this morning; no stool.—*To have a dose of castor-oil; to have a leech constantly applied to the inside of each nostril; and sinapisms to the legs.* 7th. The patient has passed a tolerable night; the convulsions have subsided; he is conscious, and complains of the places to



which the mustard was applied ; the bowels have been opened, stools natural ; tongue moist and pale ; no thirst ; no pain on pressing the epigastrium ; skin cool and moist ; but the pulse is quick, and there is a degree of stupor or somnolence.—

*To continue the quinine ; and to keep the head cool.* About eleven o'clock an exacerbation took place with coldness of the extremities, but no rigors ; the quinine has not been given. Noon. The patient is very ill ; much in the same state as yesterday. Two o'clock ; the state of things is alarming ; one convulsion has scarcely ceased before another commences ; the body is occasionally thrown into an arch, resting only on the heels and occiput ; the elbows are flexed, and the forearm and head rotated forcibly inwards.—*To take an ounce of rectified spirits of turpentine, as in the former cases.* It was with the greatest difficulty that the patient could be made to swallow a little more than one half, from the danger of suffocation, as part seemed to have passed into the glottis.—*An ænema containing about half an ounce was administered.* Midnight. The patient has been purged several times ; the urine smells of the turpentine ; the convulsions have subsided ; there is still stupor, but when roused he is conscious ; the skin is warm and moist. 8th. Apyrexia ; the nervous symptoms have subsided, except a certain degree of stupor and restlessness ; the tongue is slightly red at the tip, and there is thirst ; skin moist, cool.—*Quinine.* Evening. Another paroxysm at noon, but very slight, and it subsided towards evening ; no convulsions ; the patient has taken fifteen grains of quinine ; there is no perspiration ; the intelligence clear, and the intestinal irritation very slight.—*To recommence the quinine.* 10th. Cured.

*Remarks.*—In these two cases the effects of the turpentine were beneficial ; its mode of operation seems to have been that of producing counter-irritation ; for after its administration the bowels became loose, the stools bilious and mucous, the tongue red at the tip ; the epigastrium tender, and the patient complained of thirst ; as these symptoms made their appearance the nervous symptoms subsided ; such appeared to me to be the effect of the turpentine in most of the cases in which I have administered it. I am aware that many will object to its



administration on these grounds, and consider it a dangerous remedy, inasmuch as we cannot possibly foresee that the cerebral and meningeal irritation is necessarily to subside, and if it should not, we shall only induce the læsion of another organ, which, by reacting on the nervous system, will tend to augment the symptoms already existing. It is by some such reasoning that the French have always been so timid in their employment of purgatives in cases of cerebral congestion and encephalitis; a timidity which still exists, and which, with one or two illustrious exceptions, is almost universal amongst practitioners of that nation. There is no doubt a degree of truth in this reasoning, and I am willing to confess that I have seen cases where the cerebral affection was augmented by this mode of treatment, but in those it was a treatment which ought not to have been employed; there already existed a considerable degree of gastric and intestinal irritation and it was impossible to tell how far the nervous symptoms were connected with it. I can, however, sincerely and conscientiously recommend the further employment of this remedy in cases, similar to the two last, in which the abdomen is free from any mark of irritation. Our knowledge of therapeutics is so limited, and it is a science so exclusively of observation, that it is only by the effect of a medicine in a considerable number of cases that we can judge of its value as a remedial agent. In neither of these cases was the action of the turpentine that of a vermifuge; the patients neither passed worms during the time of its administration nor for a month afterwards, as I was most particular in ascertaining this point. In cases which present periodical returns of symptoms, this agent alone is insufficient, and we must have recourse to the bark or its preparations, if we expect to cure the disease.

CASE LXXX. *Intermittent; convulsions; worms.* — A little boy, aged 6, had an attack of fever yesterday, unpreceded by rigors, during which he vomited three or four times, and threw up a quantity of yellow bilious matter, and complained of colicky pain in the abdomen. The paroxysm commenced in the morning, and terminated towards evening by sweating. The night was passed tranquilly and without fever.



The second paroxysm commenced at ten o'clock this morning, preceded by a sense of coldness in the extremities, but without rigors. I saw him at two o'clock p. m., 6th December 1830; skin burning hot, and dry; thirst insatiable; picking the nose: waving the left hand before the eyes; sensibility and consciousness perfect; epigastrium tender on pressure; belly somewhat distended; constipation; says his head hurts him; countenance somewhat flushed; pulse quick; tongue red all over; papillæ prominent and distinct. I had not left the house above a quarter of an hour, when I was recalled, and found the little patient in the following state: perfect insensibility; the hands firmly closed; surface of the body cold and livid; the respiration suspended; motion of the heart not perceptible; no pulse; pupils dilated and insensible; lips and teeth covered with frothy saliva; convulsive twitchings of the extremities; he had just had a severe general convulsion.—*Cloths dipped in hot water, applied to the epigastrium and the inside of each thigh, and kept there for some time*, produced at first no effect, but in a short time the patient began to breathe very laboriously, the inspirations resembling a sigh, with an interval of a few seconds between each.—*Sinapisms were applied to the spine and the calf of each leg, and a glyster containing about half an ounce of the spirits of turpentine was administered.* Under this treatment he became better, but soon had another and very severe convulsion, on recovery from which he voided the glyster, passed a copious stool and two round worms; he soon became more conscious, and was capable of swallowing.—*Spirit. terebinthinæ, ʒ ii. were given to him, mixed with honey, and the dose was twice repeated in the course of half an hour*, which produced vomiting of bilious matter, and two stools of a green colour; perfect consciousness returned; the skin became warm, and the pulse quicker and more developed. At eight o'clock in the evening the skin was very hot and dry; the tongue brown in the centre, red at the tip, and dry; the epigastrium sensible; the thirst great, but no vomiting; all the nervous symptoms had subsided.—*To take an ounce of castor-oil, with five drops of the essence of semen contra.* 7th.



Apyrexia; the medicines have operated freely; the stools at first were slimy, and somewhat bloody, but are now natural. He has also passed two more worms, but though free from fever, that is, heat of skin, still the pulse is quicker than natural, and the epigastrium somewhat tender. The tongue is moist, and less red at the tip. At noon. Another paroxysm, preceded by a cold stage and rigors. There was remission towards evening, with an almost immediate exacerbation. The skin was hot and dry; the tongue red at the tip; vomiting of grass-green fluid; epigastrium painful; thirst; intelligence clear.—*Emollient glyster; warm fomentation; barley-water.* 8th. Has perspired a good deal since four o'clock this morning, and is now apyretic; some gastric irritation existing.—*Quinine.* 9th. No return of the disease; appetite. 10th. Cured; soup and moderate diet.

CASE LXXXI. *Gastritis; encephalitis; convulsions; softening of the spleen; death.*—On ——— 1834, I was requested by the late Dr. Coventry to see with him a young man, who had recently arrived in the island, and had been ill with fever three days. The attack commenced with acute headache, and pain over the whole body, particularly the back and lower limbs; the stomach was very irritable, and everything taken in was immediately rejected. During the whole of last night he was delirious, and had a severe convulsion, with screaming. He has taken several doses of calomel, and has had a blister applied to the pit of the stomach. This is all the history of the case that I can obtain. At present he is raging mad; the face of a dusky red colour; he is kept in bed by the joint efforts of several men. The chest, abdomen, and forehead are intensely hot; the eye haggard; the conjunctivæ injected; the slightest pressure on the epigastrium produces evident pain, as the patient shrieks immediately. It was impossible to bleed him from his extreme violence. A strait-waistcoat was sent for, but before its arrival he had a severe convulsion after a powerful effort to get out of bed; the countenance was horribly distorted, and his hands firmly closed, with grinding of the teeth, but no foaming of the mouth. On its subsidence he remained in a



state of coma, during which about forty ounces of blood were taken from the arm; it was dark-coloured, coagulated firmly, and the surface of the coagulum was buffy. After the bleeding he remained quiet, but did not recover consciousness. I did not see him again during life, as he died early the following morning.

*Sectio Cadaveris, six hours after death.*—Body rigid. Abdomen: stomach pale externally, contained about six ounces of chocolate-looking fluid; its mucous membrane of a bright red over the whole of the left half, and the redness extending through the cardia to the lower inch of the œsophagus; its villous surface was here and there abraded in patches of small extent; it separated easily from the cellular coat, and was much thickened, but not softened; the rest of its extent was of a much less red colour, except towards the pylorus, where the redness became intense; innumerable small black spots were scattered over its surface, which appeared to be the mouths of the exhalent vessels, choked with black matter; here and there in the course of the small intestine were patches of inflammation; great intestine healthy; spleen completely disorganized in its parenchyma, appeared to be composed of a quantity of grumous blood, confined in a fibrous envelope; the other viscera were sound. Thorax: all the viscera healthy. Cranium: sinuses of the dura mater engorged with blood; arachnoid somewhat thickened; the veins of the pia mater engorged; this membrane extremely vascular, sero-sanguineous effusion into its tissue; both tissues of the brain of a darker colour than usual; innumerable spots of blood on the divided surfaces; a quantity of clear serum in the lateral ventricles; the tissues of the brain and cerebellum unusually firm; the plexus choroides consisted almost entirely of a mass of vesicular bodies, which have been described as hydatids, from the size of a pea to that of a pin's head; the tissue which remained was intensely red, and its small veins were gorged with blood; the pia mater at the base of the brain and cerebellum engorged, otherwise nothing remarkable was observed at this place.

*Remarks.*—In this case inflammation of the stomach was



intense, and the peculiar matter constituting black vomit was found in this cavity. The brain also was inflamed. So far there was nothing remarkable in the case; but how are we to account for the convulsions, which are not common at so early a stage of these diseases? Will the state of the plexus choroides explain their cause, or are we to attribute them exclusively to inflammation of the brain? The spinal canal was not examined.

CASE LXXXII. *Intermittent; convulsions.*—M. M., aged 18, a powerfully made young man, inhabiting the West Indies three years, had suffered dreadfully from colic, known in these countries by the name of dry bellyache, for which he had taken several doses of purgative medicines without relief. After a bad night, spent in rolling about in his bed and walking in his chamber, the severity of the pain preventing his sleeping, he was, about eight o'clock in the morning, August 9th, 1833, seized with convulsions of the whole body, accompanied with screaming and foaming at the mouth. On my arrival, which happened upwards of half an hour after the commencement of the attack, I found him in the following state:—total insensibility; respiration stertorous and laborious; pupil dilated and immovable; countenance pale; he is, in short, completely apoplectic. The pulse is 100, and full.—V. S.  $\bar{3}$  xvi. was followed by the pulse becoming less full and more frequent; the respiration easier, and a slight but perceptible motion of the muscles of the face.—*A purgative cænama containing 3 ss. of the tartrate of antimony*, was then administered, and sinapisms were applied to the inside of each thigh. The injection produced a very copious evacuation; sensibility and consciousness gradually returned; and at four P. M. he was apparently well, and sitting up in his bed. The colic had disappeared, and he had several alvine evacuations. The blood as in health. The following day he appeared well, but on the third he had an attack of fever, preceded by severe rigors and followed by some irritation of the stomach; the tongue becoming red at the tip; vomiting. He had taken a severe dose of senna and salts the previous day, which had gripped him a good deal, and which he had great difficulty in



keeping on the stomach. When the paroxysm subsided he took the sulphate of quinine, which prevented its return.

CASE LXXXIII. *Intermittent convulsions; death; inflammation and induration of the brain.* — — — aged 27, of a nervo-lymphatic temperament, in St. Lucia nine years, of irregular habits, though seldom completely drunk, yet daily in a state which has been called *fuddled*; (I know no word in the English language which designates the particular state I mean;) for a long period obliged to take a glass of brandy on getting out of bed every morning, which, in consequence of the irritable state of his stomach, is frequently rejected, but repeated until it remains, when he feels roused up for the business of the day; three months ago suffered three slight paroxysms of intermittent, which were combated by diluent drinks, diet, and mild purgatives. Though not completely well, business called him out the day but one after the last paroxysm; without any premonitory symptoms he was seized with severe convulsions. I saw him shortly afterwards; his face was purple; he frothed at the mouth; voided his urine involuntarily; was in a state of insensibility, with stertorous breathing; the convulsions had subsided. He was bled, and took active purgatives. The following day he had a paroxysm of intermittent, with rigors and some degree of gastric irritation; a paroxysm came on each morning for the next two days, and were ultimately checked by the use of quinine. During the two months following this attack his health was very indifferent. He complained of want of sleep, of starting suddenly whilst in bed, imagining that some one called him or was lying beside him; had tremors of the extremities, and though his ideas were correct, and he attended as usual to his business, yet he complained of the loss of power of arranging them, or of fixing his attention for any length of time upon a subject. Three weeks ago he was again attacked by quotidian intermittent, each paroxysm commencing with severe rigors and twitchings of the flexors and extensors of the fingers of both hands. On the day on which the fourth paroxysm should have occurred he arose early, and went to visit a friend, whom he found in bed; and whilst standing by



the bedside he suddenly fell, and lost consciousness; the body was rigid, and he had priapism. He was carried home. I did not attend him during this attack, and can only relate the history as I heard it. During the following week he had a daily paroxysm; he then suffered from irregular paroxysms of mild fever, with a considerable derangement of his general health. Three days ago the paroxysms became once more regularly quotidian; and to-day, March 24th, 1834, I was again sent for to attend him. The paroxysm of to-day has subsided; the skin is warm and moist, and he has perspired somewhat; the countenance is pale, and there is a slight tremor of the muscles of the face; the eyes are wandering, and expressive of fear and anxiety; he is somewhat emaciated; though his ideas are correct, there is some aberration and loss of memory, and a certain degree of agitation; the pulse is very quick and weak; tongue tremulous when protruded, but clean; bowels open, stools natural, but often preceded by colicky or griping pains. He complains of great weakness; intolerance of light, which produces intense pain, shooting from the orbits backwards, and giddiness. These sensations occasionally come on without this cause, but disappear upon his assuming a recumbent posture; he cannot sleep, and has an itching of the skin without eruption. During the febrile paroxysm the pain in the head and vertigo are diminished, but he then has strange fancies, and sees people in the chamber; his appetite is bad, and his digestion is disturbed; the stomach is distended after eating, and he has some degree of uneasiness on pressing the epigastrium, and pain in the region of the heart, with occasional palpitations. He thinks that these symptoms would be relieved by stimulants, and has a desire for brandy-and-water, but his moral feeling prevents his taking it, he is acutely alive to the impropriety of his former manner of living. He is one of those who have indulged freely their desires, without considering, until too late, the effects upon the constitution or the reputation.

In this case it appears to me that there is a certain degree of irritation of the nervous centres produced by the mode of life of the patient, such as we see in a greater extent in the



delirium of drunkards; that this irritation may give rise to some morbid change in the structure of these organs, if such change has not already commenced; that from the symptoms we may also conclude that the circulation through the viscera of the abdomen is disturbed; and, lastly, that though these symptoms may be superadded to the intermittent affection, they at least are closely connected with it. Such being my view of the case, *the patient is ordered to take a breakfast, lunch, and dinner daily of very light food, which shall be at the same time nutritious and easily digested; that he is to put a small blister at the back of his neck, and to keep it open with an ointment composed of equal parts of the ung. cetacei, ung. lyttæ. and ung. hydrarg.; to excite the bowels twice a day with a small dose of the ext. colocynth. & pil. hydrarg. To take a glass of Madeira wine with his lunch, and two with his dinner; and to take the following draught four times a day: R. orange-flower water ℥ii.; acet. morphicæ. gr.  $\frac{1}{4}$  sulph. quincæ. grs. iii.* 25th. Six o'clock A. M. The blister has risen, and the pills have produced three copious and good stools; he has not yet commenced the draughts. At nine o'clock severe rigors, followed by hot skin, vomiting, and thirst; the paroxysm began to subside, with perspiration, at noon; and at two o'clock the skin became moist and cool, and the pulse 90, and weak, but he is much worse than when I saw him yesterday. There is great agitation and tremors of the whole body; the muscles of the left side of the face, particularly the zygomatic, the levator labii superioris, alæque nasi, and the levator angulioris, are constantly in convulsive action; he cannot sufficiently command the muscles of the arm to lift the cup to his lip, in consequence of the tremors; complains of weakness and want of sleep; has no pain, but an indescribable uneasy sensation; eyes haggard and wild; conjunctivæ and face pale; great difficulty in speaking, and often ceases his vain attempts to finish a sentence in despair. Has taken a draught about half an hour ago, which he vomited. He voids his urine freely and frequently, it is clear and colourless; he has an eruption of brown dingy-looking pustules round his mouth; his tongue is clean and tremulous;



no thirst.—*To take a grain of the acetate of morphia immediately; heat to be applied to the lower extremities.* Eleven o'clock P. M. Has continued in the same state; has taken four draughts, containing three grains of quinine and half a grain of the acetate of morphia in each; he has no disposition to sleep, but on the contrary he feels occasionally a sensation of dying or fainting; he has taken two glasses of port wine; has vomited twice during the last ten minutes; in making an attempt to vomit a third time about a quarter of an hour after my arrival, he uttered a piercing cry, and fell into a severe convulsion, with rigidity of the whole body; the fit continued about ten minutes, and terminated in coma. It is the twenty-first day since the last attack.—V. S.  $\bar{3}$  xvi., produced a return of consciousness, and he says that since the bleeding he feels better than he has done for the last twenty-four hours; the blood is buffy and capped. 26th. Slept a little during the night, but is now feverish; the skin hot and dry; the thirst considerable; constant vomiting of whatever is taken into the stomach; tremors of the arms; vertigo when the head is moved; pulse 110, hard.—V. S.  $\bar{3}$  viii., *a purgative ænema; compresses of brandy to the stomach; vinegar and water to the head; hot bricks to the feet; panado and barley-water.* Noon. Blood buffy, but less so than that of the bleeding of last night; one stool from the glysters. Evening. Has continued in the same state all day. Some degree of stupor; convulsive twitchings of the arms; ideas clear; skin moist; pulse 106, still hard; bowels open; stools bilious; the vomiting has ceased, and the thirst is less ardent; tongue pale.—*Rep.* V. S.  $\bar{3}$  viii.; *sixteen leeches to be applied behind the ears; sinapisms to the legs, and to take twenty-four grains of sulph. quincæ, in three doses, in the course of the night.* Blood less buffy. 27th. Has perspired during the night, but is in the same state as yesterday. Noon. Has had no paroxysm, but there is more stupor and convulsive twitchings of the muscles of the left side of the face and both arms.—*Rep. hirudines xx., the blister at the back of the neck to be dressed with ung. lyttæ.* Evening. Same state; pulse 110, very hard; face pale.—V. S.  $\bar{3}$  viii. The blood in flowing from



the vein is thin and watery; the coagulum is firm, and the serum yellow. 28th. No paroxysm, nor any amelioration.—*To take fifteen drops of the tincture of digitalis thrice a day.* 29th. Occasional heat of skin throughout the day; bowels open; twitchings continue; vertigo on sitting up; blister discharging freely.—*Rep. hirudines; milk; barley-water: arrow-root.* Evening. Heart-burn; skin warm and dry; other symptoms continuing.—*Body to be sponged with tepid water; magnesia.* 30th. Convulsive movements of the arms and legs increased; bowels open; vertigo; pulse 100, hard.—*Continue.* Noon. Has had another severe epileptic attack, followed by stupor and insensibility.—V. S.  $\bar{3}$  viii. *Rep. hirudines.* Evening. Stupors continuing; when roused talks irrationally. 31st. Same state; cannot be roused without difficulty; pulse 100, small, hard.—*Scalp to be shaved, and a blister to be applied.* Evening. Worse since the application of the blister; at half-past eight an extremely severe convulsion, followed by eight or nine others, with an interval of ten minutes between each.—V. S.  $\bar{3}$  xx. About midnight the fits subsided, and the patient became comatose, the pulse being irregular and intermittent. April 1st. Coma; pulse regular and hard.—V. S.  $\bar{3}$  x. Evening. Blood natural; much the same state, but can change his posture. I attempted to make him take two pills, which he chewed and then swallowed. 2nd. Slight degree of consciousness; does not understand what is said to him, but appears to comprehend signs, and puts out his tongue, which is pale. 3rd. Speech is partially restored, but he has lost all memory of substantives, and does not call anything by its name; he calls the cup which contains his barley-water, cat. He appears aware that he has forgotten its name, and points to it with his finger. He also asks the name of many things in the apartment.—*Calomel and jalap.* 4th. Bowels purged; slight heat of skin; in other respects in the same state; leeches cannot be obtained, *blood drawn from temples by cupping.* 5th. Skin warm and dry; restlessness and wish to be removed to a mattress on the floor; twitching of the arms less than it has been for some days—*To take the following draught every*



four hours: R. *Liq. ammon. acet.*  $\bar{3}$  ss.; *aquæ font.*  $\bar{3}$  i.; *liq. antim. tart.*  $\bar{3}$  ii. Evening. The medicine has acted upon the bowels; he is much the same. 6th. The memory is better, and he now calls many things by their proper names; he is better on the whole; his ideas appear to be correct.—*To continue.* 7th. Is somewhat improved since yesterday, but the pulse is hard, and he complains of vertigo.—V. S.  $\bar{3}$  vi. Coagulum has a withered appearance, is shrunk and dry on the surface. Evening. He says the bleeding has relieved him, and he is on the whole better. He is as strong apparently as when I first saw him; he gets out of bed and walks about his room without assistance. The twitchings of the arms have disappeared, and he assists himself to his arrow-root and barley-water. 11th. Eight o'clock P.M. The patient has not been so well since the 7th; he has been restless; he has not slept; the muscles of the foramina have been in a state of convulsive agitation all day; he has been bled again and purged. His ideas are clear, but there is a want of judgment. Tonight he had another attack of epilepsy; the fit is described as not having been severe, and I found him in a state of stupor, from which he was roused with difficulty. There were constant convulsive motions of the whole of the right side of the body. 12th. Constant twitching of the right side, with carpalgia and waving the hand before the face; the left side is paralytic; pulse of the wrist of the left or paralytic side much stronger than on the right; palpitation of the heart; partial consciousness; alarm at fancied objects. 13th. Much the same state as yesterday. At noon return of the convulsions; these are confined to the left side, which, since the 11th, has been paralytic. During the intervals between each fit this side is still paralytic; the right side does not appear to be affected either during the fits or the intervals. Evening. The patient has been bled; glysters, with tartrate of antimony, have been administered, yet the fits continue with violence, and are now general, both sides being strongly convulsed and the face horribly distorted. Each fit continues about five minutes, and the intervals are about a quarter of an hour; the left side is more convulsed than the right, though



it is quite paralytic during the intervals. During the night the fits continued, and succeeded each other with a frightful rapidity. Towards morning the patient recovered consciousness during the intervals, and seemed to be aware when the fit was coming on. 14th. Seven A. M. The convulsions continue, the intervals being about twenty minutes; and, strange to say, during these periods the patient is aware of his situation, and has bid his friends adieu; he says he expects each fit to be his last. He knows every one, though he has forgotten their names, and when he speaks of any one in particular he alludes to them by detailing some particular circumstance, and when understood, and the name is mentioned to him, he is satisfied, and begs his last adieu to be given to them. About nine A. M. the fits ceased; he became comatose, and died without a struggle at ten o'clock A. M.

*Sectio Cadaveris, three hours after death.*—Body rigid and pale; some degree of emaciation; countenance little changed. Head: scalp dry; its vessels do not contain much blood; pericranium strongly adherent to the bones; calvarium remarkably thin, in certain places not thicker than a sheet of writing-paper, and transparent; the diploë wanting. Dura mater not very adherent, pale; it was lacerated by the saw in two places, and about an ounce of serum escaped. The arachnoid thickened and opaque; small veins of the pia mater somewhat engorged, but the smaller arteries and capillaries were invisible; between these two membranes was a quantity of clear serum. The structures of both hemispheres harder than natural; the medullary tissue of a fawn colour; a small quantity of serum in the lateral ventricle; the plexus choroides of a light purple or red cabbage colour; the posterior pillars of the fornix indurated, of the consistence of cheese; both thalami, particularly the right, indurated, of a yellowish brown colour throughout; the corpus striatum on each side had undergone a similar change, the right presenting the most marked appearance; on taking this body between the fingers it appeared to contain two or three indurated bodies like peas; a vertical section of each presented the interior of a brown colour, with circular spots of white,



of almost cartilaginous hardness; the pons varolii and crura cerebri indurated, but of a natural colour. On lifting up the fornix, the tissue of the pia mater lying on the thalami, the corpora striata, and the pons varolii, very vascular; the brain turned with its base upwards, presented no new features of disease; cerebellum and membranes healthy. Thorax: this cavity was perfectly healthy. Abdomen; mucous membrane of the stomach thickened, and somewhat firmer than in health, but pale. No other trace of disease in any organ.

*Remarks.*—A train of nervous symptoms, combined and mixed up with an intermittent, the three stages of which were well marked, constitutes the peculiarity of this case. The nervous symptoms were clearly explained by the existence of a chronic inflammation of the brain, terminating in a general induration and partial alteration of its structure. Can we so easily account for the paroxysm of intermittent? Are we to attribute them to an intermittent or remittent encephalitis? The disease had existed some time; sixteen weeks had elapsed from the period of the first fit until his death. I saw him during the commencement, and at that time I imagined the slight nervous symptoms which he exhibited were produced by an irritation of the stomach in a subject whose nervous system had been rendered preternaturally irritable from his habits of living. For twelve weeks I had not an opportunity of seeing him, during which period the history is very defective. At the time of my second attendance it is probable that structural change in the brain was very far advanced; nevertheless the paroxysms of intermittent were well marked. Does not this militate against the opinion that the febrile symptoms were produced by the cerebral affection? Can we consistently believe that morbid alteration of structure can take place to such an extent from an inflammation purely intermittent? We must pause before we answer this question. If by intermittent inflammation be meant an inflammatory action in a part which, after continuing a certain period, subsides, and the part itself is restored to a healthy condition, certainly we cannot admit that disease



to the extent which was presented in this case, could possibly be produced by an intermittent cause. Nevertheless, in St. Lucia and other countries, where an elevated temperature is added to a great extent of marsh or swamp, inflammations are not unfrequently seen of such violence as to terminate in the disorganization of the part, and which at the commencement, at least, were what has been called intermittent. In such cases it does not appear probable that during the period of calm the part is restored to its former state. What does occur is the sudden subsidence of the high action—a change from excitement to repose, and the recommencement of a healthy action in the orgasm. Long before the tissue can be restored to its healthy state another paroxysm has recommenced, the part is again plunged into disease, which advances in spite of the intermissions, and these generally becoming shorter at length disappear. Where the inflammatory action is less acute, intermissions and exacerbations are observed for a considerable length of time, and on examinations after death we frequently find extensive organic diseases, produced by irritations or sub-inflammations, which from the first to the last have been intermittent.

In the case before us whatever may have been the organ originally irritated, it is certain that the brain itself did not long continue unaffected, and a sub-acute inflammation seems to have been established in this organ almost from the commencement, which presented marked remissions and exacerbations.

I do not wish it to be understood that an intermittent cephalitis constituted the whole of this disease: much less do I imagine that this læsion was an accidental complication; it is most probable that the case at first was a slight gastric intermittent, that from the habits of the patient the brain soon sympathized with the irritation of the stomach, and towards the close took the place of it.

This is not a singular case. I have met with three or four others closely resembling it. Intermittent epilepsy is less rare than would be supposed; it always, at least in every case I



have seen, occurred in persons addicted to the use of ardent spirits, but the original and exciting cause seemed to be malaria.

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## CHAPTER VII.

### PATHOLOGY.

THE foregoing cases present examples of every form of fever seen by me in St. Lucia, that can by any possibility be considered essential. The first six consisted of the cold stage of an intermittent, or, as it has been called, *Ague*, and each was accompanied by a train of well marked neuralgic symptoms; by involuntary and disordered actions of the muscles of locomotion; by palpitation of the heart; by nervous pains of the head and face; by colic, terminating in paralysis, &c.

In the next series we meet with nothing similar to a cold stage; the febrile symptoms commenced each paroxysm without being preceded by any sensation of chilliness; like the former, they were perfectly intermittent; and consisted of a series of phænomena which attend upon inflammations of important organs; this series of cases, as well as those above, constitute what were formerly called hidden or concealed fevers; but they are in reality intermittent irritations.

We next meet with cases of the ordinary form of intermittent fever, in which the three stages, the cold, the hot, and the sweating, were distinct and well defined. The local irritation was not at first very apparent. It is to this that the designation *pure* intermittent has been given.

When to the above phænomena are added marked symptoms of inflammation of some organ the disease has been called an inflammatory intermittent; or by some of the French authors malignant, (*fièvres pernicieuses*.)



When the organic inflammation is violent, it generally happens that after the first or second paroxysm it ceases to preserve a purely intermittent type, but becomes remittent or even continued. Occasionally, however, it continues intermittent until the last, until life becomes extinct, from the oppression of an organ. Sometimes the inflammation, from being continued at first, becomes intermittent subsequently.

In all the above cases the blood was found either in a healthy state, or its appearances were those observed in ordinary inflammations; but we met with others in which this fluid had undergone a change so palpable when drawn from the arm during life, or on examining the body after death, as to be remarked even by a person unacquainted with pathology.

All these cases appear to have a common origin, and to have had for a cause, either existing or predisposing malaria. This agent, though always a predisposing cause, is not, at least in the generality of instances, the immediate or exciting one. We can most frequently trace the paroxysm to something which has disturbed the balance of the circulation or directly produced an irritation or inflammation of an organ. It is in part to the variety of exciting causes that we are to attribute the differences which exist in individual cases; but there are also other and very powerful reasons to be found for these differences, in the constitutions and idiosyncracies of the persons attacked; in the length of time that they may have resided in the country; in their professions and mode of life, &c.

It may be said that I have introduced cases which so far from meriting the term *essential*, have at all times, and by all people, been considered as neuralgic affections, and local inflammations. I plead guilty to the charge. The first were merely intermittent neuralgias; but they co-existed with other forms of an epidemic, were produced by the influence of malaria, and only required to be combined with an inflammation of an organ to become intermittent fevers. The second, as I have already said, were local inflammations. They, however, presented features sufficiently distinct from the ordinary kinds of inflammations to have led to a complete separation of the



two, and to have caused their existence to be doubted if not denied, viz. periodicity or intermission.

If it be admitted that a pleurisy, a pneumonia, a peritonitis or a rheumatism may observe an intermittent type, it is not taxing our belief very much to admit the possibility of an intermittent gastritis, or gastro-enteritis. That this does exist in many instances we know from the *local* symptoms; and when they are not present we conclude that the læsion is there, from the general phænomena.

The symptoms peculiar to the endemic fevers of the West Indies are those known under the name of bilious: thirst; vomiting either of bile or of porracious and mucous fluids; constant nausea; agitation; anxiety; supination; frequent sighing and moaning; tenderness of the epigastrium; frontal headache; heat of skin, and quickness of the pulse. Do not these symptoms indicate a local origin, and that the stomach is the suffering organ? What is there deserving the name of *essentiality* about them, more than about those which accompany an inflammation of the pulmonary parenchyma? Should they observe a type purely intermittent, can we feel more repugnance in referring them to an intermittent gastritis or gastro-hepatitis, than in referring the *son mât*, the pain, the cough, the expectoration, the crepitating râle, and the febrile symptoms, to a pneumonia? Though an inflammation of the gastro-enteric mucous membrane is not the only cause of the hot or febrile stage of an intermittent, or remittent, it is by far the most common one; and to the production of the symptoms which form the bilious fevers of the West Indies it is indispensable.

These symptoms, as we have seen, differ amongst themselves according to the circumstances under which they may have been produced. Thus the fever may be caused by exposure to the sun, and set in with a series of phænomena indicative of irritation of some part of the encephalon, and the gastric affection may not make its appearance till afterwards; or it may be caused by exposure to a current of air, and commence with a catarrh or a pneumonia. Not unfrequently it may be traced to the direct influence of malaria, in which case to a local in-



flammation most generally is added a diseased condition of the blood, which considerably modifies the features of the malady.

When to an intense inflammation of the gastro-intestinal canal is added a diseased state of the blood, we frequently meet with symptoms said to be *peculiar* to the yellow fever, viz. yellowness of the skin, and black vomit. In this form of the disease we have both the symptoms and cadaveric appearances met with in animals that have died from the effects of putrid matter injected into the circulation. It generally, but not always, is found in persons who have resided only a short time in the country—when exceptions are observed the cases can almost always be traced to the inhalation of malaria in a concentrated form.

The great and continued elevation of temperature within the tropics gives to all inflammations, more particularly to those of the chylopöetic viscera, a degree of violence and rapidity unknown in the temperate climates. Patients frequently die from the destruction of an organ essential to life in a space of time scarcely credible to those who have not witnessed disease in these countries.

All the diseases which we have examined may be either intermittent, remittent, or continued, and yet preserve their pathological character. It would be impossible to discover at the commencement of many of them, the type which they will assume, and in fact much will depend upon the treatment which may be pursued. Many that were at first purely intermittent become remittent or continued; and of those which set in with violent and continued inflammation of a vital organ, many may be checked or induced to put on an intermittent type by prompt and energetic treatment.

What is the cause of intermission?

This question has often been asked, and as often attempted to be answered.

When an inhabitant of St. Lucia, after having recovered from an attack of fever, which may or may not have been of a purely intermittent type, is seized with a relapse during his passage to England, it is observed that the re-



lapse takes place at a certain period from his former attack. The paroxysms are again put a stop to ; but after the same interval to return, and in this manner the disease may continue for months, or even years. How are we to explain this singular phænomenon ? Has the gastro-intestinal mucous membrane a tendency to become irritated anew merely because it has been the seat of a periodical super-excitation ? Has it acquired a *habit* of becoming periodically attacked by disease, as supposed by Mongellaz ?\* This gentleman supposes that each paroxysm of an intermittent is a distinct disease, and totally unconnected with the preceding and subsequent ones, that each is a real *bonâ fide* continued irritation ; and he accounts for their renewal by a sort of *habit* which the body acquires, by virtue of which the same affection can be repeated a longer or a shorter time ; in the same way as an idea which has forcibly struck us is frequently renewed without a repetition of the original sensation which caused it.

In many cases the interval between the attacks comprises several months ; what has become of this *habit* during this period ? This opinion is not tenable ; it is repugnant to all our notions of physiology.

Many other hypotheses have been formed to explain the phænomenon of intermission. By some it has been attributed to the intermission of the functions and of the different phænomena of nature ; to the accumulation of an oxygenated vapour in the nervous system ; to the periodical revolutions of the earth ; to the different positions of the body during sleep and wakefulness ; to the influence of the movements of the moon and the planets ; to the succession of day and night, &c.

By others the intermission of the cause, that is, the periodical evolution of malaria and its direct operation upon those functions which are intermittent, has been offered as a reason for producing intermittent effects.

Can we explain the periodical returns of the attacks and the succession of the paroxysms by admitting a peculiar modification of the nervous system to exist during the apparent cure, and during the intervals between the paroxysms ? But

\* Sur les irritations intermittentes.



we may ask in what does this modification consist? Why is it observed in some, and not in others?—in what part of this system does it reside?—are questions which are more easily asked than answered. Monfalcon,\* says, “that of all the theories of intermission the best in the present state of medical science consists in the admission of the following data;—the existence during the state of apyrexia of an organic modification, which binds together the different paroxysms, and continues even until these have been reproduced a certain number of times; the influence of habit; the intermittent action of the cause; and the special influence which these intermittent causes have upon organs the functions of which are intermittent.”

None of these opinions are free from objections; and we must admit that we still remain ignorant of the cause of intermission in disease; neuralgic affections are generally intermittent, even when arising from other causes besides malaria. Intermittent inflammations also occasionally exist in countries perfectly free from marsh. But it is not in disease only that this phenomenon is observed; many of the functions of the economy are intermittent, and observe stated periods of repose and action.

That the paroxysms are distinct, and that each composes a disease of itself, we cannot admit, and though it would be difficult to explain the nature of the link which binds them, nevertheless everything tends to prove that a connexion exists.

Although type does not constitute a pathological difference amongst these diseases, it is essentially necessary that it should be attended to if we wish to form a correct prognosis, or to draw out our indications of cure; for it frequently happens that the symptoms, even from the commencement, are so severe as to put a stop to life were they to continue longer than a few hours. And the mode of treatment differs materially in intermittent and continued fever.

At the commencement of this work, I stated that malaria had a specific effect upon the nervous system, the gastro-intestinal mucous membrane, and the blood; and that its action

\* *Historia Médicale des Marais.*



was greatly assisted by an elevated temperature. The foregoing cases bear out the truth of this statement. Occasionally the nervous system suffers alone; now and then it is the mucous membrane of the stomach and bowels which are the parts acted upon, and gastric irritation, bilious diarrhœa, or dysentery, are produced. At other times the action of the poison is upon the blood, and scorbutic ulcers of the legs, biles, carbuncles, &c. are the consequences; most generally its action is not confined to any one of these parts of the economy, but it produces its effects upon all in different degrees in different cases.

Are the fevers which arise from malaria of a different nature from certain other diseases which strongly resemble them, although arising from other causes? Operations upon the urethra occasionally produce ague, and as inflammation of the parts sets in, this ague is followed by a febrile stage. Many neuralgic affections occur independently of marsh, and closely resemble those which owe their origin to this cause. Bilious fevers are seen to arise in countries perfectly free from marsh, and which now and then observe an intermittent and remittent type. Do these diseases differ in their nature from those produced by malaria? This question has been much disputed. Whilst some authors have attributed to the poison from marshy emanations a specific quality, and have considered the effects produced by them essential; others have as stoutly denied this, and regarding the symptoms and pathological appearances in both, have contended that they were identic. "Many other diseases,"\* say they, "besides fevers are produced under the same pathological conditions in marshy countries. We see in these places dropsies, dysenteries, scurvies, &c., yet no one ever pretended that these morbid states were specific diseases."

Both these opinions appear to be correct. We may easily concede to malaria a principle which is capable of acting upon the economy, and producing a specific effect, without denying that effects closely resembling them may be produced from other causes. Dysentery, dropsy, and scurvy, may arise from

\* Monfalcon, Op. Cit.



a variety of sources; but in the cases alluded to by M. Monfalcon, they arose from the same causes which gave rise to the fevers—to the action of malaria upon the mucous membranes of the gastro-intestinal canal, giving rise to chronic engorgements of other viscera of this cavity, and upon the blood.

Dysentery is not unfrequently a *sequela* of fever from the transposition of the inflammation from the upper to the lower portions of the intestinal canal; but it generally arises from the immediate action of the poison upon this part.

It is a favourite question just now to ask, whether if after death we find inflammation of some organ or a series of organs, are we to consider them as primitive, and the *cause* of the symptoms, or are they merely secondary, and the consequences of the general disturbance. This, in my opinion, is often a very foolish question, and in the greater number of cases can be answered both in the affirmative and negative. For instance, if after a pain in the side, cough, bloody expectoration, &c., we were to find an inflammation of the parenchyma of the lung, we should say that this was the cause of the symptoms, in other words, was the disease itself. If towards the close of life a train of symptoms, betokening a disorder of the nervous system, was to disclose itself, and we found opacity and thickening of the arachnoid, with great vascularity of the pia mater, we should consider these symptoms sufficiently explained by the læsion; but the læsion, we should say, was secondary, and depended upon a reflected irritation of the encephalon, caused by sympathy of this organ with the one originally diseased; that, in short, it was a consequence.

If after a series of particular symptoms we *invariably* found the same appearances after death, we must conclude that these læsions constituted the disease itself, and were the cause of the symptoms; therefore should such be the case in the endemic fever of the West Indies, we must *a priori* admit a similar conclusion.

Every practitioner will be struck with the apparently great dissimilarity in the phænomena of the foregoing cases, and



many, like their predecessors, will be disposed to deny their identity in consequence; but if the symptoms differ so much, the appearances found after death are much more uniform.

At a time when pathology was less studied than at present, these diseases were divided according to their general symptoms alone; and the divisions were consequently as various as the authors who formed them. The best amongst them was that of Dr. Jackson,\* who considered them all as so many modifications of the same disease. He divided them as follows:—1st, into fevers presenting great arterial excitement, followed by disorders of local functions;—2nd, into fevers in which the vascular system is deficient or oppressed in action;—3rd, into fevers in which the prominent feature is a dark cloudy aspect of countenance;—4th, into fevers of type. This, as I have said, is the best arrangement I know, which has taken its foundation upon the general symptoms alone; it indicates great research and practical acquaintance with these diseases on the part of the author, and clearly points out a method of treatment, which, though defective, was at least much more rational than that of any of his contemporaries.

Since the publication of the “Phlegmatics Chroniques” of Dr. Broussais, it has been the fashion, particularly amongst the French practitioners, to consider all the febrile endemics of the West Indies—at least that part of them which formerly were looked upon as essential, as so many *gastrites*, or *gastro-enterites*, and to divide them, according to their type, into intermittent and continued. But this exclusive view of these diseases has also led us into errors almost as grave as a nomenclature founded upon their purely essential character, and grouping them, and prescribing for them, according to their general symptoms alone without regard to the suffering organs. The effects of arsenic, of the preparations of mercury, of those of copper, in fact, of all the acrid poisons, are the production of an acute inflammation of the gastro-enteric mucous membrane. But what should we say to the man who, considering all these cases simply as so many gastro-enterites, confined his practice to blood-letting, leeching, and emollient glysters? In all cases

\* “An Outline of the History and Cure of Fever.” Edin. 1798.



of poisoning, our treatment consists in ascertaining the particular poison administered, and combating the symptoms without losing sight of the nature of the cause which produced them. This rule holds good in the endemic of the West Indies. We know that malaria is capable of producing a gastro-enterite, but its action is not usually confined to this tissue; it also affects the nervous system, and it affects the blood; besides, it is not always the exciting cause of these diseases, as we have seen; the point of departure may be in an irritation of some other organ. It would, therefore, be desirable to form a division of these diseases, having regard to the nature of the læsion, and the variety and modification of the causes which produced them. But I am afraid such a classification would be extremely difficult and almost impossible. In describing the treatment some division may be necessary, but as I shall only give a general outline of the methods of cure in different cases, it will be sufficient to confine my observations to broad and well-marked distinctions, leaving the lighter shades of each individual case to speak for themselves.

If, under the influence of malaria and solar heat, (either acting as exciting causes, or merely endowing the body with a disposition to be attacked by disease,) a series of symptoms should arise and produce death; and on examining the body, the *only* læsion found should be a gastritis, or a gastro-enteritis, are we to consider these organs as the *only* seat of the disease, and that it was *nothing more than a gastrite or a gastro-enterite*; or are we to regard the gastric and enteric inflammation as only a *part* of the disease, and, that like the eruption in small-pox, it proves that a cause has gone before, and that this cause has acted generally upon the economy? Our answer to this will depend upon the *nature* of the cause. Let us suppose, for instance, that this inflammation has arisen from any of the known causes which may give rise to it in other and healthy countries, as suppressed perspiration; and that the influence of climate has been confined to the production of a predisposition, or to the modification in a slight degree of the general features of the case, we must then rest satisfied in the belief of the former opinion. Should it be



proved, however, that the læsion originated in the immediate action of malaria, we are bound to suppose that that action was not confined to the gastro-enteric mucous membrane, but that inflammation of this tissue took place in consequence of the operation of the poison upon the whole of the economy, as a gastritis is produced by arsenic, introduced into the system through the medium of the circulation. Logically we must come to this conclusion, but in practice it would be impossible to prove its truth or fallacy, and useless if we could. In by far the greater number of cases we cannot tell to what extent malaria, either alone or in combination with other causes, has entered into the production of the disease; neither have we the most remote idea of the manner in which it acts upon the solids and fluids; therefore we must be content, if we wish to advance our knowledge, to take things as we find them, not as we fancy them to be; to rest satisfied with palpable pathological appearances, and if only one læsion be found, and if this be sufficient to explain the symptoms during life, and to account for death, we must look upon it as the only one until the time arrive when the others, which, if they exist at all, are hidden from us, shall be revealed and made manifest.

Viewing disease in this way, when the symptoms depended upon an inflammation of the stomach, I gave to the case the name of gastritis; when they were those which depended upon an irregular and disordered innervation uncomplicated with a vascular irritation of any organ or diseased state of the blood, I have described them as nervous. In other cases, particularly amongst those who have long lived exposed to the action of malaria, and who are endowed with the strongest powers of resisting it, are often observed a series of phænomena, referable only to a diseased condition of the blood, without any affection of the nervous system, or the læsion of any organ. It is probable that in all these cases the influence of malaria is not exclusively confined to a tissue or a system; but we can only describe that which we see and know to exist.

To this extent, therefore, I agree with the disciples of the *Ecole Physiologique*, that where I can discover no other læsion



than that of the mucous membrane of the stomach, I look upon the case, and treat it as one of pure gastritis; but I differ from them in admitting the existence of a specific cause, which, though its *visible* effects in some cases may be confined to the gastro-enteric mucous membrane, are in the greater number of instances also observable either in the blood or in the nervous system, or in both.

It is necessary to mention, that in selecting cases to illustrate the different forms of endemic fever, no regard was paid to the numerical proportion in which each form of the disease occurs. Indeed, I know not by what means we could correctly ascertain this, as each season we observe slight varieties in this respect, partly owing to the greater or less intensity of the causes, and partly owing to the number of non-residents. Amongst the acclimated population the disease is usually of an intermittent or remittent type, and the gastric symptoms less intense, approaching more nearly to what are called bilious; whilst in the unacclimatized the type is generally remittent or continued, and the stomach suffers more severely. The blood is found diseased in patients of both classes, but I am not prepared to state in which of them the change in this fluid is most frequently found in a given number of cases. The neuralgic affections are observed usually in the acclimated.

#### LÆSIONS.

Amongst the cases given above, twenty-six deaths occurred, in all which the symptoms were those peculiar to tropical fever, as it has been frequently described. I shall now proceed to inquire into the nature of the læsions. I have, to avoid mistake, omitted to include any anomalous case whatever. Out of twenty-six cases, four were purely intermittent in their type from the commencement to the end, three being quotidian and one tertian. Four others were intermittent at the commencement, and became remittent as the disease advanced. Out of the first four, or pure intermittents, two occurred in Creoles; and the other two in Europeans who had



resided many years in the island. Of the second class, or intermittents, becoming remittent, three occurred in Europeans, the longest period of residence being ten months, and one in a Creole. Of pure remittents there are but two cases, one occurring in a European, who had resided four years in the West Indies, the other in a Creole. There are eight cases of remittents or subintrants becoming continued; four of them in Europeans, the term of residence being under twelve months, and four in Creoles. Eight were continued throughout, four occurring in Europeans, one six months in the country, and three from five to six weeks, one in an European four years in another island, two in natives, and one in a Creole of another island, and inhabiting St. Lucia only a few weeks.

From these facts we perhaps are not entitled to draw any very severe deductions respecting the influence which length of residence has to do with type; but we must bear in mind that the number of newly arrived, and consequently unacclimatized individuals, is at all times very small.

The proportion of deaths to recoveries in these cases, amongst the people of the country, is very small, though I am not prepared to state it with anything approaching to accuracy; the greater number of the cases being slight, and for the most of a quotidian and tertian type, either intermittent or subintrant; whereas the disease in newly-arrived individuals is generally very severe, and either *remittent* or *continued*.

The following are the number of the læsions found in the aggregate of the fatal cases. Gastritis in every one of the twenty-six; enteritis in fourteen; the liver engorged in five; the gall-bladder inflamed in five; the kidneys inflamed, the inflammation occasionally extending through the ureters to the bladder, in three; the pancreas inflamed in one; the œsophagus inflamed in three; pleuropneumonia in three; inflammation of the brain in three; meningitis in thirteen; change in the vital and physical constitution of the blood in eleven; inflammation of the lining membrane of the heart and large blood-vessels in two, in both of which the blood was fluid;



complete ramollissement of the gastro-enteric mucous membrane, apparently produced by mercury, in three. Black vomit in five; in four the blood was diseased, in the other it appeared natural; in three it was accompanied with yellow suffusion. Yellow suffusion occurred in six, in all of which the blood was found changed; in three cases there was black vomit, in two the gall-bladder was found inflamed, and the orifice into the cystic duct almost impervious; in the other four the gall-bladder was healthy. Hæmorrhage, blood fluid, in one.

In eleven cases of death in Europeans, a few months only after their arrival, which I have not detailed, but which resulted from diseases similar to those already described, three occurred in sailors, one being French, the other two English, and eight in soldiers. The type was continued, with occasional but slight and irregular remissions. Seven died on the fifth day; two on the fourth; one on the sixth, and one on the seventh; the læsions were as follows.

Gastritis in all the eleven; enteritis in six; liver engorged in one; inflammation of the gall-bladder in two; kidneys inflamed in two; spleen softened in one; œsophagus inflamed in two; softening of mucus membrane of the stomach and intestinal canal, apparently from mercury, in two; inflammation of the heart and blood vessels in one; meningitis in four; blood diseased in one; black vomit in two; blood in the stomach in one; yellow suffusion in seven; hæmorrhage into the cellular texture of the thigh below the fascialata, in one. (It was in this last case that the blood was found diseased, and the spleen softened.) We will examine, as briefly as possible, the state of the organs found diseased in all these cases.

### *The Stomach.*

The stomach viewed externally was generally pale; occasionally, however, the inflamed mucous membrane was visible through the muscular and peritoneal coats. It was sometimes distended to a certain extent with gas, at others it was



flaccid, once or twice contracted. On laying it open it presented patches of a red colour, more or less deep, and of different sizes; these patches were occasionally several inches in diameter; in a very few cases the redness was not, at first sight, visible, or if it were, it was pale and in small patches of inconsiderable extent. In these cases the colour was concealed by a coat of thick viscid and opaque mucus, which carpeted the inside of the stomach, being in greater quantity in those places where the inflammation was most intense; this mucus in general was of an ashy-grey colour; at times it was coloured with bile, now and then with the black matter ejected from the stomach, or streaked with blood. In many of the cases where the inflammation was very intense this mucus did not exist in such quantities as to conceal, on first opening, the organ, the extent and violence of the gastritis, and in some places, where abrasion of surface was followed by a purulent secretion, this secretion took the place of the mucus.

Though the grand cul de sac was almost always the principal seat of the inflammation, it was not generally the only part of the stomach which was affected. Sometimes the inflammation extended upwards, towards the cardia, passing into the œsophagus, and on the small curvature; at other times it extended towards the pylorus, down the inferior margin. The inflamed surface, when exposed and divested of its covering of mucus, was of different colours in different cases; and in different parts in the same case, from a bright crimson to a dusky red. It was of that kind, denominated by the French *rougeur pointillée*, in almost every instance; that is, it consisted of innumerable small red spots which were confluent yet sufficiently distinct one from the other, the centre of each being of a deeper colour, and becoming paler towards the circumference. These red spots were produced by a consolidation of a few of the villi which were more intensely inflamed than others, and in which there was not only considerable congestion, but also infiltration of blood into their tissue. The mucous coat, when detached from the subjacent tissue, and exposed to the light, was eminently vascular; it



seemed to be formed of a congeries of engorged capillaries; it was thickened and opaque. When the inflammation was very intense it was softened, and here and there converted into a red-looking grumous matter; at other times, or in other places, it was firmer than natural. The facility with which it was detached was very different; occasionally this was accomplished with greater ease than in health; it now and then, on the contrary, happened that we met with the reverse of this, and that its adherence was so great as with difficulty to admit of a separation.

In certain cases, where black vomit existed during life, or where this matter or blood was found in the cavity of the stomach, a number of small black points were frequently found disseminated over the whole mucous surface. These black points could be picked out with the point of a needle. They have been described as the mouths of the exhalent vessels choked with blood, or the peculiar matter vomited; in many of them appeared to be the ducts of the muciparous glands; but I cannot speak decidedly upon this point. The submucous cellular tissue generally contained a number of distended and tortuous capillaries and small arteries; it was occasionally found extensively ecchymosed. Ulceration of the mucous coat was rare, though we frequently saw abrasion of the villous surface, with secretion of pus. I never witnessed anything approaching to mortification; and I agree with the mass of modern writers on these diseases in believing it to be of extremely rare occurrence. We know that the mucous coat of the intestinal canal consists of the proper mucous coat, a thin diaphanous membrane, the mucous follicles or muciparous glands, and the villi, with cellular tissue. Now it is in the membrane itself and the villi that the inflammation seemed to be seated, the membrane being thickened and the villi developed.

In no instance have I seen any developement or læsion of the follicles. They may partake in the excitement of the part, but no appreciable disease can be discovered in them, as far as I have been able to ascertain. That they have been



irritated is probable from the quantity of mucus which was found, and also from the change this secretion presented in its appearance.

A ligature of the trunk of the vena porta produces congestion, and consequent redness of the villousities of the stomach and intestinal canal. Anything which prevents a free passage of the blood from the intestines into the general circulation is attended with a similar result, and consequently we can readily perceive how engorgements of the liver may augment any pre-existing irritation of this tissue, or even produce it. These results are found constantly occurring from this cause in the West Indies, and in this manner attempts have been made to explain inflammation of the gastro-enteric mucous membrane in every case. But this exclusive reasoning is not correct. We may admit that irritation of the stomach or duodenum may give rise to irritation of the liver, and that engorgement of this organ, to a greater or less extent, may arise in consequence; the result would be, under ordinary circumstances, an increased congestion of the villousities. This we can admit, and no doubt it occurs in several of the milder cases; in those particularly which have been denominated bilious. In the cases under investigation, however, this does not take place, for out of thirty-seven cases of inflammation of the stomach, congestion of the liver was found only in six.

#### *Alterations of Consistence of the Mucous Coat.*

Softening of different portions of the mucous membrane is not uncommon, as we have seen. This softening is of two kinds: it is general throughout a certain extent of the tissue, and consists rather of a diminution of its natural consistence than of softening, properly so called; the organization is intact; in the other it is partial, and is found in patches of small extent where the inflammation has been very intense. Sometimes it extends through the entire thickness of the mucous coat, but generally it is more superficial, and attacks principally the villi; in these cases the softening consists of a red grumous



pulp. Both these forms are the result of inflammation, and have been frequently described. There is another form of softening, however, which, as far as I know, occurs only in subjects in whom mercury has been used for the purpose of producing ptyalism. Two or three cases in which this softening was found have been detailed. I have, however, seen it in several others, and will give, as nearly as I can, a description of it. The stomach and intestinal canal being laid open throughout the whole of their extent, present their inner surface of a greyish or brownish grey appearance, in the midst of which, in general, are observed spots or patches of redness, of different shades and of different extent in different cases. These spots are far asunder in the greater number of cases, and occasionally are so slight as to be overlooked by a superficial observer; generally, however, they are very distinct, and of an oval or elongated form. On the first view the whole of the canal does not present a marked appearance of disease, but seems rather to be coated with a plastic and thick mucus, which does not admit of being washed off by common means. When the finger-nail or handle of the scalpel is employed to effect this purpose, we are surprised to find that the mucous coat itself is scraped off, leaving the subjacent tissue bare, and even exposing the fibres of the muscular coat. The mucous coat thus scraped off consists of a greyish disorganized pulp. In many places this disorganization does not extend through the whole depth of the mucous membrane, but when the softened mass is scraped away we see the mucous coat underneath raw, intensely inflamed, and the villousities abraded. This state of the mucous membrane extends throughout its whole surface from the pharynx to the lower portion of the rectum, but is more pronounced in the stomach, lower portion of the œsophagus, and duodenum, than elsewhere; occasionally, however, the ileon and great intestine are affected in an equal degree. Such is the appearance of this extraordinary læsion in its most severe form; it is in general less extensive, and more confined to certain portions of the tube, and is now and then combined with the ramollissement rouge. The symptoms which accompany this change of structure are those



which indicate gastro-enteritis in an intense degree. It appears to me that this softening is the result of a high state of inflammation, aggravated by the irritating effects of calomel; but it is probable also that this medicine produces a specific effect upon the inflamed membrane, as it is not found, at least I have never seen it, except in cases where it has been employed. Other stimulating remedies, as wine, brandy, &c., do not appear capable of producing it. This subject deserves further research. I feel convinced that many of these cases have been mistaken for healthy intestine, or for intestine which has not shown any marks of disease sufficiently distinct to be thought worthy of attention. I once saw this occur: a stomach and the intestines were thrown on one side as not presenting any kind of læsion, and it was only on my laying open the whole of the canal, scraping off the disorganized pulp, showing the inflamed surface underneath, and the different patches of red softening, that the gentleman saw his error; otherwise he would have gone home convinced that he had seen one case, at least, of the West India endemic, without inflammation of the stomach or bowels. This softening must not be confounded either with the ramollissement pul-tacé or the ramollissement gelatiniforme of Cruveilhier.

In some cases the texture of the mucous membrane is not only thicker but is also firmer than natural; occasionally it is found indurated.

### *Intestines.*

In a great number of the cases one or more portions of the intestinal canal were found in a state of inflammation, of greater or less violence. The most common were the duodenum and lower portion of the ileon. In the former it was generally attended with a degree of developement of the vulvulæ conniventes; in the latter it now and then happened that the other coats were also affected, and that in a few instances the parietes of the intestines at this part were so friable as to be torn with facility, or even to be converted into a pulp by rubbing them between the finger and thumb.



*Œsophagus.*

The inflammation, when it affected this organ, was confined to the inferior portion; it was often accompanied by abrasion of surface, or excoriation in patches of small extent, some of which almost merited the name of ulcers.

*Liver.*

Out of thirty-seven cases this organ was found engorged in only six. It was of a reddish-brown colour, much darker than natural; the parenchyma was stuffed with dark blood, which oozed out in considerable quantities on incision. The small yellow points observable on breaking the structure of this organ in health were not to be seen, though the ramifications of the biliary ducts often contained a yellow bile in quantities. The organ was larger than natural, but its tissue was softer and more easily broken up. The congestion was general throughout the organ, but *well pronounced* appearances of inflammation were not discovered. The trunk of the vena porta and the veins expanded on the mesentery were distended with dark blood.

*Kidneys.*

Inflammation of these organs has been found to be a rather common læsion in certain epidemics of yellow fever, and in these cases suppression of urine was found to be so common a symptom, that there are many practitioners who consider it as pathognomic; with me it has occurred only five times, and in each was merely a complication. The body of the organ was engorged with blood, and the mucous membrane of the pelvis and ureter was vascular, and somewhat thickened.

*Gall-Bladder.*

This organ was found inflamed five times in the twenty-six cases detailed, and twice in the eleven others. The inflam-



mation was confined to the mucous coat, and was more intense at the apex than elsewhere. The cystic duct was complicated in every case; its calibre was narrowed, obstructing the easy passage of the bile; to effect this a considerable degree of pressure was occasionally necessary. To obstruction of the neck of the gall-bladder from inflammation of its mucous coat has been attributed the yellow suffusion so frequently observable, the bile being absorbed, carried into the circulation, and tinging the uncoloured tissues of the body. In short, it has been supposed that the yellow suffusion is nothing more than jaundice.

Out of the five cases detailed in which this læsion was observed, yellow suffusion occurred only in two, and in six cases of yellow suffusion out of eight, there was no inflammation of the gall-bladder whatever. In the eleven undetailed cases inflammation of the gall-bladder occurred only twice, and yellow suffusion seven times. In these two cases only were the two phænomena combined; in the remaining five cases, though the yellowness was pronounced, the gall-bladder was healthy.

### *Spleen.*

In all the cases in which this organ was found in an abnormal state, it invariably presented an uniform appearance; at least in those cases in which it had not dated an existence some time previous to the commencement of the disease which carried off the patient, and where it appeared to be connected with the disease and to form a part of it. It was larger, though in general not much so, than what it is usually found to be in health. Now and then its size was not increased. Externally it was of a dull lead colour, approaching to purple, plump and full to the touch, communicating the feeling of distension within the capsule. It was easily ruptured; occasionally the act of detaching it from its connexions, though performed with the greatest care, produced this effect. When broken by the fingers, or cut into with a knife, its parenchyma was completely disorganized, and was converted into a homogeneous grumous pulp, not unlike black-currant jam, or



to a clot of venous blood, broken up with the hand or crushed into a gore. It resembled such blood or gore stuffed within a capsule until it nearly bursts. The vasa brevia and the splenic vein generally contained the same kind of substance; the latter, however, in several cases contained only a small quantity of dark liquid blood. The splenic artery was empty, or nearly so. This state of the spleen is not peculiar to this class of maladies. In contagious typhus, in the ordinary typhus of England and France, in adynamic fever from any cause, whether from inflammation of a large vein, decomposition of the contents, and consequent inflammation of the cyst of an abscess, from old age, or from a constitution enfeebled by poor diet, or confinement in an ill-ventilated apartment, &c., and in scurvy, it so frequently occurs as almost to be considered one of the læsions peculiar to each of these diseases. It has been well described by Mr. Twining, in his description of the remittent fevers of India, and by many other authors.

The following questions naturally present themselves to us on examining this læsion. Is it the result of inflammation? Is it produced by a diseased state of the whole circulating mass? Is it connected with black vomit? With respect to the first of these questions it must be borne in mind that of all the viscera of the body the spleen undergoes the greatest changes in its bulk without passing into a state of disease; whatever, in short, encourages or diminishes the activity of the abdominal circulation produces a corresponding increase or diminution of size in this organ. Tumefaction alone cannot be considered as constituting splenitis. We also find that in health the consistence of the parenchyma is constantly differing; that it is occasionally firm, at other times extremely soft. In colour also the same differences exist, without reference to disease, at least as far as we are capable of ascertaining. If admitting, on the one hand, these anomalies, we examine, on the other, the appearances of inflammation of the spleen produced artificially in dogs, as described by Gendrin, we shall be still further indisposed to attribute the læsion in question to inflammation. "In the first degree of inflamma-



tion," says this gentleman, "the tissue of the spleen is of a dark reddish brown colour; its density is sufficiently remarkable, though it still preserves a certain degree of softness; we should say that the blood which, in a state of health, is contained within its cells, is coagulated. The tissue is granular when broken into, an operation which is effected with greater ease than in health, though the parenchyma is both drier and more compact. In a more advanced stage the tissue is found of a brownish grey colour, compact, dense, very friable, presenting, when cut into, the parenchyma of a close spongy texture, infiltrated with coagulated blood, of a dark or blackish colour, disposed in rounded patches of some extent. In certain places are found spots of a paler grey and of less density, which indicate the passage to the third degree of inflammation. In the third degree the spleen is in part reduced to a brownish grey *bouillie*, in the centre of which pus is collected."

We meet with nothing in this description which corresponds to the softening which I have mentioned. Is our first question answered? Because the spleen does not present the appearances ordinarily observed in splenitis, are we to set it down as a *læsion non-inflammatoire*? I confess that I cannot give an answer either negatively or affirmatively.

Is this state of the spleen produced by, or a consequence of, a diseased state of the blood? The mass of the profession at the present day would answer, Yes. But the grounds upon which this answer is based appear to me at least unstable. In the twenty-six cases detailed which terminated fatally, this *læsion* was found nine times; in five, the blood was liquid and decomposed; in four, it had undergone no perceptible change; in the other eleven cases it occurred only once, and in this case the blood was diseased; making in all six cases in which the blood was affected, and four in which it was not. Of the six cases three were intermittent, two remittent, and one continued, with irregular remissions; of the four, two were continued, one intermittent, and one remittent. This *læsion*, therefore, occurs in a considerable proportion of cases without any perceptible affection of the blood. Our third



question is easily answered : black vomit occurred twice only conjointly with this læsion of the spleen. I think we must conclude that the nature of this læsion is unknown, though we might form a probable conjecture as to its cause ; but the days of conjecture in medicine are past, and I prefer allowing time, the great resolver of knotty points, to settle this difficulty. A word or two more on this subject before we quit it. Affections of the spleen occur much more frequently in cases which do not terminate fatally than in those which do ; in those in which the paroxysmal periods, whether in remittents or intermittents, are well marked, than in those in which they are irregular or the symptoms continued ; in those which count a length of time from their commencement, than in those of short duration. Where they occur early in remittent or intermittent fever, the blood, in the greater number of cases perhaps, is perceptibly affected, though it may not be in such a state of dissolution as we have observed in some of the preceding cases. In the chronic forms of intermittent the spleen is found enlarged, and the blood is observed to be in a state different from what it is in health. Everything leads us to suppose that in all these cases the state of the spleen at the commencement was similar to what has been described, but as the disease continues it gradually enlarges, descending far below the margin of the ribs, and is occasionally found with its inferior margin resting on the iliac fossa ; it becomes painful and hard to the touch, and assuming a character evidently inflammatory, it terminates in a large hardened mass, of morbid structure, which not unfrequently is the cause of death. I am, however, diverging from my subject, and must terminate by observing, that in these cases of chronic disease the blood is invariably altered ; it is poor, watery, deficient in fibrine, though it coagulates pretty firmly, and is pale from a want of its due proportion of colouring matter. This is a consequence and not a cause of the organic læsion, at least in my opinion. The softened spleen seems to come on suddenly, and in those cases which are cut short in their march by a proper treatment it seems to disappear as suddenly.



*Lungs and Pleuræ.*

In three or four cases, ramollissement, rouge or gris, was found. Inflammation of these organs requires attention, as it frequently pursues its course in so insidious a manner that it is only discovered after death. In this respect it agrees with what is frequently found to occur in typhus; as it is not, therefore, peculiar to these diseases, we shall refrain from making any further remarks. In every case the stethoscope should be applied to the chest; the additional trouble is nothing, and we shall be sufficiently remunerated if we occasionally detect a læsion, which, if not speedily checked, would soon form a complication so grave as of itself to cause death. It occurs more frequently than the cases related would lead us to imagine, and is almost always insidious and rapid in its march.

*Blood and circulating system.*

Of late humoralism has become the vogue; not the blind doctrine of the old physicians, which taught us to look for disease in a vague undescribed state of the humours generally; but a sound pathological inquiry into the state of the circulating mass, and of the fluids secreted. The old opinion that the seat of fever is to be found in the blood has been renewed, but in a clear and logical manner. Læsions of the solids were found insufficient to explain many of the phænomena of disease, and physicians naturally turned their observation to the state of the fluids. It is our business now to ascertain how often, and how far, these are affected in the diseases before us. Out of the twenty-six fatal cases related above, the blood was found diseased in eleven; and in the eleven cases which have not been detailed this affection occurred once; making the amount twelve cases out of thirty-seven, being a ratio of about one in three. In three cases the diseased appearance was observed during life; it probably occurred in one or two others, which not having been bled, we have not the means of correctly stating. Six other cases occurred in which death did not ensue, but in some of which we know that the blood was fluid, from examination of it when drawn from



the body, and assume that it was so in the others from the nature of the symptoms. The blood thus diseased presented the following appearances: it was dark, almost black, and completely diffuent, apparently divested of its fibrine; it was perfectly fluid; and the cavities of the heart and large vessels never contained clots or coagula. When the integuments of the body were cut into, the wound was immediately filled with blood, particularly if it were at all dependent. When the brain was removed, and the body placed in such a position as to allow the blood to flow towards the head by its gravity, the quantity which was collected was so considerable that the rest of the body became exsanguine. In general it remained perfectly liquid, when received into a basin becoming somewhat thicker, but not presenting anything like a clotted appearance. In a very few cases, however, it partially coagulated, and in one or two of these the coagulum was well formed, though not very firm, and covered with an inflammatory crust; in these cases inflammation of the meninges had existed in a severe degree. Not only did it possess the above appearances, but it was occasionally observed to be oily or greasy. In no case whatever, was it found putrid in the vessels, nor was air or gas of any kind detected in the veins. Once when it had been effused into the cellular texture during life, and in another case where the effusion was cadaveric, the extravasated blood alone appeared to be in a state of commencing putrefaction; while that in the vessels had undergone the change already described, but presented no sign of physical decomposition. In those cases in which the morbid change was observed to have taken place during life, the blood, when a vein in the arm was opened, generally flowed more slowly than in health; it was *rather* thicker than in its normal state, and had somewhat the appearance of molasses; when received into the basin and suffered to stand some time, no change except a slight increase of consistence was seen to take place in it, no trace of fibrine could be detected: to this there were some exceptions, however; an occasional attempt at coagulation was observed, and small patches and shreds of fibrine were discovered. It possessed no perceptible action on reagents; both litmus and



turmeric paper were unchanged by it. The cases in which this alteration of the blood occurred were attended sometimes with passive hæmorrhage from some organ, as the urethra, the anus, the nose, &c. or with extravasation into the cutis, forming extensive ecchymoses, or into the subcutaneous cellular tissue.

This morbid phænomenon is not peculiar to these diseases, and, as we have already seen, can be produced artificially in the lower animals; it always, however, occurs under certain circumstances—under circumstances which are commonly supposed favourable to the developement of putrefaction, such as exposure to marsh effluvia; contagion of certain kinds; residence in cold, damp, dirty, and badly-ventilated apartments, or where many persons are crowded together; to emanations from the debris of animal or vegetable substances; to the absorption of putrid matters existing in the body itself, as in inflamed veins, and the contents of certain abscesses, to inflammation of an organ, or a series of organs in old people, or in those debilitated from poor living; to great mental and bodily fatigue, &c. It is not necessarily attended with fatal symptoms, nor does death usually follow its developement; and, strange as it may appear, it is more commonly found in diseases observing a perfectly intermittent type, than in others where the type is more continued. During the longest and best-marked intermission this alteration of the vital fluid exists; and though the patient, strictly speaking, cannot be considered in perfect health, yet he is seen walking in his chamber and is free from any symptom to which we can attach importance; debility and a slight degree of irritation of the stomach being those observed in the generality of such cases. If we examine the secretions, particularly the urine, we shall, however, perceive that they differ from what they are found to be in health. If during the preceding paroxysm the patient had passive hæmorrhage from any organ, it is generally observed to subside with the vascular commotion, though not always. In many instances the intermission continues for a space of thirty-six hours, during which period blood drawn from the arm is in the state in which it existed during the paroxysm; it is liquid. This diseased state of the blood alone, therefore, is not to be considered as the *febrile cause*.



We are entirely ignorant of the peculiar change which the blood in these cases has undergone. It has of late been attributed by a very clever author, in a work on this subject, to a deficiency of the saline particles; this opinion is purely gratuitous and hypothetical. I cannot from my own knowledge deny the existence of this deficiency; but admitting it to be the case, the *nature* of the alteration still remains unexplained.

The blood in the majority of the cases was unchanged, at least it was impossible to distinguish any difference in its appearance from that which it possesses in health, except where it presented the inflammatory crust. The only cases in which I have ever seen this change are those related; we cannot therefore form a correct idea of the proportion in which it occurs from its apparent frequency here.

#### *Heart and Appendages.*

The pericardium was usually found in its normal state. In many cases the heart had undergone no change whatever; in others the consistence of its structure was totally diminished; in none, however, was this so great as has been described by certain authors, nor even so great as it is frequently seen to be in some other diseases. It was occasionally, however, soft and flabby, as I have just said; its colour being either natural or unusually pale; but I never saw its texture so altered as to admit of being torn by the finger without employing considerable violence. No alteration in its volume was observed, or if any difference in this respect did occur, it existed independently of the fever. Viewed internally in one case, inflammation of the lining membrane seemed to have existed, as the ventricle and auricle contained a fibrinous exudation, which had become organized.—In another the lining membrane of both cavities was of a rosy redness, this colour extending into all the large vessels, particularly the aorta, which presented several rosy streaks and patches along its whole course, as far as the division into the iliacs. The same appearances were observed in one or two other cases, but as there was neither false membrane nor a gra-



nular aspect, without which the strict pathologist will not admit the existence of previous inflammation, I content myself by mentioning the occurrence, without insisting upon the cause; and I do this the rather as these appearances are comparatively rare. In all these cases the blood was found liquid.

*Encephalon and its Connexions.*

After gastritis and enteritis, in point of frequency, comes meningitis. Out of the twenty-six cases it occurred in thirteen, and in the eleven others it was observed four times, or in seventeen cases out of thirty-seven, being a proportion of nearly one to two. The dura mater was never found affected; its sinuses, however, were occasionally engorged. The arachnoid presented different degrees of inflammation, from simple milky opacity with very slight thickening, to gelatinous infiltration and exudation, in some of which cases in certain places it was a line in thickness; the pia mater, from simple increase of vascularity, presented all the degrees up to sanguineous infiltration. In many cases the membranes were equally affected on the surface and at the base, whilst in some the inflammation was greatest at the base, and in others on the surface. Sometimes the arachnoid appeared to be studded all over with beads of lymph, in which the commencement of organization was observed. Except where an effusion of bloody serum separated the arachnoid from the pia mater, these membranes were firmly adherent, and when removed from the brain and held between the eye and the light, they gave the appearance of a finely injected tissue, or the wattles of a cock divided vertically. This depth of colour was dependent upon the extremely engorged state of the capillaries of the pia mater. In one or two cases the arachnoid itself was observed to be vascular, but this is a rare occurrence.

Rochoux observes, in his work on the yellow fever of Guadaloupe, "that the membranes of the brain were rarely so severely affected, or presented such traces of inflammation, as are seen in subjects in Europe." My experience leads me to a different opinion; it is not only more common than in



Europe, but is much more pronounced in its pathological character, it being understood as occurring in both cases as a sympathetic læsion. Effusion into the ventricles was common, but in few or none of the cases was the choroid plexus redder than usual; on the contrary, it generally possessed a macerated and pale appearance.

In a few cases the cerebral mass appeared somewhat firmer than natural, and in a state of active hyperhemia; in one or two it was evidently in a state of inflammation throughout its extent. The surfaces of the convolutions immediately underneath the portions of the pia mater where the inflammation was most intense, were usually found red, softened, and converted into a sort of pulp; this læsion, however, was superficial, being confined to the surface, and seldom exceeding half a line in depth. The cerebellum was almost invariably sound; in one case it was somewhat indurated, and the convolutions developed, but this did not appear in any respect connected with the disease which proved fatal.

#### SYMPTOMS.

One of the greatest errors committed by authors in describing the disease before us, is the *compilation of symptoms* from a variety of cases, and the huddling of them all up together. Such attempts have been always attended with a failure, and have led the general reader into serious mistakes respecting their nature; for there is no class of diseases which presents the character of individuality so strongly contrasted with the great variety of phænomena exhibited by each case as this. In this way the nervous and ataxic symptoms have been confounded with the gastric, or both these have been but slightly regarded, while great stress has been laid upon the engorged state of the lungs and liver, læsions which, as we have seen, are of rare occurrence. The only correct means we possess of studying these different modifications is to examine attentively every case, and then to describe the symptoms peculiar to each læsion. If we were to adopt an arrangement founded upon the type alone, our arrangement would be as voluminous



as our cases are numerous. To prove this we have only to look at all the varieties and irregularities which occur between a pure intermittent and a continued fever. For these reasons I have divided the symptoms according to the organs affected, and shall proceed to take them in their proper order.

*Symptoms connected with Læsions of the Stomach and lower portion of the Œsophagus.*

When we are called to a patient a few hours after the commencement of his illness, we in almost every case find him lying upon his back, often with his arms crossed over the chest, or with a pillow pressed closely against the epigastrium. In a few seconds he flings himself to the side of the bed, or tosses his arms about here and there, apparently in search of refreshing coolness. Though this agitation may be said to be almost continual, yet we find that the patient seldom lies in any other position than on his back; or if he do for a moment, he immediately turns to his former one. In this way he is seeking relief by change of place, or venting his impatience by the agitation of his arms, and by bending and extending his legs. This state of agitation is greatest in patients of a nervous temperament, and is not in them for the most part a symptom of great danger, whereas supination, particularly if it be protracted and be accompanied with moaning, frequent sighing, crossing the arms over the chest, or pressing a pillow upon the epigastrium, has at all times been considered as indicating a great degree of suffering in the stomach. Amongst other symptoms, the patient is sometimes troubled with a short dry cough, particularly when the nausea is great, or immediately before vomiting; it is unconnected with any irritation of the respiratory organs, and has therefore received the name of stomach-cough. It is sometimes a distressing symptom, but does not indicate any particular increase of danger.

If you ask the patient how he feels, he will probably answer that he is very ill, and complain of his head, back, and



extremities, or of a distressing nausea; but in many cases when these pains do not exist, he will have difficulty in describing the nature of his feelings: he says that he suffers from an intense uneasiness, unaccompanied with the slightest pain. This symptom is closely connected with the state of agitation, and where both are great there is often an expression of fear strongly marked in the countenance. Whereas, when the supination is obstinate, and the attendant agitation not considerable, this expression either does not exist, or, if it do, it is in a slight degree. The countenance is sometimes pale, but generally it is flushed; the eye is occasionally wild and haggard, and the conjunctivæ in a few cases injected. Though it now and then happens that the patient does not complain of pain in any part, this is not usual. In the greater number of cases he has frontal headache, or a pain along the sagittal suture, as if a chisel were thrust into the part; he has also pains in the loins and lower extremities, more or less severe. In a few cases there is a severe pain across the orbits, or immediately above them, accompanied by others equally intense in the small of the back and knees; they have been supposed peculiar to yellow fever, and it is certain that when they occur intensely, the disease may in general be considered very grave. They are nervous, and by Dr. Thomas, of New Orleans, have been considered as indicating irritation of the spinal chord, or its membranes. To me, however, they appear sympathetic of inflammation of the stomach caused by malaria.

On placing the hand upon the epigastrium we generally find that the heat of the surface is greater in this part than elsewhere; this is the more perceptible when the temperature of the rest of the body is not much above its normal standard. On pressing slightly, the patient gives way, and expresses a considerable degree of uneasiness, often amounting to pain. It occasionally, though rarely, happens that the epigastrium is insensible to pressure; in these cases we may suspect some disease within the skull, which deadens the sensibility. In a few of these cases, when the inflammation of the stomach was so intense as to cause death, and when the brain and its mem-



branes were unaffected, the epigastrium was insensible to pressure throughout the whole course of the disease. The reverse of this generally obtains: the patient will often complain, without being asked, of a sense of heat, probably amounting to a burning in the stomach and along the track of the lower half of the œsophagus. The intensity of this feeling is sometimes in proportion to the violence of the inflammation; in other cases it appears to be of the nature of heart-burn, and is unaccompanied with danger. The pain over the epigastrium is also now and then so intense that the patient cannot bear the weight of the flannels used in fomentation. Many such cases recover, but in general it is to be considered as a sign of great danger.

If the disease be not sufficiently severe to confine the patient to his bed, or even in cases so slight as to allow him to walk about his house, nausea at least, if not vomiting, exists from the commencement. These symptoms are never absent entirely, though they by no means bear a just proportion to the severity of the inflammation. In many cases the nausea is a very troublesome symptom, and the patient seeks relief by inducing vomiting. To effect this, he thrusts his finger into his mouth and irritates the fauces, and this he will persist in doing in spite of the commands of his medical attendant. At other times the vomiting is almost incessant, and the patient, though parched up with thirst, refuses to drink the smallest quantity of fluid for fear of inducing it. The matters rejected from the stomach at the commencement consist of its contents at the time, probably a portion of the food he had eaten the preceding day; then they consist of water or any other fluid which he may have lately swallowed, mixed with mucosities, and coloured with yellow bile. In the course of two or three hours yellow bile makes its appearance either alone or mixed with mucosities, in quantities which differ in each particular case. Considerable quantities of yellow bile are however occasionally vomited from the outset; be this as it may, it makes its appearance within a few hours from the commencement, in almost every case. Generally this bile is very bitter, but in some cases, in which it is mixed with



a clear watery and mucous fluid, which appears to be secreted from the stomach, the whole mass has a strongly acid taste. After a period, longer or shorter in different cases, the colour of the ejected matter changes until it assumes a grass-green appearance. This occurs sometimes when the type is intermittent, and the gastric symptoms severe on the first day; when it is remittent or continued, on the second, and now and then, in more protracted and less severe cases, as late as the fourth. It indicates that inflammation of the stomach has passed to its second degree. Many look upon this fluid as bile, which has undergone a peculiar change, either at the time of its secretion, or subsequently, in the gall-bladder, the gall-ducts, or the stomach. Not only is it peculiar in colour, but in general it is clear, and resembles the expressed juice of chopped grass, or a solution of verdigris in water; when mixed with mucosities or other contents of the stomach, it is turbid, and now and then throws down a sediment; it may be tasteless, often it is strongly acid, sometimes slightly bitter and alkaline. It appears to me to be a secretion from the stomach, coloured by a quantity of bile; but I profess that I cannot explain the cause of its colour in all cases, as the bile found in the gall-bladder, though of a dark, almost black colour, becomes yellow in diffusion through water. Be its nature what it may, it indicates that the disease is farther advanced than when the vomitings are purely bilious. After the paroxysm has continued forty-eight hours, without a symptom of remission, all the above symptoms increase, at least, generally, we perceive that there has been an exacerbation. If at this time the matter vomited again undergoes a change in its appearance, if from being green it becomes of a paler colour, and from being clear it becomes thick and troubled, letting fall to the bottom of the vessel which contains it, a thick, gruel-looking, or mucous matter, we may begin to feel cause for alarm. As this change becomes more evident, we perhaps perceive this matter streaked with blood. The danger under these circumstances is imminent, and we may expect in many such cases that black vomit will soon show itself.



The matter vomited, in a few cases of equal severity with the above, is never green; but from being bilious it becomes more clear, and, losing its yellow colour, has the appearance of clear or frothy water, in which is diffused a quantity of flocculent mucus. After some time, a substance, not unlike black snuff, appears to be scattered through this fluid; it is the precursor of black vomit. We may observe all these changes in the nature of the vomiting within the first forty-eight hours; and if at or before this time an intermission or remission takes place, even although the patient may have thrown off his stomach a porracious matter streaked with blood, his escape may be safely calculated upon. But on the other hand, if all the symptoms continue, or if the remission be of short duration, and be followed almost immediately by a violent exacerbation, we must entertain fears that the result will be fatal. When all the symptoms continue beyond thirty-six hours, it is more than probable that the type will be remittent or continued; but there is no certainty in this respect. I have known a paroxysm of forty-eight hours' duration terminate in perfect apyrexia, and after an intermission of twelve hours, return and assume the type of pure tertian.

The gastric symptoms above discussed are not always, nor in the majority of cases, so intense. Not unfrequently does it happen that the malaise and anxiety are inconsiderable; that the pains in the back and extremities do not exceed those arising from fatigue; that there is neither pain nor heat in the stomach, but the headache resembles what is usually called sick-headache in England, and that the complaint arises from nausea, which temporarily subsides after the patient has succeeded in getting rid of a mouthful or two of thick syrupy and yellow bile. When the vomiting and nausea return quickly—when the bile is thrown up in quantities—when there is constipation or bilious diarrhœa and tenesmus, and the urine is high-coloured, or tinged with bile,—the liver is in a state of irritation, and the type is remittent,—these cases never, or very rarely, terminate fatally.



*Symptoms of Enteritis.*

When the tenderness is not confined to the epigastrium, but extends over the greater portion of the abdomen—when pressure at the umbilicus produced pain—when the patient complains of heat and slight pains, which are not produced by colic in these parts, we may suspect this læsion, more particularly if the gastric symptoms are not proportionate to the general disturbance. Nevertheless, we have difficulty in ascertaining correctly, during life, the existence or non-existence of enteritis in a great number of cases; for either the gastric symptoms overpower those which arise from this cause, or they are lost in the general confusion.

It might be supposed that the nature of the alvine evacuations would throw some light upon the state of the intestinal canal. In many cases it does; but often where the inflammation of some part of the tube has been considerable, we have never detected it during life. At the commencement of all these diseases the stools are fœcal and bilious, and they may continue so to the end; or they may become liquid and serous, containing shreds of mucus, often bloody. When this is the case we can have little doubt of the existence of enteritis. When black vomit exists the stools are often black and tarry, like those observed in cases of melæna, or have the chocolate appearance of the matter thrown from the stomach.

*Symptoms of Læsions of the Liver.*

Though we rarely discovered after death læsions of this organ, it does not follow that it is not more or less affected in many cases. In the more severe forms of these diseases the liver appears, in the majority of cases, to participate but slightly; but in others, which, from their less violent character, seldom or never terminate fatally, and therefore do not give us an opportunity of inspecting anatomically the state of this organ, it would be unjust to conclude that it was not affected, merely because we could not bring it to the test of



inspection. When the nausea and vomiting are constant—when every five or ten minutes three or four ounces of yellow bile, resembling the yolk of an egg, are thrown off the stomach—when the urine is yellow and tinges the linen—when there is some degree of tumefaction and uneasiness over the right hypochondrium—when the patient cannot lie on the left side with ease—when there is constipation, and the stools of a clay colour, or where there is bilious diarrhœa—where there is heat and fulness of the anus, often piles,—I think we must admit that the liver is affected.

In these cases the irritation of the stomach and duodenum appears to me to have extended itself to the biliary ducts of the liver. They occur principally in acclimatized individuals, are for the most part remittent in their type, and as far as my experience goes, never fatal, though they often leave behind them a certain degree of irritation and congestion of the parenchyma, which, if neglected, may give rise to acute hepatitis.

#### *Symptoms of Læsions of the Gall-bladder.*

These læsions, in all the cases in which they were found after death, consisted of inflammation and thickness of the vesical mucous membrane, contracting the orifice of the cystic duct, and obstructing the free discharge of the bile; they were unaccompanied by any symptoms which could be considered diagnostic.

#### *Symptoms of Læsions of the Kidneys.*

When the pains of the loins are violent, and accompanied by suppression of urine, many authors have judged that inflammation of the kidneys existed. In these epidemics, where this læsion appears to have been common, these symptoms perhaps were worthy of attention; but in the cases before us the pains of the loins were often extremely severe, yet no affection of the kidneys was found after death; and in the cases in which it was found, the pain, though great, was not



particularly so. In two cases only have I remarked suppression of urine: in both it occurred towards the close of the disease, and ceased immediately before death.

*Symptoms of Læsions of the Spleen.*

Although these læsions were frequent, I know of no symptoms which indicated their existence during life. There was neither tumefaction nor apparent uneasiness, and the pain produced by pressure in this region could equally be referred to the stomach. Of course I do not include chronic enlargements of this organ, nor those cases in which the distension was sufficiently great as to enable one to distinguish it by the feel, or to describe its lower margin.

*Symptoms of Læsions of the Lungs and Pleura.*

In many cases, bronchitis, or pleuropneumonia, are added to the other læsions. We shall have in general little difficulty in discovering them, as the patient will, in all probability, call our attention to pain in some part of his chest, increased on inspiration; or we may notice his cough, or be struck with the nature of the expectoration; in short, many things will make us suspect some affection or other of the chest, even when the symptoms are not well pronounced; and by a more careful examination we may make out its nature. But it now and then happens that the usual symptoms do not exist, or if they do, they are so obscure as to be overlooked. And we are astonished to find after death extensive disease in an organ which we fancied healthy. If we carefully examine the different cavities every day, which we should not omit doing, we perhaps find in some part of the chest generally, in the inferior lobe of one side, a point in which the respiratory murmur is indistinct, or covered by a slight crepitating râle, and that on percussion returns a sound more dull than natural. If this *engorgement* be allowed to go on, it extends over the whole of the lobe, and thence to the remainder of the lung, and the organ becomes destroyed, as we have before described.



In one of the cases, congestion of both lungs took place suddenly, and was the cause of death.

*Symptoms of a Diseased state of the Blood.*

Though we have no particular symptoms characteristic of this change in the vital fluid, yet we can form a pretty correct idea of its having taken place when the skin is of a dusky colour, changing to livid; when the countenance is grim, and has the appearance of being seen through a dark gauze veil—when there are ecchymoses of the cutis, or subcutaneous cellular tissue, or passive hæmorrhage from some organ, and more certainly when all these symptoms are united. But as this fluidity of the blood may exist without being accompanied by these symptoms, or by only a few of them, and those not particularly marked, we may remain in ignorance of it until we have seen the blood itself taken from the circulation during life, or as it is found in the body after death.

Ecchymoses occur in a very small proportion of the cases visited during the season by a medical man, and petechiæ still more rarely; and there is this difference between them: where ecchymoses are observed, the symptoms for the most part are not those which characterise adynamic fever; the tongue remains, in the greater number of cases, pale and moist; the skin at the commencement is of a dusky red, indicating a considerable degree of capillary excitement; and there is often hæmorrhage from some organ. They occur in young and vigorous subjects; and though the case may not terminate fatally, it must be looked upon as one of the most dangerous forms of these diseases, particularly if the type be continued. Petechiæ, on the other hand, are found to occur in old people, or in those who are weakly and ill-fed; they are combined with other symptoms of adynamia, as a dark and dry tongue; sordes on the teeth and gums; great prostration; temporary reveries; picking of the bed-clothes, &c.—a state of things dependent more upon the constitution of the patient than upon the cause which excited the disease. They are, however, occasionally accompanied with passive hæmorrhage, and now and then ap-



pear with ecchymosis. It is only at the close of the disease, or at least after it has continued some time, that these appearances are observed; never at its commencement.

Extravasation of a considerable quantity of blood into the cellular texture of the thigh occurred in one case; it induced a great deal of pain, and some tumefaction, but no lividity.

### *Hæmorrhage.*

I have related a case in which hæmatemesis was the first symptom with which the patient was attacked, and in which, in the course of a few hours, as the general excitement increased, he was seized with cerebral congestion and epistaxis. The fever was inflammatory, the blood was rich and plastic, and the surface of the coagulum was covered with a coat of colourless fibrine. Such hæmorrhages may occur in the course of any disease, and of course are occasionally seen in the inflammatory fevers of the tropics. There are others, as we have seen, which are of a different character; they occur in the course of the disease, generally when the excitement of the capillary circulation is commencing to subside. They appear to be formed by a sanguineous exudation from the exhalent vessels, are observed most frequently from the nose, the anus, and the urethra, and are attributable partly to the increased action of the vessels of the part, and partly to the fluid and thin state of the blood itself. After the application of leeches, we frequently have an artificial hæmorrhage from the orifice formed by these animals, which it is extremely difficult to arrest. It seems to owe its existence to the same causes as the others. We often hear of hæmorrhages proving critical in these diseases. I certainly have never seen anything of the kind, though it may happen that a temporary amelioration follows those of the first form now and then. The second indicate a certain degree of danger, not from the loss of blood, though this may be sufficiently great as materially to increase that which already exists, but because it shows that the disease is of a grave and malignant nature.



*Symptoms of Læsions of the Encephalon and its Appendages.*

Meningitis was found after death in a proportion of cases amounting almost to one-half. It remains for us to inquire into the symptoms attendant upon this læsion; they will be found, if we refer to the cases, as follows:—Headache, which however diminishes in intensity as the disease advances; stupor, alternating with restlessness; a sensation of faintness on assuming an erect position; more or less insensibility to pain, or to external impressions of any kind, (though it now and then happens that the aching pains of the back and extremities with which the attack sets in, still continue, but are much more obtuse;) florid or dark redness of the face; impatience of light; injection of the conjunctivæ; brilliancy or dimness of the eyes. These symptoms mark the primary stage of the læsion, and are often observed on the first day of the disease. In a short time the stupor becomes more pronounced, the patient is roused with difficulty, and after pettishly answering a question, which he does as briefly as possible, probably in a monosyllable, falls again into the same state; he suffers no pain, at least he never complains of any; and always, when interrogated on this point, says that he is quite well, or better; at other times he expresses a great desire for sleep, which he says he has not enjoyed since he has been ill, and to the want of which he attributes his great weakness. When he takes his medicine, or whenever he lifts his hand to his mouth, his arm is observed to tremble greatly, and he generally, to effect his purpose, is obliged to use the two; the gastric symptoms, which probably were very distressing at first, are now scarcely perceptible; the vomiting is rare, or occurs only after drinking; pressure on the epigastrium ceases to give pain, though in the greater number of cases the patient winces, or gently pushes the hand away. In the third stage the stupor continues and is more pronounced, alternating with muttering delirium; when we succeed in rousing him for a moment his answers are incoherent; he no longer recognises the persons about him. Reason generally returns before death, and it is not unfrequently that we meet with cases in which the



external senses, particularly sight and hearing, have already begun to fail, or have ceased to exist, though the reasoning faculties are perfect. In this state patients are often seen bidding adieu to their friends, or making the arrangements they desire after their decease.

It very frequently happens that cases of this kind are mistaken; that the symptoms of debility, trembling of the arms, syncope on assuming an erect or sitting posture, mislead the practitioner, and induce him to administer tonics and stimulants. It may be thought scarcely credible, but I have seen many such errors committed, and they have almost invariably been followed by death. They are the common symptoms which attend meningitis in these diseases, and though the pulse may be small and perhaps weak, we see it rise after a large bleeding. In one of the cases furious delirium combined with convulsions existed throughout the course of the disease; on examination after death the cerebral mass was firmer than natural, and inflamed. Amongst drunkards delirium tremens frequently makes its appearance during the course of the fever. In those persons also the delirium may be violent; and the patient may be furious, without having the other symptoms of this affection. After death the membranes are almost always affected, but the læsion bears no proportion to the violence of the symptoms. In peculiar idiosyncrasies, delirium, sometimes furious, is observed, without a trace of inflammation within the cavity of the skull. Subsultus tendinum is not a common symptom; where it occurs the disease has generally been adynamic; picking of the bed-clothes and carpalgia, though more frequent, are nevertheless sufficiently rare.

*Symptoms not attachable to any particular Læsion.*

The pulse in these diseases presents the greatest possible variety both in its quickness and its force, and therefore can only be depended upon when joined with other symptoms. In some of the purer forms of intermittents it is often extremely quick, being from 130 to 140 in a minute. When this quickness is combined with heat and tension of the skin, it is an



indication that the sweating stage is about to appear, and is not usually a sign of danger. When the skin is neither hot nor tense, when the gastric symptoms are severe, or when the blood is fluid, and there is hæmorrhage from some organ, or ecchymosis of the cutis, and particularly if it occur at the close of the third paroxysm of a quotidian or tertian, this extreme celerity of the pulse is an index of danger; more particularly if it be weak and fluttering underneath the finger. When the pulsations at the wrist exceed 110 in a minute, in fever of a continued type, it is also an unfavourable symptom; as in these cases it indicates a considerable degree of inflammation in one or more organs. When the type is remittent it is of less importance, but still the patient must be considered very ill, more particularly if the other symptoms are proportionate. Occasionally the pulse is observed to be preternaturally slow in some forms of continued fever, perhaps not exceeding 50 strokes in a minute; in some rare cases it has been observed to be much slower. This has been remarked by many authors as occurring occasionally in yellow fever, and has by them been considered as a symptom of great danger, and supposed to indicate a sinking of the powers of life. I cannot speak as to the truth of this opinion from my own observation. In intermittents, as I have said, the velocity of the pulse is not a symptom which should create much alarm, unless we have other reasons for fear added. In the remittent and continued types it is always unpleasant, and if it persist or increase after the fourth or fifth day, its velocity at this time will assist us in forming our prognosis.

#### *State of the Skin.*

In fevers of an intermittent or remittent type the skin is usually hot and dry, except during the intermission or remission. When this heat is not uncomfortable to the hand, on touching the body of the patient, and where the skin is tense and elastic, we may be pretty sure that perspiration, to a greater or less extent, is on the point of taking place, and that the paroxysm will terminate favourably, unless other symp-



toms should present themselves. On the other hand, if the skin is hot and pungent, and afterwards, as the perspiration comes on, becomes cold and clammy; if this moisture be sticky, tenacious, and partial, the danger is imminent. We frequently see this take place at the close of one of the paroxysms of malignant intermittents, and in such cases death almost always ensues. In those of a continued type it is well to have a moderate degree of warmth over the whole body, combined with a skin somewhat full and elastic. If the heat be pungent and biting, constituting what is called the calor mordicans; if the skin be cold and clammy, covered with partial perspiration, whilst a considerable degree of heat remains over the epigastrium; or if these states alternate, we may be certain that the patient is in danger. There is a state of the skin which not unfrequently occurs in fatal cases: the surface of the body is cold and clammy to the touch, except perhaps a small spot having the epigastrium for its centre, which is pungent; it is of a dirty or cadaveric colour, yet the patient complains of a sense of heat all over; he begs for cool air, throws off his bed-clothes, and requests his attendants to throw cold water over him.

#### *State of the Tongue.*

In the worst forms of continued fever, where the disease ran a rapid course, and where the gastric inflammation was very intense, the tongue was occasionally found pale, and covered with a thin coat of white mucus, moist and broad, the edges being slightly red. In by far the greater number of cases, the disease being less rapid, it was red at the edges and tip, pointed, with a tendency to become dry. This state of the tongue had no respect to type, but was found in the purest intermittents during the paroxysm, and in remittents; when it became broader and more moist this change in general was followed by a state of apyrexia more or less complete. When the symptoms were more bilious and the liver sympathised with the gastric irritation, the tongue was broad, foul, co-



vered with a yellow mucus, slightly red at the edges, and frequently became somewhat cleaner after vomiting. As the disease advanced in the two last forms of fever, the tongue became more red, more pointed, and dry; the redness extended over the whole of the tip, and the centre was often brownish. When the symptoms of adynamy were pronounced, which, as I have said before, seldom happened, and occurred principally in old or weakly subjects, or where the last forms of the disease were prolonged from the too liberal use of purgatives, it was occasionally incrustated with dark brown sordes, which attached themselves not only to it but to the gums and lips.

#### *State of the Urine.*

During the cold stage of an intermittent the secretion is very abundant, is clear and colourless; in the hot stage it is small in quantity, and after the subsidence of the paroxysm, it frequently lets fall a lateritious sediment. In those diseases which are remittent or continued in their type, it is small in quantity and of a dark colour, though for the most part clear: when the bilious symptoms are marked it often contains the colouring matter of the bile, and tinges the linen when dropt upon it. We meet with many cases in which these remarks do not hold good, but it would be too tedious to enumerate all the exceptions.

It often contains blood, which falls to the bottom of the chamber-pot, in the form of a black grumous sediment; now and then it is clear, and of the colour of port-wine. Under every circumstance it is acid, and has a strong action on litmus paper.

#### *State of the Saliva.*

Litmus or turmeric paper put into the mouth, in the majority of cases underwent no change; now and then the former was slightly reddened, and occasionally the secretion on the tongue appeared slightly alkaline.



*Yellow Suffusion.*

This symptom is not peculiar to fevers of the West Indies, as is well known, but has been seen in cases of typhus and in fevers of marshy origin, in some of the southern countries of Europe. In St. Lucia I have seen it in fevers of all types, and though it was generally observed in those of the most grave description, and therefore might be supposed to be a most unfavourable symptom ; yet we occasionally find patients in which it is well pronounced recover, without having evinced any other very serious appearances. Out of twenty-six fatal cases of different forms and types, it occurred six times : viz., in one intermittent, in two intermittents becoming continued, and in three which were continued from the beginning. In eleven fatal cases occurring in unacclimatised individuals, it recurred seven times : all of these were continued in their type, but presenting irregular remissions. Amongst the cases related it also occurred in three which did not terminate fatally, the type being remittent in one, and intermittent in the other two.

Yellow suffusion makes its appearance generally towards the end of the disease, sometimes in the middle, (but I have seen it slightly pronounced on the second day,) and is first perceptible at the roots of the alæ nasi, or in the corrugations of the forehead and the outer angle of the eye. It soon extends itself over the whole face, neck, and trunk.

As it is often preceded by a dark redness of the skin, more particularly on the face and neck, the yellowness, until this disappears, which it soon does, is that of an unripe lime ; but as this takes place it becomes deeper, and in a few cases acquires an ochry tinge. Now and then it is observable only immediately before death, becoming deeper as the body cools ; sometimes it is altogether cadaveric.

The cause of yellow suffusion has not as yet been fully explained, nor are medical men at all unanimous in their opinions respecting it ; some attributing it to the introduction of bile into the circulation, consequent upon an inflammation of the mucous membrane of the gall-bladder, and obstruction to the passage of its contents into the cystic duct. The cases before



us refute this opinion, as the symptom and the læsion were not found co-existent in the greater proportion of the cases. Others, on the contrary, have attributed it to the high state of excitement in the cutaneous capillaries, conjoined with a diseased state of the blood, producing an exudation of yellow serum into the cutis, the subcutaneous cellular tissue, &c., or to the blood circulating through the white capillaries, becoming yellow from disease. This reasoning is hypothetical. If we look to the dissections, we shall find that in many of those cases the blood presented, as far as could be seen, no trace whatever of disease; in others it was inflammatory. Nevertheless, I confess that I am inclined to hold this last opinion, hypothetical though it be; it agrees with the other symptoms and phænomena, and it is probable that the day will soon arrive when the blood in all these cases will be proved to have undergone a particular modification, which our present ignorance on this subject prevents us from detecting. It is difficult to conceive that in two cases apparently similar, and arising from the same cause, one should exhibit a change in the constitution of the blood, and the other not. Is it not more rational to suppose that in both this change exists, but in different degrees; and that we detect it in the one only because it is evident to our senses? Real jaundice occasionally accompanies fever arising from gastro-hepatic irritation; it is distinguished easily from yellow suffusion by the mildness of the general symptoms, and by the existence of the bile in the other secretions; by the whiteness of the stools, or by a bilious diarrhœa; by the colour of the urine, &c.

#### *Black Vomit.*

This symptom made its appearance in seven cases during the course of the disease, and in one it was observed mixed with blood in the stomach after death. In five of these seven cases the blood had undergone a change, and was found fluid. I have related a case at the commencement of this work, in which black vomit was observed in a woman, (produced apparently from putrefaction of the retained placenta and gan-



grene of the uterus,) in whom no inflammation of the stomach or intestinal canal, at least none which was sufficiently great to account for this symptom, was found. When it has occurred in the diseases which form the subject of this treatise, gastritis has invariably existed in an acute form. It makes its appearance most frequently at the time that the general excitement ceases, often suddenly. The patient makes a slight effort to vomit, and throws up a large quantity of chocolate-looking matter. When it has once commenced it continues, with longer or shorter intervals, to the close. If we examine the patient we are struck with the quantity of this matter which is thrown off the stomach, and the apparent ease and force with which it is ejected; he rarely lifts his head off the pillow; but turning it slightly to one side by a sudden effort, but without straining, casts a stream of it from him, generally to a considerable distance. The stomach fills again rapidly, and the same phænomena are reproduced. From the moment that black vomit makes its appearance the patient begins to sink, the extremities become cold, whilst the heat on the trunk is hot and pungent, the pulse becomes feeble, and death soon puts a stop to the sufferings. This is what usually occurs; but in one case the patient had strength enough to get out of bed without assistance until the last moment. It is a fatal symptom, and a patient, under these circumstances, may fairly be considered beyond the powers of science. Some of these cases are reported to have recovered, and the recoveries have been attributed to the treatment employed; but the honest man ceases to entertain hopes, and should, contrary to his expectation, the lucky sufferer escape from his perilous situation, he will attribute it to the extraordinary powers of resistance with which nature has endowed certain constitutions. When this black matter is voided per anum instead of by the mouth, we may be pretty sure that it has arisen from the intestinal canal itself, and not from the stomach, and the patient presents a much better chance of recovery.

Black vomit, it is now well known, is blood which has undergone a peculiar change in the arrangement of its par-



ticles ; this has been supposed to take place in the stomach after its effusion from the circulation, from the action of the gastric juice. Such is not, however, the fact ; the stomach in these cases is not in a state to digest anything ; and in heme-temesis when this organ is comparatively healthy, black vomit is never observed. Neither is the time that the blood remains in the stomach sufficiently long to allow of its becoming changed by its digestive powers, enfeebled as they are. We can sometimes distinguish this organ becoming more and more distended under our fingers, as the matter accumulates, which it does in about ten minutes, and sometimes in a shorter period ; and when filled the vomiting is renewed. It appears to me that the change in the blood is effected in the minute vessels of the mucous membrane, by a peculiar orgasm, with which we are unacquainted, but which appears to resemble that by which the albumen is changed into pus in the progress of phlegmon. Be the cause what it may, we find that the matter of black vomit exists not only in the cavity of the stomach, but we detect it in the vessels of its mucous membrane also, and can succeed in detaching it from them by means of a needle. I have already alluded to the spotted appearance of this tissue in some of the cases in which black vomit existed. It has been supposed that these spots were the terminating extremities of the exhalent vessels, and no doubt this opinion is correct, but I am not quite sure that the ducts of the mucous follicles do not enter into their production to a certain extent ; in other words, that the matter vomited is not partially effused from the follicular ducts as well as from the excretory branches of the capillaries. That black vomit, as well as yellow suffusion, may be connected with a morbid condition of the blood, I think is probable, but not yet proved.

When this black matter is submitted to the test of litmus, or turmeric paper, we occasionally find it acid, now and then alkaline, and often neutral. When any change is detected in the colour of the test, I believe it is always attributable to the other contents of the stomach, and not to the black vomit itself. It would, however, be very difficult to ascertain this point



correctly. There is now and then a strong and peculiar odour diffused through the apartment in which this matter is kept, which attaches itself to the furniture, and even to the clothing of those who are exposed to it.

I have heard of cases in which the matter ejected from the stomach was perfectly black, dying indelibly the linen with which it came into contact. My own experience has never shown me anything of the kind.

### *Stiffness of the Articulations.*

In some cases the extremities for a short period preceding death were observed to be half bent; and the articulations were rigid; so that on attempting to straighten the limb, we met with a certain degree of resistance, and this was effected with a jerk. This symptom was always coupled with others, and the case invariably terminated unfavourably; it appears to me to indicate either intense inflammation of the stomach and bowels or softening of their mucous membrane.

### *Critical Days.*

Though crises or critical evacuations are as rarely witnessed in these diseases as in any other, it is quite the reverse with respect to critical periods. Every one who has any experience in these cases must be struck with the peculiar influence which certain days seem to possess over them. Most writers upon this subject allude to them in language more or less strong, and attach to them a great deal of importance. Dr. Jackson\* has correctly observed that almost all these diseases, no matter of what type, assume a tendency to a tertiary period. In St. Lucia the attendants on the sick are greatly astonished when the disease does not present its *bon* and its *mauvais jour*. The friends of the patient draw their opinion of the result by attending to the symptoms on a certain day, and their prognosis occurs with a correctness which would astonish those who had not witnessed it. A similar observation is made by

\* Op. Cit. p. 243.



M. Rochoux,\* amongst the inhabitants of Guadaloupe. This periodical tendency must always be borne in mind by the medical practitioner, as it not only demonstrates the intimate connexion which exists between fevers of an intermittent and continued type, and the facility with which they may change one into the other, but it is also of the utmost importance in the treatment. For instance, malignant intermittents, if left to themselves, generally terminate fatally at the close of the third paroxysm; whilst those of a continued type, when they terminate in death, it is observed to be in the greater number of cases on the fifth and seventh days; and it is on the fourth and sixth that a favourable change is generally observed; indeed, during the second, fourth, and sixth days, the symptoms are milder than during the third, fifth, and the seventh, in the greater number of instances where the course of the disease has not been materially interfered with. By attending to this, complete intermission is often induced on the second day in a case which would otherwise have been continued, and even so late as on the fourth, a change so favourable may be induced, as to lead us to expect the gradual conversion of the disease into an intermittent or remittent.

## CHAPTER VIII.

### SEAT AND NATURE OF THE ENDEMIC FEVERS OF ST. LUCIA.

BEFORE we can enter fully upon this subject, we must first be of accord in our opinion as to the identity or non-identity of these diseases.

Identity of cause will produce identity of effects, but these effects will always be *modified* by the temperament and idiosyncrasy of the individual.

If this be granted, the effects of malaria will be in every

\* Recherches sur la fièvre jaune.



case identic—regard being had to the modifications produced by individual peculiarities. But, as we have seen, malaria alone is not always, nor even generally, the *exciting* cause of what has been called tropical fever, though it is probably always a *predisposing* one, and exercises a modifying power over those which arise from other causes.

Any cause which, by troubling the balance of the circulation, gives rise to congestion, irritation, and inflammation of an organ, followed by a sympathetic constitutional disturbance, may be considered a febrile cause, and the phænomena will be those which characterise what is called inflammatory fever.

Man, exposed to the influence of a tainted and vitiated atmosphere, either resists its effects, or becomes attacked by disease. In both cases the poison is diffused through the atmosphere, is received into the lungs by the process of respiration, and is absorbed into the system. How comes it that in one case the poison has excited disease, and in the other it has been innoxious? We say that the one person had greater powers of resistance than the other. A second inhabits the country for a series of months with apparent impunity, when from some irregularity or imprudence, or probably without any known cause whatever, he falls ill, and presents precisely the same symptoms as the former. Another, after residing some time in the same country, enjoying tolerable health, leaves it for one more healthy. After a certain period he also is taken ill, and suffers from a disease precisely similar to that which attacked the two former.

How are we to account for these different results? In the first case, the climate appears to have been the exciting cause of the disease; in the second, the powers of resistance were greater, and it was not until the action of the cause had been prolonged and aided probably by others, that these powers became weakened, and the constitution became attacked; in the third case, disease makes its appearance some time after the body has ceased to be exposed to the morbid influences—proving that the constitution was impregnated with the poison, which had remained dormant until called into action, either



by some other cause, or else "accumulating in the system by some regular though unknown process; in a certain state of accumulation it exploded in a manner similar to the explosions of electricity."\* However we may choose to explain this phænomenon, we cannot be blind to the fact, that the economy may be charged with the poison even for a considerable period after removal from the tainted source.

There is no law to prevent the introduction of this poison into the systems of all who are exposed to it, though individuals are endowed with different powers of resisting its effects. All the inhabitants of marshy countries therefore have their constitutions impregnated with malaria. In some it is the exciting cause of disease; in others it remains quiescent until the powers of resistance are enfeebled, or until, gradually accumulating, it explodes, and the effects are sudden and tremendous, whilst in a third a slight cause, as a cold or catarrh, by giving an impulse to disease, is not unfrequently the exciting cause of symptoms eminently characteristic of marshy origin.

In all these cases the diseases, though modified by individual idiosyncrasy, may be considered identic, and as having a common origin; but there are others to be met with which differ somewhat from them, not so much in consequence of the varieties observed in the temperaments of the persons affected, as from modification of the causes which gave rise to them. For instance, the cases more particularly characteristic of malaria, occur at that period of the year when this principle exists in the greatest abundance and in the highest state of concentration, namely, during the autumnal or hurricane months; when heavy rains alternate with calms and an extreme elevation of temperature. The diseases to which I now allude, on the contrary, are seen to obtain in the months of December, January, and February, when the atmosphere is dry, when to a hot, sunny day succeeds a cold night, and when the strong winds from the north-east not only tend to blow away the exhalations from the swamps, but which, striking upon the body when in a state of perspiration, tend greatly

\* Jackson, Op. Cit. p. 247.



to the production of internal inflammations. Gastro-enteritis is consequently not an unfrequent malady at this season.

This disease is often observed on board of ship, within the tropics, under circumstances which preclude the supposition that marsh could have produced its influence. It is observed in those islands where swamp does not exist, or at least to any extent, and is generally seen to make its appearance when the atmosphere is dry and the temperature elevated. Solar heat seems to be the *predisposing* cause of this form of fever.

Are we to separate it from the diseases described above? Were I writing a description of all the diseases of the West Indies, I might be induced to do so; but I am confining myself to the febrile endemic of St. Lucia, and in this country it never occurs, at least I have never seen it, in its pure form unconnected with the influence of marsh. When it has occurred sporadically, there have always been at the same time cases in which a malarious modification was very evident, and a tendency to intermission was not only perceptible, but many cases actually became pure intermittents previously to their termination.

In some of the more favoured islands it is not unfrequently seen attacking newly-arrived persons; but in St. Lucia it is probably always accompanied by the effects of malaria, therefore though it may be an ultra-modification of the endemic, it is, nevertheless, entitled to a place here.

If it were possible to separate from the disease of exclusively marshy origin all the varieties of the endemic which arise from mixed causes, our cases would not have been quite so numerous, and our task would be attended with fewer difficulties; but such a separation would indeed be impossible, for how can we know all the circumstances necessary for the production of fever until we shall understand the numerous changes which are constantly taking place in the atmosphere, and the ever-varying conditions of the economy.

All the cases therefore which I have introduced in the former part of this work must be considered but as varieties of the same disease, produced by different combinations of the causes always existing in the countries in which these diseases are



found, and by the temperament and idiosyncrasies of the persons attacked by them.

There is, however, a disease not unfrequently observed in the West Indies, which has generally occurred in an epidemic form, attacking numerous persons at the same time, and known by the name of yellow fever. Is this only a modification of the above forms of fever? is it, in short, the same disease in a more concentrated form, as supposed by Lind, Pringle, Poissonier-Desperrières, Moseley, Valentin, Deveze, Gilbert, Hunter, &c. &c.? and is it found in all countries where the causes which give rise to the former exist in great abundance; in Rome and the Campagna, as described by Torti and Baglivi; in Minorca, as described by Cleghorn; in Nubia and Abyssinia, as described by Bruce and Valentin, and in other parts of the world, as described by a variety of authors? or is it a totally distinct disease, as supposed by Chisholm, Pym, and some others? Those who support this latter opinion do so for the following reasons.—1st. Because true yellow fever, they say, is eminently contagious; whilst the endemic fevers of the West Indies are not. 2nd. Because,\* the endemic in *its concentrated form* is never found to attack the negro population, nor the acclimated inhabitants, whereas yellow fever attacks all within its sphere of contagion, the seasoned, the unseasoned, the constant resident, the negro, and the European, who have not previously had the disease. 3rd. Because yellow fever never attacks the same person twice in his life; whereas, the remittent may occur again and again. Before we can submit this subject to an impartial investigation, we must describe the symptoms, the pathological appearances, and the history of this malady, which have, separately or collectively, formed the debatable ground of both parties.

### *Symptoms of Yellow Fever.*

Dr. Gilkrest† says, “in no disease do the symptoms take a wider range than in this, for which reason it is usually con-

\* J. Copland, Dict. Prac. Med. Art. Yellow Fever.

† Cyclop. of Medicine. Art. Yellow Fever.



sidered necessary to speak of two or three, or even four forms of the disease." We will, however, take those symptoms only which are universally considered pathognomic, viz.—rigors,\* nausea, frontal, but especially supra-orbital headache, injection of the conjunctivæ, eyes brilliant and dry, occasionally humid and suffused with tears; intense pain in the loins, thighs, and knees; countenance swollen and red; pain and uneasiness in the region of the stomach, though this is often absent, and the patient may bear pressure on the epigastrium without the ordinary inconvenience; jactitation; agitation; supination; crossing the arms over the chest; respiration quick and hurried, at other times oppressed and laborious; frequent sighing; plaintive moaning; pulse frequent, full, often hard; tongue occasionally clean, or white and broad, usually, but not always, red at the tip and edges; intense thirst; repugnance to food; skin hot, dry, and pungent; constipation; now and then, though rarely, diarrhœa, which is generally bilious; although in two epidemics observed by Dr. Gilkrest, one at Gibraltar, the other in the West Indies, the evacuations were pale and glairy, and bile was generally absent in the stools; sleep, at first disturbed, frequently altogether disappears during the progress of the disease; occasionally stupor; now and then delirium of a muttering kind; urine clear and natural in appearance.

This, which has been called the stage of excitement, may continue from two to four days, but generally towards the close of the second or third a new train of symptoms makes its appearance. The pulse begins to sink, the eyes lose their brilliancy, and become dull and languid; the vomiting is more frequent, often accompanied by a sensation of burning in the stomach and lower portion of the œsophagus, and on pressing the hand on the epigastrium the patient complains of a dull heavy pain in this part. The matters vomited, at first bilious, become clearer and contain a quantity of mucus; then they are streaked

\* Gilkrest, *Op. Cit.* Chisholm, *Essay on Malignant Fever.* Cailliot, *Traité sur la Fièvre Jaune.* Bancroft, *Essay on Yellow Fever.* Chabert *sur la Fièvre Jaune, Rapport de la commission.* Rush, Bally, Physick, Thomas, Jackson, Moreau de Jonnès, &c. &c.



with blood, and afterwards they assume the appearance of chocolate or the grounds of coffee; the thirst is less intense, and the patient refuses to drink for fear of inducing the vomiting; the agitation and jactitation are greatly increased; the countenance is less swollen, and of a grimy look, and soon traces of yellowness are discoverable in the wrinkles of the forehead, the root of the nose, and near the superficial veins of the neck, which gradually extends itself to the whole body. The skin, though less hot, is more pungent; occasionally it becomes cold and clammy: the patient complains of great prostration, and often faints from the slightest cause; the tongue becomes more red, and brownish, and dry in the centre; hæmorrhage is occasionally observed from the nose, the urethra or the anus; the urine is often suppressed: but these two last symptoms, though common in some epidemics, have not been observed in others. The stools are often dark, resembling tar or the matter vomited; the body cools; hiccough comes on, sometimes accompanied with delirium of different kinds, and death soon ensues.

The above symptoms are taken from different sources, and are those which are considered peculiar to the disease; but when we examine the particular features of the different epidemics, or the individual cases of each, we shall rarely find them agreeing exactly with the above description. It is true that we invariably have *some* of these phænomena, but many will be wanting, and those which are observed are united to others which are not mentioned in this catalogue; in many cases even black vomit and yellow suffusion are wanting; in others the pains in the loins and knees do not exist, or if they do, it is in a mild degree; the symptoms are sometimes continued, at others marked remissions and exacerbations are observable. There is therefore nothing fixed and undeviating in the symptoms said to be pathognomic of this disease.

Amongst the cases I have related, many are to be found perfectly analagous with the above description, in which yellow suffusion and black vomit co-existed with supraorbital headache, rachialgia, heat, dryness, and pungency of the skin. Were



these cases of remittent simulating yellow fever? or were they cases of yellow fever itself—a disease *sui generis*? Call them what we may, they arose from causes which gave rise to a different form of disease in other persons at the same time; from causes which were local, and which have at all times been in operation, the effects of which differ only in intensity and other slight modifications, produced by the various combinations of the causes themselves, and by the idiosyncrasy and temperament of the persons exposed to them; from causes which are capable of producing an epidemic form the disease when they act upon a considerable number of unacclimated individuals.

The above symptoms, therefore, when they occur in a country in which, to a considerable extent of swamp is added great solar heat, do not necessarily constitute a disease *sui generis*, inasmuch as they can be explained by local causes which are capable of, and in fact are, constantly giving rise to them.

*The Pathological Appearances observed in Yellow Fever.*

In examining this part of our subject our difficulties increase until they become alarming; for in many works the autopsic appearances are not given, or if they are, they are made subservient to the preconceived views of the author. As we have taken the *symptoms* of this disease from the different descriptions of it as it has been seen from the year 1793, for reasons which I shall mention when speaking of its history, it remains for us to examine the *læsions* found after death as they are described in the same sources.

The gastro-intestinal mucous membrane was found inflamed in every case of the epidemic of Guadaloupe\* in 1816-17-18, according to Rochoux and Chervin.

Dr. Carolus Wolfing,† looks upon yellow fever as a bilious fever, accompanied with inflammation of the stomach, duodenum, and liver.

\* Op. Cit.

† Bouneau and Sulpicy, p. 29.



Tommasini\* considered the epidemic of Leghorn as a gastro-hepatitis.

Caillot† says, "that irritation of the gastric-organs forms one of its principal traits; all its other symptoms may be referred to this."

M. Dubreuil,‡ who witnessed this disease in the West Indies in 1816-17-18, after giving his reasons for considering this fever as a *gastro-enterite adynamique, ou atavique due à une cause délétère ou à un virus sui generis*, adds, "I presume that in the yellow fever the phlegmasy of the mucous membrane of the digestive canal is the essential malady, whilst the pyrexia, if it exist, is only secondary or symptomatic."

M. Chabert,|| calls this disease *la maladie spasmodico-lipyrienne des pays chauds*. "It is produced by a real poison," he says, "which acting first upon the nervous system, is reflected upon other parts, particularly on the gastro-intestinal mucous membrane."

Bally,§ in his description of the yellow fever as it existed in St. Domingo in 1802, informs us, that brown spots were disseminated on the inflamed surface of the stomach, but the *gangrene* rarely extended beyond the mucous membrane; the mucous membrane of the intestine presented similar alterations to that of the stomach, except that it was less frequently gangrenous.

Pym and Chisholm found inflammation of the stomach in the fever of Grenada and Gibraltar.

In the epidemic of Seville in 1819,¶ the stomach was inflamed in its interior.

In that of Cadiz in 1819,\*\* and in that of Barcelona in 1812, similar appearances were observed.

In the descriptions of it as it has reigned in the different towns of the American continent, we meet with accounts of

\* Sur la Fièvre de Livourne trad. Franç.

† Op. Cit. p. 236.

‡ Jour. Scien. Méd. t. 8. p. 317.

|| Reflexions Medicales.

§ Du typhus d'Amérique.

¶ Official Report of the Medical Society of Seville, quoted by Pariset.

\*\* Pariset.—Audouart, *vide* Sulpicy, rapport de la commission Française, &c.



intense inflammation of the mucous membrane of the stomach and bowels. In Savannah\* all the symptoms and post mortem appearances were analagous to those produced by an overdose of arsenic. Drs. Physick and Irvine found an inflammation of the stomach similar to that produced by arsenic or any other corrosive poison. Though Dr. Thomas, of New Orleans, sought for the seat of the disease in an inflammation of the spinal marrow, in every case which he details intense inflammation of the stomach was found.

Although this læsion has been found almost universally in the different epidemics by far the greater number of observers, there are a very few who nevertheless stoutly deny its existence either as a cause or a consequence. Amongst these we select, in preference, Dr. Gilkrest, because the paper written by this gentleman for the "Cyclopedia of Medicine" is more likely to be largely circulated than the isolated tracts of other authors. In the first, or congested form, he says, "the stomach is free from what is admitted by the best authorities to be evidence of inflammation; mere redness, whether in streaks in various directions, or in stellated patches of various sizes, has been on several occasions remarked in the mucous membrane, in the same degree as it is observed to occur in chronic or other diseases, or in cases of accidental death, where there is not the remotest suspicion of gastritis. Spots of a purple colour are much more common than those of a bright red; a perfectly pale state of the membrane is far from being of rare occurrence. Dark streaks or patches in the mucous membrane are not uncommon, and would give an impression of their being occasioned by blood changed in the capillaries to black vomit in its progress to the surface. This appearance, no doubt, it is, which has given rise to the opinion that gangrene of the stomach occurs in yellow fever," &c. &c. Where death takes place in the more ordinary forms of the disease, "the stomach is not unfrequently found to contain black vomit strictly so called, and, though infinitely more rarely, may be smeared over with the dark, adhesive, and jelly-like substance spoken of under another head; containing sometimes an ob-

\* Report of the Medical Society of Savannah.



vious proportion of blood mixed with other fluids; often ingesta, or mucus; rugæ, the *état mamelonné*, together with appearances alluded to under another head, which as they are admitted to present themselves very frequently in dissections after diseases of any kind, or indeed (as in cases of sudden death) where no disease had existed, need not be particularly entered upon on this occasion. Abrasion of the epithelion of the mucous membrane of the œsophagus was observed in some cases," &c. "As to mere *ramollissement* of this membrane (the gastro-intestinal) furnishing a proof of inflammation, this will not now be contended for, it is presumed." Now as these appearances were observed by Dr. Gilkrest, not only in the fever of Gibraltar during the year 1828, but in an epidemic which he saw in the West Indies also, and as they have been described by a few other British practitioners in this part of the world, as being of common occurrence, and not of an inflammatory nature, it becomes necessary to inquire further into them. Dr. Chervin, than whom no one has had greater opportunities of viewing this disease, constantly met with more or less gastro-enteric inflammation in some hundreds of cases examined by him in the West Indies; and he also states that this disease, as seen by him in these countries, is the same as the one which he observed at Gibraltar; but admitting, with Dr. Rochoux, that they are not the same, still the observation as regards the West Indies is directly the reverse of that of Dr. Gilkrest. Now either MM. Chervin and Rochoux must have considered the appearances described above by Dr. Gilkrest as decidedly inflammatory, or they must have met with læsions which did not exist in the epidemic observed by the latter gentleman. The last supposition is not probable, because we can scarcely imagine that in two diseases, the symptoms and general features of which are identic, one should uniformly present a læsion which is never observed in the other. We must therefore conclude, that the appearances described by Dr. Gilkrest as non-inflammatory, were considered by Dr. Rochoux at least as of a decidedly inflammatory origin. Let us approximate these appearances: we have different shades of redness up to a dark brown or



purple, of the gastro-enteric mucous membrane ; we have the inner surface of the stomach and bowels lined with a dark adhesive, jelly-like substance ; we have effusion of blood into this canal ; ramollissement ; abrasion of the epithelion of the œsophageal mucous membrane. We will compare these conditions with Andral's description of acute gastritis :—

“ 1. Nous trouvons dans la gastro-entérite aiguë une simple rougeur de l'estomac, pouvant présenter tous les degrés et toutes les nuances qui se rencontrent dans l'empoisonnement. Quelquefois même on trouve une couleur noirâtre de l'estomac qui n'est que le résultat de l'engorgement du sang dans les vaisseaux. 2. La rougeur peut être accompagnée du ramollissement de la membrane muqueuse existant à divers degrés. 3. On peut trouver des *ulcérations* ; mais ce phénomène est rarement le résultat d'une inflammation aiguë de l'estomac : on le rencontre cependant quelquefois chez les très jeunes enfants. 4. On a vu dans plusieurs cas la gastro-entérite aiguë produire une exhalation de sang à la surface de la muqueuse. On a vu quelquefois cette muqueuse recouverte d'une couche de mucus épais, et en enlevant ce mucus la membrane muqueuse présentait une rougeur considérable au-dessous. Il est très rare de trouver du pus au lieu de mucus sur la surface de l'estomac. Enfin on a constaté aussi la présence de fausses membranes ; mais ces cas sont excessivement rare chez l'adulte.”—*Cours de Pathologie interne, Première Livraison, page 9.*

Andral then goes on to state, that amongst these appearances some are a certain indication of an inflammation of this tissue, whilst others, viz. the redness and the softening, may depend upon other causes as well. The different degrees of redness may depend upon a passive congestion during the agony ;—2, upon a mechanical cause, as an aneurism of the heart ;—3, a result purely cadaveric, a phænomenon which takes place only when the body is opened a long time after death. Softening, also, may be independent of inflammation, and is sometimes found in animals which have been killed when in perfect health ; but only in cases where the animal is destroyed during the process of digestion, and even then it is not constant.



Having compared the appearances described by Dr. Gilkrest with those mentioned by Andral as characteristic of intense gastritis; and having coupled them with some of the prominent symptoms during life, as nausea, vomiting, a sense of burning in the stomach and lower portion of the œsophagus, restlessness, agitation, frequent sighing, intense thirst, &c., I think we must come to the conclusion, that in a great number of these cases there was not only a well-pronounced, but an acute gastritis, or gastro-enteritis. I have no doubt that many kinds of redness met with in the mucous membrane of the gastro-intestinal canal have frequently been attributed to inflammation, when, in reality, they were owing to other causes; but I do not doubt, because I know and have seen many inflamed stomachs considered as healthy, or the appearances attributed to something else, either from prejudice or obstinacy. Heaven forbid that I should suppose such to have been the case in the present instance; but I can readily conceive that Dr. Gilkrest, in striving to combat the opinion that yellow fever is nothing but a gastro-enteritis, should have neglected to mention a læsion which, though not of itself sufficiently severe to account for all the symptoms, nevertheless existed at least occasionally, perhaps generally. Be it as it may, the different shades of redness, from vermilion to purple, are not *common* except when arising from inflammation. The mucous membrane of the stomach is *not healthy* when it is covered with a dark, adhesive, jelly-like substance, or carpeted with blood. Granted that ramollissement may occur independently of inflammation, either from the action of the gastric acid, as supposed by some, or in consequence of a peculiar irritation, as supposed by Cruveilhier, nevertheless it is of comparatively rare occurrence; whereas it is a sufficiently frequent result of inflammation. When coupled with redness, and observed in a case which presented during life symptoms of gastric irritation, I for one should say, that the signs of inflammation were unquestionable. What produced the exco-riation of the mucous membrane of the œsophagus?

Inflammation of the intestines has been described as existing, in a considerable proportion of cases, in the different



epidemics of the West Indies and America. According to M. Dubreuil, the surface of the duodenum was frequently found ulcerated; the same appearance in other parts of the small intestine have been mentioned by a few other writers; but on the whole, ulceration of the mucous membrane of any part of the canal has been of rare occurrence. The inflammation is most constantly found, either in the duodenum near the pylorus, or at the lower portion of the ilion.

The liver has been said to be frequently found engorged with blood; but it would appear that more stress has been laid upon this læsion than either its degree or frequency warrants; whilst Mr. Devèze says, that he has frequently met with enormous engorgements of all its substance, with now and then deposits of a bloody-looking matter into its tissue; and whilst Tommasini has placed in this viscus one of the seats of yellow fever, the greater number of authors have rarely found it perceptibly affected. M. Rochoux met with hepatitis in one case only. In the epidemic of Gibraltar, Dr. Gilkrest informs us that congestion of this viscus, though not constant, has been observed, but its most remarkable appearance consisted in change of colour, either local or general. "Sometimes this colour has been a pale olive, or a mixture of green and yellow usually taking place uniformly throughout the whole organ, in some rare instances alternating with dark green in regular strata, and occasionally taking place in the left lobe only; the liver observed at the same time to be studded or punctuated very thickly with minute spots of bright red, being, perhaps, the granulated structure retaining its colour," &c. But the fact is, that it is extremely difficult to determine the different pathological alterations in this organ; for the most simple variation in the proportion of blood sent to it is sufficient to produce a notable change in its aspect, in producing different degrees of hyperæmia or anæmia in the two substances of which it is composed. "In the normal state these two substances (the *tissu rouge* and the *tissu blanc*) are distinct; but it requires a certain degree of attention to recognise them. When more blood is sent to the liver than usual the two substances are no longer distinct,



and the viscus presents throughout an uniform red colour.\* Now this may be produced from other causes as well as from inflammation; and although the effects may be perceptible enough, it is exceedingly difficult, if not impossible in many cases, to ascertain whether the cause was an irritation of the organ or not. When the enormous engorgements and sanguineous infiltrations into the parenchyma, as described by M. Devize, are observed, it is more than probable that they owe their origin to an irritation of the liver, at least in part; but this is by no means certain, they may depend on other causes as well.

The mucous membrane of the gall-bladder has frequently been found inflamed: both Rochoux and Dr. Gilkrest mention this læsion. The cystic duct has occasionally been almost obliterated from this cause. The bile contained within the cavity of the gall-bladder varies in quantity, but is almost always dark, thick, and syrupy in appearance.

It does not appear that the spleen is usually much altered in this disease, although softening and apparent disorganization of its structure have been observed.

In certain epidemics, where suppression of urine has been of frequent occurrence, hyperæmia and even inflammation of one or both kidneys has been found; this inflammation may extend into the pelvis and ureter, sometimes into the bladder; but usually this last organ presents no læsion whatever, though it is found in many of these cases firmly contracted.

When either the lungs or their appendages have been inflamed, the inflammation has been considered quite an adventitious occurrence; engorgement of the posterior portions of these organs has been found not unfrequently; and occasionally partial sanguineous infiltrations into their parenchyma, have been noticed. The heart is either natural or somewhat flabby: it has however been found, in some instances, to be of a looser texture than in health, and more easily lacerated.

When there has occurred during life a train of nervous symptoms, such as stupor or delirium, the meninges have been seen in different degrees of irritation, from simple vascu-

\* Andral. Précis, vol. ii. p. 584.



larity of the pia mater to thickening of the arachnoid from albuminous effusion. The brain is generally healthy, now and then in a state of hyperæmia. When the spinal marrow has been examined it has been found as in health, according to Dr. Gilkrest and Mr. Bally. But M. Thomas, of New Orleans, relates ten examinations, in which the membranes of the spinal marrow were found more or less inflamed.

Though passive hæmorrhages from different orifices are mentioned by all modern writers on this disease, Dr. Stevens is the only one, as far as I can recollect, who decidedly speaks of a diseased state of the blood. Amongst the older authors, however, we frequently find the expressions *dissolution of the blood*, *putrefaction of the humours*, &c. That the blood must have undergone a change in all the cases in which these hæmorrhages have occurred, or in which extensive subcutaneous ecchymoses or infiltration of this fluid amongst the fibres of muscles was observed, is, I think, at least probable.

Such are the different organic læsions which have been observed in examining the bodies of individuals who have died of yellow fever. 1st. The stomach and intestines have been found more or less inflamed almost invariably; in evidence of which we can produce the testimony of by far the majority of those who have observed the disease either in the West Indies or on the continent of America. 2nd. That the greater number of the other viscera may be affected in variable proportions. "In this last respect we must observe with Rush, Bally, and Devèze, that the phænomena which present themselves to us on dissection vary according to the country, and to the different epidemics in the same country; also, that they vary in the same epidemic according to the intensity of the disease, the mode of treatment, and a thousand other circumstances, the influence of which the attentive observer will not suffer to escape."\* How applicable is this observation to the diseases which I have described as constituting the endemic fevers of St. Lucia. Allowing that they are merely cases of common remittents, is the profession more agreed as to the seat and nature of these latter, than it is re-

\* Bouneau and Sulpiçy.



specting the seat and nature of yellow fever? On the contrary, we meet with the same discordance of opinion respecting the nature of the disease, and the same discrepancies in the detail of the læsions in the one as in the other. What is the practitioner to do in such a case as this? After patient and attentive investigation, let him judge for himself; let him treat the opinions of his *confrères* with respect and attention, and adopt them so far, but no farther, than they correspond with what he himself knows to be true. His chief reliance must be upon himself and his own observation, *aided* by that of others. But God help him if he blindly pin his faith upon the sleeve of any man, and, from indolence or carelessness, form his ideas exclusively from what he has read, or what he has been told. Should he do so, he will find that his easily-adopted notions are shaken to their foundation by the rough hand of daily experience; and he will be taught, perhaps when too late, the urgent necessity of observing for himself.

If the above læsions be compared with those related in several of the foregoing cases, we cannot but be struck with the close resemblance between them. Could we distinguish the two diseases from the differences found between their morbid appearances? I profess that I could not. If to each case be added the symptoms observed during life, are the facilities of distinguishing them increased? Most certainly not; for, as we have already seen, these appear to be similar in both. Therefore we must conclude that some of the cases which I have related, approximate so closely to those of acknowledged yellow fever, both in the symptoms and pathological character, as in these respects at least to be identic.

### *History of Yellow Fever.*

It would be natural to suppose that a disease so well marked, and so frequently described as the epidemics which have at different times committed such horrible ravages in the western hemisphere, and in some of the southern parts of Eu-



X rope, presented the greatest simplicity in its history. This, however, is so far from being the case, that there exists probably none whose history is involved in such obscurity as the one before us.

Whether this be the result of ignorance, or whether it has arisen from some peculiar feature in each epidemic being observed, which has been considered sufficient to separate it both from the preceding ones and from the customary fevers of the country, it would be useless to inquire. Certain it is, however, that different dates have been attached to its first appearance, and different names have been given to it according to the places whence it was supposed to have been introduced.

X So late as the year 1793, Dr. Chisholm, who had resided for a length of time in this part of the world, and had an extensive opportunity of seeing its diseases, met with a fever in the island of Grenada, which in his opinion differed altogether from the endemic usually observed there, both in its symptoms, the source whence it arose, and by the manner in which it was communicated. He describes it as a *nova pestis*, a peculiar original pestilence, recently generated, and utterly unknown before. It was *imported*, he continues, by the ship Hankey, from Bulam, on the coast of Africa; it soon extended itself through the island, and proved fatal to the greater number of those attacked.

About the same time, a disease precisely similar broke out in Barbadoes, in Martinique, Demerara, St. Christopher's, St. Vincent's, and in several towns of the United States. In 1794, more than two thousand persons fell victims to yellow fever in the town of Havannah,\* during the months of July and August. It was also again observed in the above places raging as violently as during the preceding year.

In 1800 it was seen at Gibraltar, Cadiz, and other parts of Spain.

Pugnet describes it attacking the troops of the garrison of St. Lucia in 1802.

\* Origin, Treatment, &c. of Yellow Fever, by John Holliday.—Bally, Op. Cit.



The epidemic of Leghorn, described by Tommasini and Palloni, occurred in 1804.

In 1805 it was again observed at Philadelphia, New York, &c. &c.

It carried off a great number of people at Savannah in 1808, and during the following year again extended itself to the northern and eastern states.

Another epidemic of yellow fever broke out in Gibraltar in 1810.

During the whole of this period it was *constantly* observed in the different islands of the West Indies, either sporadically or epidemically, and *occasionally*, under certain circumstances, in the cooler climates of the United States.

From 1810 to the present time, it has frequently been observed in an epidemic form in all the above-mentioned places, whilst in the different islands of the western Archipelago it is constantly seen attacking some of the newly-arrived individuals, as in Jamaica, Cuba, and St. Domingo; or else in the more favoured islands, as Barbadoes, St. Vincent's, St. Christopher's, Nevis, &c., it occurs occasionally, and generally, in the form of an epidemic.

Those who saw in these epidemics a totally new disease, attributed its extension to these different countries to contagion; and it is wonderful to observe with what jealousy the partisans of this opinion reject the idea of its origin in their own. The Grenadian refers it to Africa, the inhabitants of Demerara suppose that it was imported amongst them from Barbadoes, and the Americans have attributed it to different sources, but all foreign. The board of health of New York considered that the fever which desolated that city in 1795, was introduced by the brig Zephyr, from Port au Prince; that of Charleston was referred to Martinique; and that of New Haven to the Havannah.

It would be a useless task to attempt to prove what has never been denied, viz. that the yellow fever of the West Indies and of the continent, is the same disease, and almost as useless to show that Dr. Chisholm was in error when he stated that the fever of Grenada was not the same as that which



had frequently been seen before. But as I have an ulterior object in view, I shall continue this little abridgment of the history.

An epidemic, precisely similar to the one of 1800 and 1810, reigned in Cadiz in 1764, and was supposed to have been imported in a vessel from America.\*

The yellow fever was in Philadelphia in the year 1762, said to have been brought in a vessel from Havannah.

In 1741, it was said to have been brought from Barbadoes into the same town, in the clothes of a person who had died of the disease.

A Dr. Rexano† describes it as occurring in the same year at Malaga.

During the years 1748, 1745, 1739, and 1732, the town of Charleston, South Carolina, was ravaged by epidemics of yellow fever, supposed to have been introduced from the West Indies. §

The black vomit carried off a number of the inhabitants of Cadiz in 1730. §

Yellow fever made its appearance at Barbadoes in 1723 and 1721, for the first time, according to Dr. Warren. It committed great ravages in New York in 1702; and according to Dr. Bard,‡ arrived in a bail of cotton from St. Thomas's.

During the year 1699, Philadelphia, Charleston, Barbadoes, St. Domingo, St. Christopher, and Guadaloupe, suffered dreadfully from it. §

The Père Labat describes an epidemic which had all the characters of yellow fever, raging upon his arrival at Martinique. It was supposed to have been brought by the ship Oriflamme, from Brazil, and was called the *maladie de Siam*.

According to the Père Dutertre a plague made its appearance in that island, which had never been known before. It commenced in St. Christopher's, carried off two-thirds of the inhabitants, and was called *coup de barre*.

The first medical description which we possess of this disease, according to the talented author of the article on yellow

\* Caillot, Op. Cit. p. 190.

‡ American Museum.

† Bally.

§ Bounean and Sulpicy.



fever in the Cyclopedia of Medicine, is one by Jean Ferrara de Rosa, a Portuguese physician, written in the year 1694, and describing an epidemic which reigned in Brazil from 1687 to 1694, after the Portuguese army had made the conquest of Pernambuco. But the fact is, as Dr. Gilkrest remarks, that "owing to the state of medicine in former ages, and to the number of practitioners having been so small that the sick were not unfrequently wholly destitute of aid, the exact nature of many epidemics which reigned from time to time under the names of peste, pestilential disease, black death, yellow death, &c. has not been handed down to us."

We have no distinct account of the disease which carried off almost the entire army of Columbus, within fourteen months of the first colonization of St. Domingo, yet everything leads us to believe, say the authors of the article, *Fièvre jaune* in the *Dictionnaire des Sciences Médicales*, that it was the same as the yellow fever which is observed in the present day, inasmuch as it developed itself in similar circumstances and under the same influences.

Besides the places above enumerated, fevers, accompanied with black vomit and yellowness of the skin, have been observed in the East Indies, on the coast of Africa, almost in every place within the tropics where the conditions necessary for its existence are found. In Rome, Naples, Minorca, and even in France. Nor have these symptoms been confined to fevers of modern times. Pouppe Desportes, in his History of the Diseases of Saint Domingo, says, that "the conformity of signs which characterise the *Maladie de Siam*, with those which are found in some of the aphorisms of Hippocrates, would lead us to believe that the inhabitants of Greece and of the Archipelago were afflicted with a similar disease."

Dr. Rochoux\* quotes from the "father of medicine" the following as a remarkable passage, which he thus translates: "Lorsque la douleur des lombes se propageant à l'estomac occasionne de la fièvre, des horripilations, des vomissements ténus, aqueux; produit le délire, amène la perte de la parole, les malades succombent quant ils viennent à vomir noir."

\* Bounean and Sulpicy.



Many passages from the same sources would lead us to believe that not only were these symptoms known at this early age, but that they were neither uncommon, nor did they always occur in a sporadic form. An epidemic reigned in the island of Thasos during three months of a very hot summer, distinguished by a yellow skin and hæmorrhages from the nose. In the *Definitiones Medicæ*, attributed to Galen, immediately after the description of pestilential and typhoid fevers, comes a fever, which is called *ικτεριώδης*, from the colour of the skin.

### *Causes of Yellow Fever.*

As we have seen, the cause of yellow fever, when it occurred in an epidemic form, was attributed by many physicians at different periods to importation, and its subsequent propagation to contagion. This opinion has now very few partisans, and even at the earliest periods, the better informed amongst the practitioners who witnessed this disease, attributed it to a local origin.

Pouppè Desportes\* informs us, that the absence or presence of the *Maladie de Siam* is invariably connected with atmospheric changes produced by heat and humidity. Thus at Cap, in St. Domingo, during the years 1733-34, heavy falls of rain and excessive heat gave rise to this fever, which reigned for four months, and destroyed one-half of the seamen and newly-arrived persons. Similar causes produced the same results in 1739-40-41, & 45, whilst, on the other hand, these causes existing in a less intense degree during the years 1735-36-37-38, and 42, this disease occurred only sporadically; it was less violent, and the greater number of these persons escaped. When it raged amongst the unacclimated, the inhabitants and Creoles suffered from mild remittents, or as he calls them, *fièvres lymphatiques*. Dr. Jackson,† in speaking of the fevers which carried off the greater number of the British troops in this island during the years 1796-

\* Op. Cit.

† Advertisement to his Outline and Cure of Fever.



1797, and 1798, says, that experience has induced him to change the opinion which he formerly entertained. "Of the two (opinions) which prevailed among medical practitioners, viz. that yellow fever is only a more aggravated degree of the ordinary endemic of the country; the other, that some specific modification of cause exists, chiefly exerted upon the habit of strangers from the northern latitudes; I inclined to the latter. More extensive experience and more accurate observation convince me I was wrong—the disease is actually one, the action of the cause modified by circumstances of the subject." This cause he afterwards attributes to exhalations from the earth, which are more intense under the following circumstances. Where they arise near the sea coast—where they are accompanied by a great elevation of temperature—where they are in the neighbourhood of swamps, or where the vegetation is great, &c. The effects," he adds, "are in proportion to the concentration of the causes, and to the constitution and length of residence of the person attacked."

Cleghorn\* says that the diseases which reign in Minorca during the months of August and September change their type, and from intermittent become remittent and continued. They are then accompanied by yellowness of the skin, and evacuations, both upwards and downwards, of matter resembling coffee-grounds. The cause is local, and depends upon a particular state of the atmosphere.

Moultrie† attributed the yellow fever of Charleston to emanations from swamp and forest, accompanied by heat.

Dr. Ramsay‡ accounts for the epidemics observed in this city during the years 1799 and 1800 in a similar manner.

The occasional appearance of yellow fever in Barbadoes§ has been explained by local causes in the most satisfactory manner.

Clarke clearly proves that the epidemic which occurred in

\* Observ. on the Epid. Dis. of Minorca.

† Dis. de Febre malig. biliosa Americæ flavæ; also Gov. Drayton's View of South Carolina.

‡ New York Med. Repos.

§ Ligon, Bancroft.



Dominique during three months of the year 1793, arose under the following circumstances:—an intensity of heat, such as had not been known in that island for the preceding twenty years—the absence of the usual purifying wind, and the exhalations from marsh occurring at the time when there was a prodigious concourse of strangers in the town.

Dr. Rush attributed the epidemic which occurred in Philadelphia in 1793 to a quantity of damaged coffee; but this gentleman, as well as M. Deveze, acknowledged the existence of local causes infinitely more powerful than this; intense heat, emanations from the town and the neighbourhood, and a considerable number of strangers, particularly French emigrants.

The fever of Leghorn occurred under circumstances similar to the above.

When we examine the state of the atmosphere of Grenada at the time when the epidemic of Chisholm broke out, we find, from this gentleman's own admission, that the temperature had been for some time higher than usual. Le Blond, in speaking of the diseases of this island, tells us that a fever frequently reigns there which causes great mortality amongst the unacclimated, and that its malignancy depends upon the unhealthy exhalations of the port and town of St. George. "This town," says Mr. Hunter, "is built in a low situation, and is surrounded by marshy grounds." Dr. Bancroft mentions a large and offensive swamp at the east end of the Carenage.

In New Orleans and Vera Cruz it reigns every year sporadically. When the heat is greater than usual, and the number of unacclimated residents is considerable, it is seen in an epidemic form.

In New York, Norfolk, and Boston, it is now generally acknowledged to have arisen from causes purely local.

The different epidemics which have occurred at Gibraltar and other cities of Spain, are also now referred to local causes, both by British, French, and many Spanish physicians. Black vomit, when seen in other parts of the world, has occurred under circumstances in which great solar heat has been



combined with marshy exhalations. The ancients were perfectly acquainted with the unhealthy effects produced by malaria; and Hippocrates, and the author of the "Definitiones Medicæ," attribute the fevers in which there was observed a yellowness of the skin, or black vomit, to this cause, combined with an unusual degree of heat.

In examining history, we find that this disease, at least a fever distinguished by its peculiar characteristics, black vomit and yellow suffusion, is not of modern date, but can be traced to the remotest ages, and is seen to arise in every country in which to a high temperature are added mephitic emanations from animo-vegetable remains. Does it ever arise from any other source? In the United States and the West Indies it has been clearly proved that it does not; but in Spain this is not quite so certain.

Is it contagious? In the West Indies and America practitioners of the present day are unanimous in stating that it is not. Chervin, while in Guadaloupe, not only inoculated himself with the black vomit, but he also drank a certain quantity of it, and slept within the sheets in which patients had died from the disease, with impunity. But there is still a doubt respecting its mode of propagation in Spain. The report of the French commission, and the mass of English practitioners, it is true, have stated that its cause was local, and that it was not contagious; but M. Rochoux, and the Spanish physicians in general, considered it eminently so. This gentleman also denies that it is the same disease as that observed by him in the West Indies. He considers it a species of typhus, and has given to it the name of *typhus amarille*. It is more than probable that M. Rochoux is incorrect, but even admitting that he is not, it would only oblige us to separate the disease of Spain from that which is seen in America and the West Indies. The latter remains, as we have already stated, a disease universally acknowledged to be of local origin, and not contagious. As I have never witnessed the epidemics of Spain, I must refer those who are curious in this subject, to other sources of information.

Yellow fever, it is said, never attacks the same person twice.



This is an assertion without proof. In the West Indies a second attack is not likely to be of frequent occurrence, for obvious reasons ; nevertheless we have the statements of authors, showing that it does occur occasionally. It is also asserted that yellow fever attacks the acclimated as well as the unacclimated, the negro as well as the European, whereas the endemic in a concentrated form does not. That the acclimated person, as well as the negro, has been known to die from yellow fever in the West Indies is certain, but it is of rare occurrence, and to say that they are attacked in equal proportion with the unacclimated is nonsense. On the other hand, both the white and negro native often suffer from remittents, in a very severe form, at the time too that yellow fever is destroying the newly-arrived daily.

Having compared the symptoms, the pathological appearances, and the sources of yellow fever, with some of the cases in this book, I think we must look upon the two diseases as the same. When we refer to history, we find this disease has existed from the remotest periods, under circumstances favourable to its production, and that it is capable of assuming a variety of modifications from the country in which it exists, and from the peculiar constitutions of the persons attacked.

#### *Nature of the Endemic Fevers of St. Lucia.*

To clearly understand these diseases, we must first ascertain the causes which give rise to them, and secondly, the effects of these causes upon the economy.

The causes are solar heat and malaria ; the effects of both can only be known by experiment and observation, which in their turn teach us that the blood, the nervous system, and the gastro-enteric mucous membrane, are the principal, nay, the only parts in which the effects can be clearly observed. In short, all the diseases peculiar to a marshy country are referable to irritations of the nervous system, to affections of the blood, or to læsions of some of the abdominal organs dependent upon an irritation of the gastro-enteric mucous mem-



brane. These affections may exist independently of each other, or they may be combined.

Many late authors have placed the seat of intermittent fever in the nervous system, some supposing it to consist in an irritation of the nerves of organic, others of the nerves of animal life. The first series of the foregoing cases clearly proves that malaria may give rise to irritations which are not inflammatory of both these systems, but that these irritations are insufficient to produce fever. Where the nervous system is thus affected, unaccompanied by the læsion of some organ, we have all the phænomena of the cold stage, but there is no reaction, there is no subsequent excitement of the circulating system.

If we examine the cold stage of an intermittent, we are obliged to confess that all the phænomena observed are referable to a disordered innervation. The patient first feels a creeping chilliness down the spine, or a deadly coldness of the tips of the fingers and toes; he complains of lassitude, he gapes and stretches himself continually like a person disposed to sleep; he has severe pains shooting down the large nerves of the extremities; the coldness increases, and becomes general, the skin becomes contracted, and assumes the appearance of what is commonly called *goose-skin*: slight tremulous motions are now observed, and soon end in severe tremors, causing the bed to shake; the fingers and toes become affected with cramps, which may extend to the calves of the legs, or even to the whole body, resembling tetanus. To these symptoms may be added neuralgic affections of some particular part, the face, the heart, the intestines, &c. These symptoms, after continuing some time, may disappear and again return after a certain interval; or they may be succeeded by a hot stage. This form of disease is observable during epidemics of fever properly so called, and occurs in individuals of irritable habits. In general, after the second or third paroxysm, it is complicated with vascular irritation of some organ, sufficiently severe to excite a febrile commotion, and under these circumstances it assumes the character of genuine intermittent fever.

In general, the cause which excited the cold stage, may have produced an inflammation of some organ at the same time; for



instance, the patient may owe his symptoms to exposure to cold, and a sore-throat or catarrh may be the consequence; or still more frequently, the stomach and bowels may be irritated, and from the first the disease may observe its three periods; very frequently the local irritation precedes the cold stage a few days, and the patient suffers only from malaise, from lassitude, &c., caused by this local affection, which is not sufficiently severe to produce what is called fever. But no sooner does the cold stage make its appearance than this local affection becomes considerably augmented in consequence. During this period the blood leaves the surface, and is determined towards the cavities; the capillaries of the organ affected, as the stomach, become engorged, and inflammation succeeds to irritation. The hot stage succeeds to the cold stage. The circulation is quickened, but is more equally diffused, and the cause which temporarily determined the blood to the suffering organ having subsided, this organ is again restored to its former condition. The secretions, (particularly that of the skin,) which were suspended, diminished or deranged, are restored to health, and the patient is relieved from his suffering. In the greater number of cases, the secretion from the skin is not immediately restored to health; on the contrary, it is increased far beyond its normal degree, and the patient may with justice be said to labour under the third, or sweating stage. He is obliged to change his linen three or four times during this period; his countenance is flushed, the skin is hot, the pulse full and rapid, and the local symptoms, though very much relieved, still continue in some degree. As this stage continues, however, all these subside, and after six or eight hours the patient, though not restored to health, correctly speaking, no longer labours under any marked symptoms.

An inflammatory irritation of any organ may give rise to the second stage, but it rarely happens that the stomach itself does not sooner or later become affected, through sympathy; and for reasons already given, it is generally the original one. Therefore, as the stage of perspiration goes on, we perceive the tongue becoming moist and losing its redness; and the thirst and vomiting disappear; the patient no longer rests in a



state of supination, but changes his posture with ease, and pressure on the epigastrium ceases to give pain. The irritation seems to be transferred to the skin not by a metastasis, but as a necessary consequence of the previous excitement, for we can always form an opinion as to the profusion and duration of the perspiration by the heat and tension of the surface during the febrile stage. The excitement of the skin soon ceases, partly in consequence of the cessation of the cause, and partly from the refrigerating and soothing effects attendant upon the evaporation.

Another form of intermittent, is the one described as being unpreceded by a cold stage, and dependent upon an intermittent inflammation of some organ. The only organ, however, which when inflamed gives rise to symptoms proper to the endemic of the West Indies, is the gastro-intestinal mucous membrane.

Intermittent gastritis, or gastro-enteritis, sometimes occurs in an uncombined form, but generally a distinct and often severe cold stage is superadded, and not unfrequently a diseased condition of the blood. It is this combination which constitutes one of the worst forms of malignant intermittent; in which extensive ecchymoses and passive hæmorrhages add materially to the dangerous nature of the disease.

In all these forms of intermittent, to a gastritis, or gastro-enteritis, may be added a sympathetic irritation of some other organ, particularly of the brain, or its membranes.

When the cold stage is severe, cerebral congestion always takes place in some degree, and is occasionally found to be the cause of death, previous to the stage of reaction; or reaction may take place before the equilibrium of the cerebral circulation is re-established, and encephalitis in an acute form may be the consequence.

Such appears to me to be the only explanation which can be given of the phænomena of an intermittent fever; each case will differ from its fellows according as the local læsions, the disordered innervation, or the diseased state of the blood, may predominate.

To attribute fever, whether intermittent or continued, to a nervous irritation of the cerebro-spinal, or ganglionic system,



only, is to take a confined view of the disease, and is repulsive to our ideas of sound pathology. Are we more successful in seeking for its explanation in a diseased state of the blood?

The physicians of the present day opened an immense field of research, when they refused to rest satisfied with the explanation of many morbid phænomena by the læsions which were observed in the solids; but when some amongst them referred fever exclusively to a diseased condition of the blood, surely this was to fall into an error equally as grave, because as exclusive, as that of the solidists. Far be it from any one to doubt the *modification* which all febrile diseases assume in consequence of changes which this fluid sometimes undergoes in its vital and chemical properties; but beyond this point nothing has been proved, and everything tends to show that such a change can only produce fever by first exciting a local inflammation. The facts advanced in support of the opinion that a diseased state of the blood is the exciting cause of fever, go no further than to show, that the blood may be diseased in fever, or previously to the commencement of febrile commotion. The milk of cows, that have eaten certain vegetable poisons, has been known to destroy those persons who have drunk it. Dr. Stevens observed, that the blood of several individuals in the Genesee country was very dark in colour, and evidently deranged in its properties, sometimes previously to their being attacked with fever.

Other writers have observed that the blood of persons residing in unhealthy places has had an appearance different from that drawn from the arms of those who inhabit healthy situations. Among these individuals, some have been subsequently attacked with fever, whilst others have escaped.

In St. Lucia a diseased condition of the blood is occasionally observed without any febrile commotion whatever; and although, in certain cases of fever, as we have seen, it is dark and fluid during life, in by far the greater number it presents no changed appearance whatever, or if it do, it is that which is denominated inflammatory. When this fluid state of the blood has accompanied fever, the type most generally has been purely intermittent, for the most part



tertian; and this appearance has been as strongly marked during the intermission as during the paroxysm. That this state of the circulating mass is to be looked upon as a læsion of the utmost importance, I am ready to admit; that it frequently endows a case with a degree of malignity which it does not possess from the affection of the solids, is true; but that it is capable of producing *endemic fever* without first exciting the inflammation of an organ, has not as yet been proved, and experience leads us to a contrary opinion.

The cases of fever observable in St. Lucia are generally not quite so simple in their type as those to which I have just alluded, being for the most part either double tertian, sub-intrant, or remittent. In such cases the local irritation is more severe, and continues during the stage of apyrexia and the remission; the cold stage is less marked and of shorter continuance, the local vascular irritation predominating over the periodical derangement of the nervous system. This form includes several varieties, dependent upon the nature of the læsions, as *gastric*, *gastro-enteric*, *gastro-hepatic*, *gastro-meningeal*, &c. The blood may be as in health; it may be more florid than natural, and the coagulum be covered with a buffy coat; or it may be dark, and have more or less of a dissolved appearance.

Among unacclimated individuals, and occasionally, though rarely, among the inhabitants of the country also, the neuralgic influence is not observed, being lost in the general commotion attendant upon the violence and continuity of the inflammation of an organ or series of organs; the type is in consequence continued. Should the blood not be affected in the manner already described, this form of fever constitutes the inflammatory or gastro-inflammatory of authors. It presents, as well as the other forms, several varieties, arising from the predominance of inflammation of some particular organ over the others; as the *gastric*, the *gastro-enteric*, and the *gastro-meningeal*. In the first and second varieties, black vomit and yellow suffusion are now and then observed; in the third, the gastric symptoms are rendered indistinct, or altogether disappear, in consequence of the encephalic inflamma-



tion and its consequences. When the blood is affected in this form of fever, other symptoms are superadded; occasionally the diseased state of the blood is the most prominent feature, the læsions of the solids being less severe, and apparently of themselves insufficient to account for death, or the severity of the symptoms. The name of yellow fever has been given to varieties of this form, when accompanied by black vomit or yellowness of the skin, without reference to the condition of the blood; but if by yellow fever be meant the most malignant form of the tropical endemic, this term is with more justice attachable to that variety in which to intense gastric inflammation is added a disease of this fluid.

Such is the view which experience and reflection have caused me to take of those forms of disease which have been denominated the endemic fevers of the tropics. In objection to it it may be said, that too much stress has been laid upon an inflammatory irritation of an organ, being the point of departure of those phænomena called febrile, inasmuch as cases of *fever* have been observed, in which no læsion of any organ has been found after death. This is not the place to discuss the proximate cause of fever in general; my task is much more circumscribed, and comprises only those forms of disease which are observed to arise under the influence of the morbid agents already described. But it is contended that cases of fever have been observed in the West Indies, having all the symptoms of the endemic, in which there existed no trace of inflammation of the gastro-enteric mucous membrane. Such cases have never occurred to me, and if they have occurred at all they must have been extremely rare, if we take the collected experience of the mass of observers. Let me ask what were the appearances found after death in these cases? *The stomach contained blood, bloody mucus, or black vomit; and the mucous membrane presented patches of redness of different shades:* but admitting that in certain cases the mucous membrane has been found pale, surely we must allow that during life it was in a state of super-excitation, that it was, in short, in a state of irritation sufficiently severe to produce sympathetic constitutional disturbance, when such matters have been



found within its cavity. Neither does this paleness of the membrane tend to prove that during life the capillaries were not in a state of excitement and congestion. The redness of the skin in certain cases of erysipelas has been seen to disappear after death. Why do we not admit the possibility of a similar effect in cases of inflammatory irritation of the stomach? What were the symptoms during life? Were they not those dependent upon gastric irritation? To what other cause can we attribute the vomiting, the heat and pain in the stomach, the agitation, insatiable thirst, &c.? This paleness of the mucous membrane, however, is very rare, and when seen to occur, it has been almost invariably by those who have trusted to calomel, or other preparations of mercury, for a cure. I have already stated that this substance, taken by the mouth, appears to have a specific effect upon the gastro-enteric mucous membrane when in a state of inflammation—that it converts this tissue into a soft, greyish-coloured pulp, which at first view appears to be the healthy membrane covered with a coat of tough, greyish mucus. Is it not possible that, in some cases at least, this ramollissement has been mistaken for healthy intestine? Be this as it may, if we examine the symptoms essential to the different forms of endemic fever of St. Lucia, and combine them with the different matters found in the stomach after death, even though we should put aside the mucous membrane itself without examination, we must conclude that the only cause to which they can be referred is to an irritation of the stomach.

I have used the term *inflammatory irritation* merely because many medical men refuse to acknowledge the existence of an inflammation, unless the organ present after death unequivocal marks of structural change. I know no difference between the two, except in their degrees of intensity or duration.

The stomach has been called the centre of all the sympathies, and it is certain that there is no organ with which all the others are in such close *rappor*t as this. A very slight irritation of it is therefore sufficient to produce a febrile disturbance. In many cases this irritation of the stomach alone, or combined with secondary irritations of other organs, may



constitute the whole, or at least the greater portion, of the disease: but this is not always the case; it not unfrequently happens that the whole of the symptoms cannot be referred to this cause alone, and after death we find that the læsions of the solids are insufficient to account for this result. If under these circumstances the patient during life had, combined with the febrile symptoms, hæmorrhages from one or other tissue, sanguineous extravasations, &c., we shall find the principal læsion most probably in the blood.

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## CHAPTER VIII.

### TREATMENT.

THE treatment of these diseases has been as various as the opinions respecting their nature. The earlier physicians, both Spanish and French, who practised in these countries, brought up in schools where the doctrine of Hippocrates was taught, or served as the basis for any fanciful hypothesis of the times, saw in the different states of diarrhœa, perspiration, vomiting, or hæmorrhage, a tendency to crisis, and this they attempted to assist, or produce, by bleeding, by purgation, emetics, diaphoretics, &c.

As humoralism became the fashion of the day, these diseases were supposed to depend upon a putrescency of the humours, and the treatment was conducted accordingly. For the first time we now find the introduction of tonics and antiseptics in large and frequent doses into general practice within the tropics. And about this period also the cinchona was discovered, or at least its discovery became generally known, and its extraordinary, and in some cases apparently miraculous, effects were thus explained. It was given in all forms of fever, either alone or in conjunction with stimulants, or supposed antiseptics, with camphor, musk, ammonia, wine and spirituous distillations, the vegetable and mineral acids, &c. &c.



Towards the middle of the last century, when solidism succeeded to humoralism, when the strongly-contested battles between asthenia and spasm of the extreme vessels raged in the schools, these diseases were far too important to escape notice, and the West Indies became a field in which the Cullenist and Brownist contended for a time with nearly equal success; the former, however, with an advantage which his opponent did not possess. For his treatment was, at least, as new as his theory, while that of the latter consisted of the remedies which had been already employed by the humoralist, though with a different object. The disciple of Brown, thus driven to the wall, retained, with a firmness heightened by opposition, the doctrine of his master, at the same time that he followed the treatment of his adversary, or combined the two, according to his caprice or his fancy.

The failure of Rasori in the treatment of the epidemic of Genoa by means of tonics, and the consequent promulgation of his doctrine of contra-stimulation, gave the *coup de grace* to Brownism in the West Indies. These new opinions never found any partisans in this part of the world, at least among the British, but they tended not a little to extend the Cullenian treatment, and to render it more stable. Antimonials were freely administered, either with a view of relaxing the spasm of the extreme vessels, or to produce vomiting.

The treatment of the school of Cullen not being found more successful than that of the others, a new one was not long in making its appearance. This was the famous mercurial plan. By whom it was first introduced I know not, most probably by several at the same time. It soon, however, became the popular, nay, the universal treatment, and the patient was considered saved if salivation could be induced. Such was the infatuation at the time, that medical men could not, or would not, see a fatal case in which this medicine had, according to their ideas, been properly given; and if a solitary and more cautious individual protested against such treatment as generally more baneful than beneficial, contempt and ridicule attended his objections; or if his rank and medical acquirements created for him a respect in the other departments of



his profession, he was in this considered too timid and pusillanimous. The cases he related died for *want* of mercury; they died before the necessary quantity was taken by the mouth, or rubbed into the skin.

One of the most singular circumstances attending this plan of treatment, was its being pursued by men of all schools and of all opinions, as well as by many who had no opinion whatever. It was given to oxygenate or decarbonize the blood by some, by others to destroy the particular virus which existed in the constitution, and gave rise to the symptoms; by a third party, who considered the liver as the peccant organ, to perform some extraordinary and incomprehensible effect, which had for its end the restoration of the functions of this organ; by a fourth, to alter the secretions, which they supposed were the grand source of the mischief, whilst many honestly confessed they knew nothing about its *modus operandi*, and gave it because it was the fashion, or because they knew nothing better to be done. In India, calomel in large doses has been supposed to operate as a powerful sedative on the inflamed stomach.

Among the champions of mercury Dr. Chisholm holds the highest rank; not that his work bears a higher value than those of others who have written on this subject, but because this gentleman, more than any other person, had the merit, or the contrary, of attempting to give it a fame which it did not before possess, of endowing it with a panaceal property, of making it, in short, the Morison's pills of the day. In catarrh, in rheumatism, in intermittent, remittent, and continued fevers, in the fever of Bulam, in dysentery, it was employed indiscriminately, and always with the same success. What that success was we will now examine.

Fifty-six artillery men, out of a garrison of eighty-four, were attacked with remittent fever; they were treated with mercury, administered internally and externally; only five of this number died,—a proportion of one in eleven. These men had been three years in the West Indies, consequently acclimated. Under these circumstances, the proportion of deaths to recoveries is infinitely greater than what occurs when the



disease is left entirely to itself, the treatment consisting of abstinence and demulcent drinks. But what can be said of the following? Twenty-seven men, newly arrived from Europe, were landed at Grenada; twenty-six were seized with fever; the mercurial plan was adopted, as in the former cases, and out of this number twenty-one perished. Not even in the annals of the cholera do we meet with such a frightful mortality. After reading the works of Dr. Chisholm, and other medical men of reputation, on the employment of mercury in these diseases, I thought it right, as a duty due to myself and to the profession, to compare this plan of treatment with others. I therefore chose six cases in succession: two only were Europeans, the others were Creoles, either of St. Lucia or of the neighbouring islands. The type was remittent, the gastric symptoms pronounced; but in none of the cases was there the slightest ground to suppose that the disease would terminate fatally. In three the age was below twenty, in the others between twenty and thirty. Four of them were attended by Dr. Chevalier, in conjunction with myself, and in two Dr. Levacher, now in Paris, assisted me. The calomel was given, sometimes in doses of ten or twelve grains, repeated thrice a-day, but in general the doses were smaller and more frequently repeated. Frictions of mercurial ointment were made on the inside of the thighs and arms. Ptyalism took place in the whole six; one recovered and was convalescent on the sixth day, suffering from no other symptoms than excessive salivation and weakness; a second was seized with diarrhœa; the tongue became brown and dry; he had severe griping, intense fever, and we were obliged to change the treatment on the fourth day; he ultimately recovered. The four others died on the fifth and sixth day,—three with inflammation, and softening of the gastro-enteric mucous membrane, and one with grey softening of this tissue.

Had these patients been submitted to a rational treatment, I am convinced the whole of them would have recovered.

Cold affusion, as elsewhere, has met with its admirers in the west. In general it was combined with other measures, and to this day we see it occasionally used, and sometimes



with benefit. Dr. Jackson's plan was a singular modification of the one recommended by Dr. Currie. He generally employed what he called the warm and cold bathing, or putting his patient into a warm and cold bath alternately. Land carriage with him was also a favourite remedial agent. I cannot speak from my own experience of the efficacy of these means; but, as I have just said, there are cases in which the cold affusion is of considerable benefit. I have oftener than once known a bucket or two of cold water poured upon a patient, followed by profuse diaphoresis and temporary apyrexia.

Up to this period the practice of the French physicians was as unsuccessful as that of their English *confrères*, though perhaps not quite so empirical;—Pouppé Desportes, who practised about a century ago, in St. Domingo, is the first physician of that nation whose writings deserve attention. He describes the læsions usually found in these diseases, which he considers as the result of a poison introduced into the economy; capable of concentrating its action on the internal organs, and producing a kind of gangrene. The opinions of this author principally formed the basis of the therapeutics of his successors, until the publication of the “*Nosographie Philosophique*” of Pinel, when yellow fever became classed amongst the *fièvres adynamiques* of this author, and ultimately in the French West Indies acquired the euphonic appellation of *typhus miasmaticque, ataxique, putride jaune*. The treatment, however, was little changed, consisting as it had done of bleeding, of warm-bathing, demulcent drinks, or tisannes, combined with tonics, and mild purgatives, modified according to the views of each practitioner. When intermission was marked, the administration of a draught composed of cinchona in powder, glauher salts, and tartar emetic, was resorted to.

Such were the principal modes of treatment amongst the British and French up to a very late period.

As the doctrine of the *Ecole Physiologique* acquired celebrity, and, gradually extending itself, arrived at the shores of Martinique and Guadaloupe, a revolution, slow at first, but which in a certain time became general, took place in the opinion of medical men respecting the nature of these diseases



and their treatment. Between the years 1816 and 1820, these islands were visited by Drs. Chervin and Rochoux, who, with a zeal rarely seen in that part of the world, put yellow fever to the test of a severe and scientific examination. The bodies of those who died were opened, the state of the viscera ascertained, a comparison was drawn between the symptoms and the nature of the læsion, and a pathological explanation offered of the nature of the disease.

Since this period the Broussain doctrine, in a form more or less pure, has attained a footing in most of these islands, and has entered into the treatment of both French and English physicians. Being occasionally combined with the external use of tonics, (as rubbing the body with the tincture of bark, applying bark poultices to the epigastrium; frictions with the sulphate of quinine, &c., by the former,) or with purgatives, mercury in different forms, and the cold affusion by the latter. By both, the sulphate of quinine is administered when the disease presents evident and well-marked intermissions.

Lately, Dr. Stevens has considered all the West Indian fevers, whether arising from marsh, from solar heat, or from contagion, as being essentially caused by a diseased state of the blood consequent upon a deficiency in its saline constituents. This opinion, as far as I know, is confined to a few practitioners in the island of St. Thomas, nor is it likely, I think, for evident reasons, to become more general.

### *The Rational Treatment.*

Those who expect that any one plan of treatment will succeed in all cases of fever which may come before them, will find themselves cruelly disappointed; a treatment that in one case would in a short time place the patient out of danger, would, if resorted to in another, hasten and assist a fatal termination. That this may be better understood, it becomes necessary to reflect on the different modes in which the cause is capable of affecting the constitution, and the simplicity or complexity of the cause itself. If malaria in a concentrated form be the exciting cause, a train of symptoms will be observed,



most probably different from those found in cases where it has been merely the predisposing one. When it has produced its effects principally upon the blood, we must expect to find the symptoms different from those observed in an intense inflammation of the stomach, generated under a greater complexity of causes. If the nervous system be affected, periodical exacerbation and remission will succeed each other at equal periods. All these phænomena may be more or less combined in a single case, and in proportion as one or the other is found to predominate shall we have minute differences or shades in the character and features of each which it would be impossible to describe, but which show the necessity for some kind of arrangement if we wish to have a knowledge of the treatment.

*Treatment of Febricula Fièvre lente ; Feverishness.*

This state is very common in St. Lucia, and is not unfrequently exasperated from the treatment resorted to. It may be dependent upon a variety of causes, upon slight irritation of any organ, as from catarrh, sore throat, bronchial irritation, irritation of the gastro-hepatic system, &c., or from organic affections of different kinds, more particularly of the liver and spleen: to effect a cure we must first ascertain the cause, and in those cases which come under the head of endemic fevers of the West Indies, the cause will always be found in the gastro-intestinal mucous membrane. Generally the symptoms are intermittent, commencing in the morning and terminating towards evening, and on this account the disease itself has been supposed by many to be caused by solar heat: this agent, they say, stimulates and irritates the circulating mass, causes derangement in the secretions, and an unnatural excitement of the heart and capillaries. This opinion is contradicted by observation, and has given rise to errors in treatment. Our object is to get rid of the slight irritation of the stomach by confining the patient for a day or two to mild demulcent fluids, which are digested without difficulty, to panada, to arrowroot, and milk, &c. We solicit the blood to the surface of the



body, and allay the heat of the skin by tepid baths, and we prevent the return of the paroxysms by small doses of the sulphate of quinine given early in the morning, and repeated in the course of three or four hours. The patient should take moderate exercise, particularly on horseback, during the cooler periods of the day. When the paroxysm has subsided, he should pay attention to his bowels, live regularly, and above all things retire to bed at an early hour, and avoid excesses both of the table and those of a more sensual description. The use of the quinine should be continued for at least a week, given every morning in a cup of coffee to the extent of two or three grains. In most of these cases there is more or less of irritation of the liver superadded, which may oblige us to have recourse to leeches to the anus; to an emetic, or to two or three doses of calomel, followed by castor oil, or senna and salts, in conjunction with the proper diet and the quinine. When *febricula* is the consequence of chronic disease of some organ, this must be removed before we can expect a cure; but as this does not form a part of our subject, I merely mention it and shall pass to

*The treatment of Intermittents in their pure Form.*

In this form of fever we have two indications to accomplish; the first being to combat the accidents as they arise in the course of the paroxysm, the second to prevent a return. During the cold stage different symptoms may arise, which though they be not usually so severe as to require any particular attention, disappearing as they do when the warmth of the surface is restored and the circulation is more regularly diffused, yet are occasionally very distressing, and are known now and then to produce death. These symptoms are of two kinds, one depending upon disordered innervation, and confined to the nervous system, as neuralgic pains, cramps, convulsive twitchings of the limbs, palpitation and irregular action of the heart, hysterical attacks, &c.; the other arising from the state of the circulation, and produced by congestion of some



organ of importance, most frequently of the brain, now and then of the lungs.

As congestion of the internal organs always exists to a certain extent, during the cold stage of an intermittent, we invariably find symptoms which correspond to it. The patient is drowsy and the respiration heavy and laborious: these symptoms therefore may be considered as essentially belonging to ague, and do not form cause for the employment of any particular means for their removal; but should they increase, should the patient become apoplectic, or should the stupor be profound and accompanied with convulsions, should the difficulty of breathing be considerable and threaten suffocation, or be performed only in a sitting posture, should the sub-crepitating râle be diffused over both lungs, and the sound on percussion be duller than usual, we must resort to prompt and energetic measures—to bleeding from the arm, carried to an extent proportionate to the urgency of the symptoms and the strength of the constitution, to cupping near the organ affected, to revulsive means, as glysters, mustard plaisters, &c.

Congestion is not confined to the brain and lungs, the viscera of the abdomen are as frequently engorged as those of the other cavities. In the latter case, we do not so easily get rid of the congestion, when it has once taken place, for reasons which are obvious, when we think one moment upon the peculiarity of this branch of the circulation. As it is not attended with urgent symptoms or immediate danger, we are rarely required to deviate from the usual method of treatment on this account; but we must not lose sight of it, as it is owing to the engorged state of the abdominal organs, that the length and violence of the hot stage is to be frequently attributed. The same cause which produced the cold stage produces at the same time, in the greater number of cases, irritation of the gastro-enteritic mucous membrane; and we can easily understand how this irritation is augmented by the engorgement of the capillaries of this tissue consequent upon congestion of the system of the vena porta; enlargement of the spleen and hepatic derangements, which accompany so many inter-



mittents are referable to this state of the abdominal circulation in many if not in most instances. With the above exceptions, we generally allow the disease to run through the cold stage with little or no interference on our part; the bulk of our treatment consisting in confining the patient to his bed with the head somewhat raised, an additional blanket or two is thrown over him, or if the sensation of cold be great, bottles of hot water are applied to his feet, and he is allowed to drink plentifully of warm demulcent tisanes. When the neuralgic symptoms are severe we may have recourse to anodynes, but we should avoid them as much as possible. In some of the very mildest forms of ague where the hot stage is slight, of short continuance, and unaccompanied by marked symptoms of local inflammation, a stimulating treatment during the cold stage has either put an end to the paroxysm, or produced at once the sweating stage. The medicines usually employed have consisted of laudanum, of epicacuanha and opium, spirits of mindererus, with excess of ammonia, hot brandy and water, sangaree, punch containing a large quantity of capsicum, &c. This method of treatment has succeeded to my knowledge in some instances, but those who have recommended it have not informed us of the rarity of its success, and of the evils which have arisen when this success has not taken place. I have known cases so mild as to confine the patient to his chamber for the short period of four or five hours only every second day, become so severe from the use of the pepper-punch as to put the patient's life into jeopardy. I do not mean that a cautious medical man is *never* to prescribe stimulants during the cold stage. When the neuralgic symptoms are severe and of long continuance, when the hot stage resembles more an interval of reaction preceding the perspiration which follows than a stage of fever, when the cold stage commences and terminates the paroxysm, stimulants may be useful; but even under these circumstances, they are not to be preferred to anodynes or antispasmodics properly so called. As the hot stage succeeds the cold, another class of symptoms makes its appearance, which can always be traced to a local læsion. In the cases which occupy us this læsion is found to be in the gas-



tro-intestinal mucous membrane ; but others are frequently complicated with it, as inflammation of the meninges of the lungs, or their connexions, &c. During this stage our indications are confined to the subjugation of these local affections, but as they do not continue long, as at the most a few hours will see their termination, we content ourselves with more simple means than we should make use of under other circumstances. Should the local symptoms have increased in violence in each succeeding paroxysm, so as, at the time of our visiting the patient, to threaten a change of type, we must subdue them by the best means in our power. We ascertain the organ which is most suffering, and we endeavour to put a stop to the morbid action which is going forward in it. Should this be the stomach, we draw blood from the arm, or, what is better, apply fifteen or twenty leeches to the epigastrium : we foment the abdomen with flannels, steeped in hot water, and well wrung out ; we administer emollient glysters, and continue these measures until intermission has taken place. Occasionally a tepid bath is useful, and I have now and then seen cold effusions of service where the skin has been very hot and dry. If the head be affected, we bleed from the arm, apply leeches behind the ears, cup the temples, apply evaporating lotions to the scalp, administer a foot-bath, and, if we can, a purgative of calomel, or calomel and colocynth : sometimes the cause of the prolongation is found in the irritation of the liver, and the patient is tormented with what has been called bilious symptoms ; these may be relieved by a gentle emetic, followed by a purge. When perspiration commences we encourage it as much as possible, and during the intermission we resort to the use of the sulphate of quinine to prevent a return of the paroxysm.

It does not generally happen that any treatment is necessary for the milder cases during the paroxysm, and it is much better to defer our remedial applications until intermission has taken place, if we can do so with prudence. Should we then find that any uneasiness of the stomach or congestion of the liver exists, we can give an emetic and a purge during the first twelve hours, and afterwards resort to the quinine, that is,



if the type be simple tertian. Should it be quotidian or double tertian, the intermission is too short, and is fully occupied in giving the quinine. When the liver is *considerably* engorged, instead of an emetic, we apply a few leeches to the anus, and place the patient in a hip-bath. The effects of an emetic are aided greatly by the free use of sub-acid drinks, such as lemonade or sour orange beverage, taken a few hours before its administration. The action of vegetable acids on the liver is extraordinarily powerful in warm climates, promoting at first an increased secretion of bile, and when persisted in for some time they frequently produce jaundice.

Though by the use of the quinine the paroxysms cease for the time, they are sometimes seen to return at stated periods, generally on the seventh, the fourteenth, or the twenty-first day. The same means which we employed to cut short the disease must again be had recourse to a few days before the expected period of its return. The state of the abdominal organs should be attended to also, for in almost all such cases there will be found something wrong in one or more of them. By the above mode of treatment I have never had any difficulty in effecting a cure, and therefore have never had recourse to other means. Should the disease be obstinate we may resort to the use of some of the remedies which have been recommended at different times in the treatment of ague, having care to give the preference to those which are least pernicious.

*Treatment of those Intermittents in which blood is found diseased.*

Besides the læsions and symptoms which have been described in the above forms of fevers, we have, in the one before us, others, which owe their rise, in a great part at least, to a decomposed state of the blood, and to correct this is an indication of cure which is superadded to those described above. This state of the blood sometimes, but not generally, exists almost from the commencement of the attack, and bestows upon these cases a pernicious and malignant character. When it arises from the introduction of malaria in a concentrated form



into the economy, the first paroxysm has been known to terminate in death—this is of very rare occurrence, it is true, but it is nevertheless as true that the greater number of such cases, if not checked, will have a fatal conclusion at the end of the third. Other læsions, besides this diseased state of the blood, unite in rendering these cases exceedingly dangerous, viz. inflammation of the stomach, the meninges, &c. &c. It would appear that these inflammations are increased by the condition of the whole circulating mass, a condition favourable to the production of congestion in the different cavities. We therefore meet with cerebral and pulmonary congestions in the cold stage of intermittents of this kind oftener than in the former; they are also more intense, and removed with greater difficulty, sometimes continuing in spite of all our endeavours until the close of the paroxysm. As far as regards local congestions or inflammations, our treatment is the same as that recommended in the last form. We draw blood from the arm, should it be necessary, or from the neighbourhood of the parts, from behind the ears, from the chest, from the epigastrium or anus, and resort to revulsive means. Large bleedings are seldom of much use, and we should not repeat them unless the symptoms urgently demand it: when they do not relieve the congestion or inflammation they generally do harm. Warm fomentations to the abdomen are useful, both in relieving the irritation of the stomach and all the gastric symptoms, and by promoting perspiration. When the paroxysm has subsided we commence the quinine, and give it in large doses; we do not wait until the patient perspires profusely, but as soon as the skin becomes uniformly moist—for we are never certain in these cases of the duration of the intermission, and the next paroxysm might prove fatal.

Not only is the next paroxysm to be prevented, but we have also to act upon the blood, for we are not sure of our patient until a change in the condition of this fluid has taken place. In many cases the blood gradually recovers its former properties and qualities, without the interference of art, further than by checking the course of the fever; but in such circumstances relapse is liable to take place at any moment;



and certainly the patient cannot be said to be cured. I need not say that quinine alone is incapable of effecting this object; this salt has a powerful action upon the nervous system, it produces singing in the ears, deafness, convulsive twitchings of the muscles and perspiration, often cold sweats. It is an antiperiodic, but has no effect upon the blood itself. In these cases the bark in powder would be better than its salt, except that the stomach would not bear it; we are therefore obliged to introduce its tonic principle into the economy in other ways. We unite the extract of cinchona with the quinine, if the state of the stomach will admit of it; if not, we administer barks composed of decoction of the bark of the country, and bay leaves, administering the quinine by the mouth. Under this treatment, modified according to circumstances, our object will soon be attained. I have known the blood, which has been fluid, when drawn from a vein previously to these means being adopted, become in a short time after the use of the bark glysters or baths, somewhat plastic and tenacious, and coagulate tolerably firmly. We often meet with disappointment in these cases.

If after a short intermission, another paroxysm comes on, we have all our work to do over again. To ascertain the duration of this second paroxysm, we divide the whole interval, or forty-eight hours, by three, which gives sixteen—as two paroxysms occur, the period which they will most probably occupy, will be thirty-two hours, and the intermissions sixteen; we therefore, by the length of the first intermission, can reckon upon the length of the second, or the time when the second paroxysm will terminate. This rule has many exceptions, but by practice enabling us to correct it in different cases, we shall generally find it applicable to this kind of double tertian. The quantity of quinine given during the intermission should not be less than thirty-six grains, administered in doses of four or five grains each, or larger if we wish to affect the system rapidly. It should be given in solution, or in substance, but never in pills, as it is apt to pass undissolved through the intestines. Should it be found to irritate the stomach it must be administered in glysters, or by



rubbing it into the skin. When deafness is produced we diminish the dose and lengthen the interval, contenting ourselves by keeping up this effect for eight or ten hours beyond the period when the next paroxysm should return. In those persons who, from peculiarity of constitution, cannot bear it in a pure form, it must be combined with extract of opium, or morphine, or, in hysterical females, with assafoetida.

*Treatment of intermittent Inflammation.*

This differs in no respect from that employed in the continued forms of these diseases, except as regards the means to be used for the prevention of their return, which consists in the administration of the sulphate of quinine during the intermission.

*Treatment of Fevers of a Remittent or Subintrant type.  
Inflammatory Remittents.*

These diseases differ from those of an intermittent type, only in this, that the inflammation of the organ or organs, be it more or less severe, is always continued whilst the irritation of the cerebro-spinal nervous system, which exists at the same time, is intermittent. The result produced is a regular succession of exacerbation and remission, though complete intermission is never observed. The object we have in view in effecting a cure is to reduce the inflammation, and allow an intermission to take place; on failing in this, to produce so near an approach to it as to allow of the administration of those remedies most proper to prevent another exacerbation. As this inflammation is always found in the stomach we apply hot flannels, or rather flannels wrung out in a decoction of mucilaginous herbs, to the abdomen. We administer emollient glysters, we put the patient on a severe and strict diet, allowing him nothing but demulcent drinks. If these means be not sufficient we bleed from the arm, apply leeches to the epigastrium, make use of tepid baths, &c. When other organs are likewise affected, as the meninges, the lungs, the bronchi,



the enteric mucous membrane, we repeat the bleeding as often as may be necessary; we leech or cup the parts in the neighbourhood; we resort to revulsive means, we give a gentle purge if it should not be counter-indicated by the state of the stomach or intestinal canal. In every case the state of the different cavities should be attended to, as it sometimes happens that irritation of some organ which has been overlooked is keeping up the fever; and as affections of the lungs are often very insidious, we should examine the chest carefully. When, in spite of all our efforts, should the inflammation persist and the type become continued, we employ the means recommended in that form of fever. Should we succeed in our design, and intermission take place, the quinine should be administered in the same way, and with the same precautions as already mentioned.

In general, however, the disease continues remittent, though the remissions may be more pronounced and approach nearer to intermission. The question, under these circumstances, which presents itself to us, is the following. Seeing that it is the character of these diseases not only to subside at certain times, but also with the same certainty to return, can we employ such remedies as will prevent this constant return of the exacerbations? Or if we employ them, will not their administration, by increasing the inflammation of the organs, tend to make the disease continue? We can only answer this question by referring to the state of the organs at the time, and to the period when we wish to employ these means. I confess that now and then I have seen the improper and untimely administration of antiperiodics followed by an increase of the violence of the disease, but still I can affirm that, when such result has been observed, the medicines were not wisely given. Before the discovery of quinine a great number of these cases terminated fatally; the remedies given either augmenting the inflammation, or the disease being allowed to run its course without interruption, organ after organ became affected, and the patient not unfrequently succumbed to the numerous complications. The cinchona in powder is inadmissible; its employment would tend to increase the already



existing irritation to a tenfold degree if given in doses sufficient to produce an antiperiodic effect. The sulphate of quinine, on the contrary, is much less likely to irritate these organs, and so far from increasing the inflammation, it frequently seems to remove it. When so desirable a result as this takes place, we must remark, that the remission has occurred at a proper period, &c. This latter occurrence, though it would strengthen our desire to administer this salt, must not confine us to this particular time, as from a well-directed treatment a remission may take place out of its regular period. Therefore I have always made it a rule to commence the quinine as soon as the local inflammation was sufficiently mitigated to enable me to do so—when the skin became moist and the thirst less urgent; and under its influence, I have known profuse perspiration come on, and the patient to become apyretic, with scarcely any local affection in a few hours. It is always desirable to combat as much as we can the local inflammation; but it sometimes happens that each succeeding paroxysm becomes more violent than its predecessor, and if the chain be not broken, death may ensue. In some of these cases I have known the hardy and hap-hazard administration of the quinine effect a cure, though in a great number of such cases it augments the evil. When the stomach does not bear this salt easily I give it in glysters, or administer it by the skin; and I think that this is the best method, as we run less risk of augmenting the inflammation. Sometimes the rectum is irritable, and the skin torpid, and absorption does not take place easily in either manner. Should the disease not give way, we must continue our antiphlogistic treatment. When the meninges are affected, the temporal artery, or external jugular vein, may be opened. A purgative may be given if the stomach will admit of it, and the best is a dose of calomel, as it sits more easily from its small bulk and great weight: but purgation is an exception to the general rule, and should not be had recourse to except for some evident and really good purpose, never with an idea of altering the secretions into the intestinal canal which are unhealthy, for the parts themselves are inflamed, and by curing the one we



alter the other, but not by irritating purgatives. In some cases the intestinal canal is distended with flatus. I have known medical men fancy that this distention was produced by fæcal matter, and that by getting rid of it, they would cure the disease. This is a dreadful mistake, and fatal results have often followed it. If at the *commencement* of the disease the bowels should be loaded, we may advantageously employ a gentle purgative, and relieve them. Cold applications to the scalp are necessary and very agreeable to the patient: when the head is affected we should be careful of warm-bathing in these cases; or if we have recourse to it the head should be covered with clothes dipped in some refrigerating lotion, which should be kept constantly applied. When the lungs are affected we resort to a treatment which has for its view the combating this læsion, never forgetting that the primitive inflammation is in the stomach. When the skin is very hot and dry, and the face flushed, cold affusion is a good adjunct, and often greatly relieves the patient; but it must not be employed when there is any indication to the contrary.

#### *Treatment of Bilious Remittent.*

I confine this name to cases of the above class in which the bilious symptoms are very much pronounced, in which the patient is constantly tormented by nausea, and the vomiting of yellow bile, in which the tongue is covered with a yellow mucus, and there is a bitter taste in the mouth, and in which the urine is yellow, and there is a dull obtuse uneasiness, and some distention of the right hypochondrium, &c. In these cases the irritation of the stomach has extended itself to the liver, and is seldom so great as in the above forms. The liver is engorged with blood, and a quantity of yellow bile; and our indication is to set the circulation right. When bronchial irritation exists in this form of remittent, the sputa are often yellow, and the disease has received the name of bilious bronchitis, a name which should be exploded. These cases often require two modes of treatment. When the irri-



tation of the liver is considerable, and amounts to hepatitis, bleeding from the arm may be required, and it may be necessary to repeat it more than once. Leeches must be applied to the anus, and frictions of mercurial ointment made over the side; or if this be too painful, into the thighs. These are the cases in which this medicine becomes necessary, and in many such, if we do not have recourse to its employment, the parenchyma becomes softened, and infiltrated with purulent matter. These cases, however, approach more nearly to pure hepatitis; the læsions are seldom so severe in cases of bilious remittent. In the latter, the engorgement is not what can be properly considered inflammatory, nor does it become so until the disease is somewhat advanced. The employment of mercury, therefore, would be useless, and even hurtful; besides, we have means much more simple and prompt in their action. We give the patient a warm bath, and let him remain in it an hour; we apply leeches to the anus, should it be necessary, (which it rarely is in the cases to which I allude,) we encourage him to drink plentifully of tamarind or sour orange beverage, until the tongue becomes white, retaining its yellow coat at the base, that is, for twelve or eighteen hours. We then give three or four grains of tartar emetic in four doses every quarter of an hour; the emetic should be followed by a smart purge of castor-oil, or any other medicine we may think proper, as soon as the stomach is capable of bearing it; and in almost every instance a cure is thus effected. Care must be taken, however, to change the patient's drink after the emetic from acid tisannes to barley-water, or sugar and water, or to anything demulcent. Should another paroxysm occur we resort to the means already mentioned, and administer the quinine when intermission shall have again taken place. It becomes necessary to distinguish correctly between these two forms of bilious remittent, for though they differ only in the degree in which the liver is affected, yet that difference is of the utmost importance in our treatment. Now and then this is difficult, and in these circumstances we should either resort to the treatment recommended in the former, or at least the emetic should be preceded by a blood-letting from the arm, or, still better, from the anus.



*Treatment of Remittents in which the blood is diseased.*

Superadded to the indications which present themselves to us in the other forms of remittent fevers, we have here to combat a diseased state of the blood. In this form blood-letting is rarely called for, and when it becomes necessary we practice it with caution, preferring one tolerably large bleeding to several small ones, and confining it to the first forty-eight hours. This, it must be remarked, is a general rule to which, of course, there are numerous exceptions. The application of leeches has in general the preference, but they are attended with considerable inconvenience, the bleeding being often extremely difficult to stop; and though I have never witnessed a fatal hæmorrhage from this cause, I have seen it now and then so great, and to enfeeble the patient to such a degree, as to assist in producing a fatal termination. Our chief indication is to correct by all means in our power this diseased state of the blood, which we do by the administration of tonics externally and internally, regarding the læsions of the solids as secondary. We do not wait for remission, but we at once put the patient into a warm-bath, composed of the decoction of the country bark, and leaves of the pimento-tree. We administer the red and yellow bark in glyster, as it would be immediately rejected by the mouth. We apply poultices of emollient herbs, combined with powdered bark, to the abdomen, or we constantly foment this region with a strong decoction of cinchona. When the membranes of the brain are affected, we apply blisters between the shoulders and sinapisms to the calves of the legs; but occasionally we must resort to the use of leeches behind the ears or the inside of the septum nasi. If we succeed in procuring a long and well-marked remission, or, still better, an intermission, we administer the sulphate of quinine in doses of six or eight grains. When a purgative is necessary we give the preference to calomel for obvious reasons.



*Treatment of Continued Fevers.—Continued Inflammatory Fever.*

This disease has been described under many names besides the one given to it here. It has been called gastritis, gastro-enteritis, gastro-meningitis, gastro-enterite inflammatoire, inflammatory yellow fever, &c., according to the symptoms which have presented themselves to different observers. The gastric symptoms are always severe unless hid by inflammation of some part of the encephalon, and as the meninges are affected in nearly half the cases, it is not uncommon to observe the apparent disappearance of the former after the first forty-eight hours, sometimes earlier; a disappearance which indeed is only apparent, and which will not be overlooked, except by those unacquainted with this form of fever. It terminates fatally, generally, on the fifth or seventh day, sometimes on the ninth; but when it continues beyond this period, the patient in all probability will recover. After death the blood is firmly coagulated in the large vessels, and clots of colourless fibrine are generally found in one or both cavities of the heart. The patient is often yellow immediately before death, and sometimes either black vomit or coagulated blood is found in the stomach, rarely, however, the former. The cause of death is found in the læsions of organs. The mucous membrane of the stomach is always affected, sometimes that of the small intestines, and often a meningitis is superadded. The gall-bladder, the lungs, or the kidneys, and, though very seldom, the liver, may be complicated. The fever attending these inflammations is sometimes ardent, at other times the skin is cold, except over the epigastrium, where it is always, or nearly always, intensely hot. Our indications are very simple, having for their object the subjugation of the inflammation. But when we recollect that this inflammation exists in organs essential to life, and in which active disease cannot continue very long without destroying or impairing their functions—that the stomach, which has been called the centre of all the sympathies, cannot suffer long without life being extinguished, we see that our mea-



tures must be both prompt and energetic. And we must lay it down as a rule, that if acute inflammation of the stomach has existed forty-eight hours, all the arts of the physician are of little avail, whereas if we see these cases at the commencement, we can prevent death in the great majority. We bleed largely, to the extent of  $\bar{3}$ xxx, more or less, according to the constitution of the patient; we place him in a tepid bath, and return in about a couple of hours; (assiduity is the sheet-anchor). If the patient has vomited during the interval, if there remain the slightest pain on pressing the epigastrium, if the head be not relieved, or if there be any sense of heat and burning in the stomach, we repeat our bleeding; we then apply leeches to the epigastrium, should they be necessary; but in general if any gastric affection remain after the second bleeding towards the close of the first twenty-four hours, we repeat it a third time, and apply the leeches afterwards. During this period we confine the patient to strict abstinence from everything but his beverage, which we leave to his choice, except that it must not be acidulated in the slightest degree, but bland and mucilaginous. Every one who has practised in the West Indies, is aware that there is nothing which excites vomiting, and promotes a rapid secretion of bile, more than sub-acid drinks. (This is a fact which every old woman knows, and each person may explain it after his own fancy.)

They must therefore be avoided if we wish to save our patient. We foment the abdomen constantly; we leech the temples or back of the ears, and apply cold to the head if this part shows symptoms of irritation. By these means, within forty-eight hours from the commencement, either the disease is vanquished, or a complete intermission takes place in nineteen cases out of twenty. If the disease does not become periodic we have little more to do. We keep the patient on barley-water a short time longer, then exchange this for arrow-root and milk; then a little soup is given, until he is fairly advanced into convalescence, when we gradually allow him to return to his former food. When the disease puts on an intermittent type, the next paroxysm is in general very



slight, and the use of quinine afterwards effects a cure. It does not always happen that the disease is conquered so easily; the symptoms, on the contrary, sometimes continue; the patient is as ill on the third day as he was before. We then, by comparing the obstinacy of the symptoms with the active measures employed, prognosticate a fatal result, in spite of everything we can do. But we must always bear in mind this comparison, because the disease may continue either in consequence of our efforts not having been sufficiently energetic, or because we have combined them with others which have counteracted the good effects which we might have otherwise obtained—I mean calomel and purgatives. The British practitioner is haunted with these medicines; he is often nervous and fretful if he has not removed the constipation which is occasionally almost invincible by the whole class of purgatives, and only gives way with the disease. He thinks one dose of calomel, at least, should be tried; it can do no harm, he says; but it does do harm, and not unfrequently has turned the scale in the wrong direction. If, therefore, any of these reasons have prevented the patient from feeling relief on the third day, we must act accordingly; if he require bleeding from the arm, we must bleed him, but local bleeding is now preferable; forty or fifty leeches should be applied to the stomach, and repeated as often as necessary; fomentations should be kept constantly on the abdomen, the flannels piled up if the patient can bear them, if not, warm-baths may be substituted. Should the intemperate use of purgatives have been the cause, they must be discontinued.

Towards the close of the third day, or beginning of the fourth, and all through the latter, a change for good or evil can generally be observed. If the patient is to die, the pulse becomes smaller, the fever is less violent, the skin becomes cool, or positively cold; the patient is restless, and the vomiting continues; mucus is thrown from the stomach, and the straining is great; there is often a sense of burning in the stomach, the inflammation of the organ has reached its maximum, and the circulation is determined, and concentrated



upon this part. The patient is now beyond the reach of art—he may recover, but his recovery is not due to his physician. All our efforts must tend to determine the circulation to other parts. We blister, apply sinapisms, or rub the extremities with stimulating frictions; we can do no more. In general our practice is more empirical, and we act, we know not why or wherefore.

In many cases, though the disease commenced in the stomach, the brain soon becomes affected, and forms the chief seat of the malady, the inflammation of the stomach resting stationary. These cases are longer in their duration, and not so fatal in their character as those above. Our treatment is directed towards this organ in particular; and if we can administer purgatives with safety they become excellent adjuncts. When the lungs, or their connexions, are inflamed, we direct our efforts accordingly; but these forms of disease resemble nearly those we meet with in Europe, and do not deserve any particular notice.

*Treatment of Malignant continued Fever.*

It sometimes, though very rarely, happens, that the blood is more or less changed at the commencement of this disease; but in almost all the cases this change is observed only during the second or third period; when the blood is changed from the first, and is combined with the læsions described in the last form, the case is, I should think, beyond the reach of art, for we cannot resort to the means of curing the one without increasing the other; but if the state of the organs will admit of it, we resort to the treatment recommended for malignant remittent. When the change in the blood is observed only in the second stage, the case cannot at the commencement be distinguished from one of inflammatory fever, except probably by the skin being of a duskier colour, the eyes less bright, the complexion of a dull red, and the face having a grim and more swollen appearance; but these symptoms are not constant. Our treatment at the commencement is the same as that employed in the preceding form, and is often successful. Where it is not,



on the third day, or even earlier, the skin becomes biting and pungent to the touch, its redness is of a darker shade, the pulse is small, but wiry and rapid, the patient is uneasy and restless, though probably the local symptoms are less pronounced than in the inflammatory form. This state may continue until immediately before death, combined with yellowness of the skin, ecchymosis, black vomit, and passive hæmorrhage. On the other hand, after the appearance of the latter symptoms the body may become cold, partial sweats may break out, and the pulse may become weak and fluttering. The agony is not generally so long nor so painful as in the latter form, but this will depend a good deal upon the complications of organic inflammations. When the disease has advanced so far, I think we must look upon the patient as one dead; we have no resource whatever in medicine; he dies not only from a diseased state of the blood, but from the oppression of one or more organs by inflammation. We, however, should attempt something, and the best thing I know is the tonic plan carried to its full extent. Patients have recovered after having vomited the coffee-ground matter, but when we examine the cases as they are reported, we must feel convinced that the credit is not due to the treatment. Ammonia, calomel given until salivation is produced, beer, ale, brandy, wine, porter, iced-water, magnesia, a combination of milk and lime-water, sugar of lead, opium, æther, &c., and latterly common salt have all been administered with pretty nearly equal success. I have never found any treatment stop it, though narcotizing the patient with opium prevented its recurrence in one case for nearly twenty hours, but the patient died nevertheless without the disease itself being at all ameliorated. I generally in these cases, out of common charity, allow the patient to drink whatever he feels a fancy for.



## CONCLUSION.

IN describing the different kinds of treatment required in the varieties of the St. Lucia endemic, it must be remembered, that the cases usually met with are rarely so broadly defined, or the symptoms characteristic of a particular læsion, so pure and unmixed as the division of these diseases which I have thought it necessary to form in the preceding pages would lead us to expect. Between the extremes of inflammatory fever, neuralgic affections originating from malaria, and dissolution of the fibrine in the blood, are endless shades and differences which experience alone can make us understand. For this reason I have given merely an outline of the treatment to be pursued in each variety. The lights and shadows of each case must be filled up according to the judgment of the practitioner.

In speaking of the bark of the country, it may be as well to mention, for the benefit of those who have not resided in these countries, that several species of a spurious cinchona are found in many of the West India islands. That found in St. Lucia has been described under the names of quinine or Ecorce de Ste. Lucie; *cinchona floribunda*; *cinchona montana*; *trachelium arborescens et fluviatile*, &c. &c. It has long been known as a powerful febrifuge, and for its emetico-cathartic effects. When given internally it has not unfrequently been followed by serious consequences, and its employment in consequence has fallen into disuse; but in the form of a bath these effects are not observed, and it becomes a remedial agent of considerable power in certain forms of fever.

THE END.

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