

Observations and inquiries into the nature & treatment of the yellow, or Bulam fever, in Jamaica and at Cadiz : particularly in what regards its primary cause and assigned contagious powers, illustrated by cases & dissections, with a view to demonstrate that it appears divested of those qualities assigned to it by Mr. Pym, Sir J. Fellowes, & others, in a series of memoirs / by Edward Doughty.

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OBSERVATIONS AND INQUIRIES
INTO THE
NATURE & TREATMENT
OF THE
YELLOW, OR BULAM FEVER,
IN JAMAICA AND AT CADIZ;

PARTICULARLY IN WHAT REGARDS ITS PRIMARY CAUSE
AND ASSIGNED CONTAGIOUS POWERS :

ILLUSTRATED BY

CASES & DISSECTIONS,

With a View to demonstrate that it appears divested of those
Qualities assigned to it by Mr. Pym, Sir J. Fellowes, & others.

IN A SERIES OF MEMOIRS.

By EDWARD DOUGHTY,

MEMBER OF THE ROYAL COLLEGE OF SURGEONS OF LONDON,
AND SURGEON TO THE FORCES.

L O N D O N :

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TO MAJOR GENERAL

GEORGE HORSFORD,

Esq. Esq. Esq. .

SIR,

IT is from an impulse of grateful remembrance that I feel a particular desire of dedicating to you these Memoirs : many of them relate to times, seasons, and occasions, with which you are well acquainted.

So great a martyr as you have been in your own person to the effects of climate, you will, even on that single consideration, fully appreciate every endeavour to lessen the sum of human misery, which the Torrid Zone but too often and too greatly adds to the inherent physical evils of life.

Without, however, the contemplation of personal suffering, the generosity of your nature will ever induce you to view with a liberal and enlarged perspective, what may have a tendency to remove the

alarm and danger of inter-tropical and similar disease. It is to that generosity and liberal candour I owe so much.

Within your hospitable residence I experienced, in a distant and certainly sultry colony, that kind attention which time can never erase from my memory. And, on your return to England, you consummated your friendly endeavours to serve me, by a successful representation and accomplishment of my wishes. To that success I may ascribe the renovated zeal and opportunity which has enabled me to write and arrange what is contained in the following pages.

I therefore seize, with the most unfeigned satisfaction, the occasion of thus publicly acknowledging how much I am,

SIR,

Your very greatly obliged,

And obedient Servant,

EDWARD DOUGHTY.

PREFACE.

IT was not until my arrival in London last autumn, after my return from Canada, that I had an opportunity of reading two recent publications on the nature of the fever which has so fatally and frequently prevailed in the West Indies, and at different times in America and the Southern Provinces of Spain: when finding, on perusal, the general tenor of the opinions therein set forth not to be in unison with the conclusions I had formed respecting the disease, I have been induced to offer such observations as I was enabled to make in the course of eight years that I served in Jamaica, and during the season of 1810 at Cadiz. These observations, as they relate to the cause and qualities of the fever in question, will be found to vary in some essential particulars from those opinions concerning it which Mr. Pym and Sir James Fellowes have reciprocally advanced.

The several statements made, and seeming facts adduced, by Mr. Pym, bear him

greatly out in the opinions he has formed, and to those who have never seen the disease, or been in climates where it prevails, his arguments will appear incontrovertible.

In venturing to differ from him, on a consideration so important, I have avoided, as much as possible, all controversial asperity. What I have advanced is the result of experience, acquired on very long and arduous services, in climates where this disease has been so often destructive. And although I have not, like Dr. Bancroft, quoted such various authorities to refute, or Mr. Pym to establish, the doctrine of contagion, as it applies to *Yellow Fever*, I have, nevertheless, availed myself of such evidence as I conceive has elucidated the opinions and corroborated the facts I have stated.

The question is of great political as well as medical importance, and should be examined well by those whose experience enables them to offer an opinion before resolutions are formed, which may call forth such legislative interference, as to create unnecessary alarm, and prove very injurious to commerce.

Had the contagious qualities of the disease under consideration been so generally believed as it is endeavoured to make them, the most serious consequences for the safety of Cadiz must have arisen in the year 1810, when it was blockaded and besieged on the land-side by the French army, and when the fever in question prevailed to a considerable extent; because all the supplies for the support of the garrison, were brought by sea from Portugal, Barbary, and different parts of Spain. Had a conviction of the contagious tendency of the disease been entertained by those who navigated the vessels containing these supplies, it is not probable they would have entered the harbour or had any communication with the place while the fever continued, and which it did from the latter end of September to that of December.

The city, at this time, contained more than one hundred and thirty thousand inhabitants, and had the exterior supplies been withheld for one month starvation must have followed, or the surrender of the town,

an event which might have changed the features of the peninsular war.

In the observations I have given of the fever then prevailing in Cadiz this consideration will be found, from the extracts of a letter which I wrote to His Royal Highness the Duke of Kent.

I have also, from those observations, been constrained to advert to a transaction resulting from a too zealous desire of investigating into its nature by anatomical enquiry.

Sir James Fellowes was at that time head of the department, with the designation of Director of Hospitals : I was one of the Surgeons on the Staff under him. A difference of opinion, in regard to the qualities of that fever, must have been the occasion of his placing obstacles to the inquiry by dissection, on a request that I made for the purpose, by instituting arrangements, which rendered it afterwards not possible for me to open a dead body in the British Military Hospitals. Disappointed in my wishes, and thwarted in my endeavours to acquire every possible information respecting so destruc-

tive a disease, I, in a moment of irritation, expressed my sentiments too warmly, in a letter addressed to Sir James Fellowes, which were considered, and which I now admit to be, incompatible with military decorum. *Nemo mortalium omnibus horis sapit.* The sequel of the business was a dismissal from His Majesty's service. This destroyed a considerable length in the chain of investigation I had drawn and was drawing out, on the nature and treatment of the then prevailing fever in Cadiz. If we are to believe what Sir James stated to the Court, he considered the purposes of dissection detrimental, by supposing they might produce in the minds of the soldiers strong prejudices against their medical attendants.

I feel it, however, an act of justice due to Sir James Fellowes to state, that, previous to our unfortunate misunderstanding, on the circumstances alluded to, his conduct and attentions to me were every thing I could wish or expect from a gentleman. In freely admitting this, I, nevertheless, cannot forbear noticing the apparent unnecessary measures pursued, which, individually,

were highly prejudicial to me, and nowise conducive to public good, or the acquisition of medical knowledge. I am fully sensible, in what relates to my actions on that occasion, *falsa vobis delata sunt*.

If, in the following Memoirs, it should be thought that I have outstepped the bounds which a diffident reserve prescribes, in any particular relation wherein we are personally concerned, my readers, I hope, will bear in mind that I have been a very severe sufferer by a military decree, and which event would never have befallen me if I had been less desirous of investigating into the nature of the fever which forms the subject of the following sheets, and of obtaining the information that, with every deference, I now submit to the liberal and unbiassed judgment of professional discrimination.

In Cadiz I stood alone in the opinions I advanced, but I write now on different ground, and where both sides of the question have and will be fairly canvassed: there, however, to quote part of what I said to the Court which inquired into my actions, in allusion to an appropriate painting in the hospital *San*

Juan de Dios,* I was “ a single individual,
 “ in a single boat, tossed on the tempestuous
 “ ocean of controverted medical opinions,
 “ and driving fast on the rocks of military
 “ authority, and military displeasure.”

In England, I believe, the clashing of opinions, in medical science, does not often form the subject of military inquiry. It is from that clashing the latent sparks of truth are elicited, and a general stimulus to practical research is thereby created.

I feel a great pleasure in availing myself of an opportunity, in this preliminary address, to publicly acknowledge, in justice to the kindness of Sir James M'Gregor, and the liberal consideration of His Royal Highness the Duke of York, that I have some short time past been restored to the rank of Staff Surgeon: yet I cannot entirely erase from my memory the sensations resulting from events of which these Memoirs will only give but a slight sketch.

* On the staircase of the above hospital is a large picture, on which is portrayed a single individual in a small boat, as tossed on a tempestuous sea, but driving towards the shore, under which is written, *Consolatrix afflictorum*.

In submitting our writings to public notice through the medium of the press, it is, I believe, usual, and indeed expected, where there are ample grounds for criticism, that some apology should be made for style and diction. This I am fully aware I ought to do; but, I consider, in medical discussion, the matter, more than the manner, should be the point in view.

I have endeavoured to relate the truth, as far as circumstances have permitted me to discover it, without regard to the embellishment of thought.

If I have ventured to advance opinions, either as to cause or effect, on the subject of *Yellow Fever*, different from the generally received doctrines, I have given my reasons for the *hypotheses* offered, and which are formed on the basis of practical deductions, and repeated observations. I understand the Council for the Affairs of Trade, in consequence of the opinions which Mr. Pym has published, have instituted further inquiries, in regard to the question, respecting the contagious nature of *Yellow* or *Bulam* Fever; and have directed the medical officers

of the navy and army to communicate such information as they may individually possess concerning it. In offering, therefore, my sentiments on the occasion, I am only discharging a part of my duty to my country, and I shall feel amply recompensed if any thing I have stated should point out the means of preserving an individual life from the ravages of this disease ; or any way tend to dissipate that unnecessary alarm which its supposed contagious qualities has given rise to, and which, I am fully sensible, has been productive of very deleterious consequences.

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ERRATA.

- Page 39, line 12, for *epogastrium* read *epigastrium*.
 — 47, — 7, for *where* read *when*.
 — 47, — 26, for *sick* read *seen*.
 — 78, — 16, dele *of*.
 — 109, — 15, for *vomitting* read *vomiting*.
 — 126, — 25, for *frequentley* read *frequently*.
 — 141, — 23, for *retuned* read *returned*.
 — 148, — 16 and 17, for *eat* read *ate*.
 — 150, — 5, for *vomitted* read *vomited*.

GENERAL OBSERVATIONS
ON
YELLOW FEVER;
ITS
CAUSE AND TREATMENT.

PART I.

Causa tum dubia, quòd erat aliquid in utrâque parte, quod
probari potest. CIC.

AS my endeavours in the following pages are principally directed to evince, that the fever named Yellow, or "*Bulam*," is not generated from animal effluvia, and does not propagate itself by emanations from bodies labouring under its influence, I shall quote as my text, what Mr. Pym has submitted, when speaking of Dr. Bancroft's opinion, "That the disease in
" question originated from marsh miasmata, and
" not from contagion, and upon this rests the
" grand question in dispute: viz. Whether the
" fever, which has prevailed so generally, and so
" fatally, in the West Indies and America, since
" the year 1793, and at Cadiz and other parts of
" Spain, since 1800, is the endemic non-con-
" tagious disease of those climates, endued with

“ peculiarities which distinguish it from all others,
 “ and having the power of propagating itself by
 “ a specific contagion ?”

As far as my experience has enabled me to offer an opinion, I must state it is my firm belief, in regard to this question, that the *Bulam*, or Yellow Fever, is one and the same disease, varying only in degrees of violence or concentration—arising from sources distinct from the effluvia of animal bodies—peculiar to climates of a certain temperature, at certain seasons of the year, and peculiarities of situation ; and is divested of those contagious qualities which have been ascribed to it, as I shall endeavour to elucidate by facts in the progress of this enquiry.

The varieties pointed out by Mr. Pym, as designated by symptoms and appearances, only evince what I have advanced, that the *Bulam* Fever, as it is, in my opinion, inconsistently termed, is only the endemic ardent continued, or Yellow Fever, of the West Indies, America, Cadiz, and other parts, in its most concentrated, or aggravated form.

The cause from which the several varieties arise, is yet involved in much doubt and obscurity, as is the cause of fever in general, inasmuch as the morbid nature of that cause, whatever it may be, is not cognizable to our senses.

It is known well, and I invariably observed

the occurrence, during the eight years that I held the situation of Assistant, and Regimental Surgeon in Jamaica, that, at certain seasons of the year, a peculiar cause does prevail, and which is evinced by its effects; for although fever is occasionally produced in every month of the year, yet that particular order of it, denominated Endemic or Yellow Fever, is rarely seen till the autumnal season: viz. from the beginning of August to the latter end of December or January.

Marsh miasmata, which has been ascribed by so many as the cause of fever in all its varieties in the West Indies, does not appear to me to be an opinion by any means conclusive; because the body's exposure to marshy exhalations at certain seasons of the year in Jamaica does not produce any derangement of health.

I am more disposed to agree with an opinion which has been advanced, that, in the extrication of the principles of vegetation, there is imparted from the earth, in particular situations in the West Indies, and in climates of a similar temperature, certain noxious exhalations, which produce effects on the constitution, in a ratio with the age and peculiar susceptibility to receive the morbid impression.

In the West Indies, from the month of January to July or August, there is generally a con-

tinued drouth, and during these months, with some occasional exceptions, Europeans enjoy a state of health equal to what they could possibly do in their native climate.

The 6th battalion of the 60th regiment arrived in Jamaica the beginning of February 1801, upwards of eight hundred strong. They became stationed in Up-Park Camp. From the date of their arrival, to the middle of August, they only lost one man, and he died from drinking to excess of ardent spirits. I joined the battalion as Assistant Surgeon shortly after their arrival. I never saw a finer corps both of officers and men.

From the period of their arrival, as I have stated, to the middle of August, they only lost one man. The season had been uncommonly dry, and every vegetable production around their station was not only parched but burnt up. The rains began to fall, with their usual rapidity, in August, and, before the end of the month, the park, which had been withered and bare the preceding six months, became one continued verdure. Then fevers, in their concentrated form, began to develope themselves amongst the officers and soldiers of the 6th battalion. Dr. Kilgour, Surgeon of the battalion, a man of considerable talent, was the first officer who fell a victim to the disease. He died with every symptom as described peculiar to the *Bulam* Fever; black vomiting, as the

strongest characteristic, I well remember. Dr. Kilgour's death was followed, in the same week, by four others, viz. the first Assistant Surgeon, the Paymaster, one Captain, and one Subaltern. It is yet in my memory that black vomit closed the scene in four of the above cases.

There was a mortality amongst the men in an equal proportion to the officers ; in three months we lost near two hundred men. It was the first season I had an opportunity of seeing, to any extent, the disease, although I arrived in Jamaica on the 30th of September, 1800.

The 69th regiment was in the same fleet with me ; they landed and marched to Up-Park Camp, on the 4th or 5th of October ; the endemic fever then prevailed, and a great many of them were immediately attacked with it, and they shared a degree of mortality greater in proportion than that of the 6th battalion of the 60th, in a given space of time.

On my landing at Kingston I repaired to the house of a friend that I had known in England, and with whom I resided a month ; I was enjoined to expose myself as little as possible to the sun, but I paid no attention to the advice given me, and walked daily in the streets of that town, in those hours when its influence was the greatest. However, before I had been a fortnight landed, I was attacked with a fever, which, I yet bear in re-

collection, was preceded by general cold shiverings ; great lassitude ; considerable pain in the head, particularly across the forehead. A most distressing irritability of stomach shortly followed the accession of fever, and I retained with difficulty any thing that was administered. Some inflammation had taken place I am well convinced, from the sense of burning heat which I experienced after swallowing any vinous menstruum, particularly that of Madeira.

The plan of treatment pursued was purgatives, blisters, effervescing draughts, and the warm bath. The purgative administered, was calomel and jalap, twelve grains of the former, and thirty of the latter.

On the seventh day of the fever, and which was the critical day, my mouth became extremely sore, and a complete ptyalism ensued, and which was effected by the twelve grains of calomel exhibited as a purgative, for the mercurial plan of treatment was not a practice pursued by the gentlemen who attended me.

However though not an advocate for the administering of mercury as a sole remedy in Yellow Fever, I yet feel convinced to the accidental circumstance of my constitution being influenced by its action, I may ascribe my recovery ; every untoward symptom was removed when my mouth became sore, and the re-establishment of my health soon followed.

After my recovery I was directed by Mr. Lind (then principal Medical Officer in Jamaica) to proceed to Fort Augusta, to take charge of a detachment hospital of the 67th regiment, which received convalescents from the head-quarters of that corps in Spanish Town. I was left to my own discretion in the medical treatment of those who were placed under my care ; it was the first time that any case of fever came under my superintendence in the West Indies. I had but few cases of acute disease to excite my attention ; I remember, however, in the treatment of fever, I was guided by no particular system, but governed my practice according to the prevailing symptoms. From the inflammatory state of vascular action I had recourse to venesection, and did not lose one from that treatment during the six weeks I resided in Fort Augusta.

The 20th regiment of Light Dragoons having suffered greatly from fever in Spanish Town, Lieutenant Colonel (the late Major General) Gillespie obtained Lord Balcarras' permission to remove to Fort Augusta the latter end of December, when the detachment of the 67th was withdrawn, and I received orders to proceed to Montego Bay, where I arrived about the middle of January, 1801.

At this station I took charge of the head-quarters hospital of the 83d regiment, in the absence of the Surgeon from sickness. Ulcers and dysentery in

its chronic stage, were the only diseases I saw during my residence in this quarter, where I continued until the beginning of March, when I received orders to join the 6th battalion of the 60th regiment, then recently arrived at Up-Park Camp, to which I had been promoted.

I have stated the order of health in this battalion, the first season of its residence in Jamaica.

Towards the latter end of December, 1801, the sickness which had been so great and destructive the preceding three months, began to decline, and by the middle of January, 1802, had nearly ceased.

Having now time to reflect on what I had seen, I began to reason upon the nature of the fever, as far as it had fallen under my observation, and the several modes of treatment which had been so unsuccessfully pursued. I also consulted various authors who had written on Yellow Fever, and I became particularly struck with the opinion of Dr. Jackson.

From January to the end of July there was a continuance of dry weather, and, during that period, a total cessation from every order of acute disease in the 6th battalion.

Dr. Kilgour was succeeded in the surgency by Mr. M^cIntyre, Assistant Surgeon of the 11th regiment. This gentleman (who lately died in India) laboured under a very impaired state of

health, which required his being absent from the battalion during the months of August and September. In his absence the medical charge of the battalion devolved upon me.

The rainy season commenced in August, and vegetation, which had been dormant from the previous drouth, quickly followed. I observed particularly its apparent influence in the production of morbid action on the European constitution.

On the first appearance of verdure in the camp this season, the order of sickness, which then developed itself in the battalion, was slight affections of the chylopoetic viscera, in the shape of diarrhœa. And as vegetation advanced these increased in violence, so as to assume more the dysenteric form. Fevers, however, soon followed, first of the mild remitting order, and progressively advancing to the violent, ardent endemic; or, as it is more generally denominated, Yellow Fever, with all those symptoms which are said to mark, as a distinction, the *Bulam* Fever.

Before I detail the particular observations, which opportunity and inclination, in a wide field so amply afforded me, in the season of 1802, at Up-Park Camp, I shall state the seeming qualities, and peculiar constitutions of the soldiers, of which the 6th battalion of the 60th regiment was formed.

The private men were most of them foreigners : they had been principally prisoners of war, many of them sailors taken in the action off Camperdown. Half were Dutch, and half Germans. Men of middle stature, and most of them under the middle age of life. In their habits they were very temperate in respect to drinking, but great eaters of animal food. No battalion was ever under better discipline ; the exterior and interior economy of the corps, as established by the then commanding officer, Lieutenant Colonel (now Major General) Mosheim, was calculated to form the soldier and preserve the man. But no regulations, however wisely planned, or rigidly adhered to, could guard against the influence of the morbid cause, which so greatly manifested itself again that season.

The sober habits of life of the soldiers of this battalion, rendered the digestive organs powerful, and animal food was not only eaten in greater quantity, but converted, I infer, in much greater proportion into chyle, than by those troops who drink to excess of rum in the West Indies.

Bearing this consideration in mind, I was in some measure lead into the mode of practice adopted that season, and which I was the first to pursue. And I was also induced to follow it, as well from what I had observed in the non-success of other modes of treatment the preceding year, as from

the striking indications of strong vascular action, marked by the prevailing symptoms in nine cases out of ten of those attacked.

“*Principiis obsta*” was also a maxim which formed greatly the basis of my expectations, as to success, in the treatment of that order of disease denominated Yellow, or Ardent continued Fever. It is a maxim that may be applied to every deranged state of vital action, but to none so much as to the disease under consideration.

When a man was conveyed to the hospital from his barrack, or the parade, I saw him immediately, and before the equilibrium of circulation in the sanguineous system had been too greatly destroyed in parts essential to life, as the brain, lungs, stomach, and intestinal canal.

If he laboured under symptoms of the following order, viz. strong vascular action, and a particular determination of the blood to the head, so as to indicate an appearance resembling apoplexy ; as stupor and violent pain across the forehead ; throbbing in the temples ; the eyes suffused ; the vessels in the tunica conjunctiva turgid ; irritability of stomach and constipation of the bowels ; I had recourse in the first instance to the lancet. I bled to the extent frequently of two pounds, as I never ceased to let the blood flow until I observed its effects, by a disposition to syncope.

After the bleeding I gave the following pills ; viz. twelve grains of calomel, six grains of James's powder, and two scruples of cathartic-extract, mixed together, and divided into twelve. Four to be the first dose, and repeated every hour till the whole were taken. If they did not move the bowels, which was often the case, I directed a strong purgative injection to be administered, and afterwards had the patient immersed in a warm bath, in which I retained him until he was nearly faint. By these means I generally got the intestines well emptied. If, after these applications, there remained any pain of the head, and disposition to vomit, with febrile heat of skin I applied a blister to the nape of the neck, and another to the region of the stomach, and administered the following pills every two hours, washed down by the effervescing draught ; viz. two grains of calomel and three of James's powder. By this plan of treatment a remission was, in most cases, soon obtained, when I administered the bark in decoction and tincture, with sulphuric acid, every two hours.

I always directed my attention particularly to the intestines, so as to produce one or two evacuations daily by means of injections, or a few grains of rhubarb with sulphat of magnesia.

The articles of diet consisted of weak broth,

arrow root, milk and sago; lemonade, claret and water, and hock and water, as beverage. Bottled porter was much liked, and given freely.

From the almost invariable disposition to inflammation of the inner membrane of the stomach, milk was in general craved by the patient, and wine alone, especially Madeira, loathed.

It was on the almost instantaneous application of medical powers that I expected, and did obtain, success, in the treatment of fever at Up-Park Camp, in 1802.

The leading points to discriminate in the selection of remedies for the cure of Yellow Fever are, the age and constitution of the patient; his habits of life; time and station of residence in the climate; and the indications pointed out by the prevailing symptoms. But I found no consideration so important as attacking the disease at its onset. Because so rapid is it in its progress, and destructive in its consequences, that, if the aid of medicine can avail, it must be had recourse to before those fatal derangements, which so quickly follow an accession of Yellow Fever, in the brain, stomach, and other parts, have too far advanced. If the morbid action produced by the exciting cause, whatever that may be, in the fevers of the West Indies and Andalusia, is not subdued very early after it has manifested itself, the application of medical powers will be doubtful, or,

at least, in a tenfold degree have less chance of success than when the disease has not impaired greatly the stomach, brain, &c. and when the blood (which it quickly does) has not began to lose its cohesive qualities, and run into a state of putrefaction; pouring into the inflamed stomach in complete solution, producing the striking and invariably fatal symptom, black vomit. For whatever authors may have said, I believe no man ever recovered if this affection had taken place. I have seen many hundred cases of black vomit, and never knew a patient to survive where the matters thrown up from the stomach had the resemblance of coffee-grounds. I have known many to recover where the blood has been in a state of solution, as marked by petechiæ and hæmorrhagy from the gums and membrane of the nose; a particular case of which I shall give hereafter, and which came under my observation in 1810, at Cadiz: but when the vessels of the stomach have so far lost their vital power, as to permit the dissolved blood to pass freely into its cavity, the case is without hope.

Of fifty cases in which the plan of treatment was pursued that I have described, one only died; and he was a man beyond the middle age of life, and whom I bled on the second day of the disease. The others were all bled immediately on being seen, and shortly after the accession of fever.

Mr. McIntyre, the Surgeon, returned to the battalion when the admissions into the hospital were greatest, and those of the most concentrated, and aggravated form. Seeing the success which attended the early and free use of the lancet, he adopted the practice, and the same success was the result.

The mortality during the whole season did not amount to one in ten of that in the preceding year, in a like number of cases, where the mercurial plan of treatment was the course pursued.

I do not urge phlebotomy as the universal mode to be recommended in the cure of Yellow Fever, by no means; there are cases where the loss of blood would be inadmissible. But, where the constitution is young and vigorous, and where the residence in the climate has been of short duration, I am well convinced, if had recourse to immediately on the febrile attack, bleeding carried to a considerable extent at once, would succeed in nineteen cases out of twenty, followed by the other auxiliary remedies I have described.

Since writing the foregoing I have accidentally had an interview with Mr. Douglas, formerly a Lieutenant in the 85th regiment, whose interesting narrative, as inserted in the Annual Register for 1802, I think very applicable to what I have stated respecting bleeding at the commencement of the disease, more especially as the practice of

it, though suggested to Mr. D. by a perusal of Dr. Jackson's Treatise on Fever, was corroborated by Lieutenant (now Major) Franchisen, who had been in the camp with me, and had witnessed the success attending it for two months previous to his embarkation. I therefore insert it here.

“ A true Narrative of the melancholy Situation of his Majesty's Store Ship, Chichester, of 44 Guns, Captain Stevens, on her Passage from Jamaica to Halifax, Nova Scotia, in the Months of October and November, 1802, (never published.)

“ After the Chichester (Captain John Stevens)
 “ from England had delivered her stores at Port
 “ Royal, Jamaica, she laid alongside the quay
 “ for some time, getting her rigging, yards, sails,
 “ &c. examined ; or, (according to the sea phrase)
 “ over hauled ; she was ordered home, and to put
 “ in at Halifax. She was very short of her comple-
 “ ment of hands, and the 85th regiment, then in
 “ the island, being ordered to be reduced to the
 “ peace establishment, eighty of the healthiest
 “ of the men who were to be discharged, were
 “ ordered on board, and embarked on Friday
 “ the 8th of October, under the command of
 “ Lieutenant Douglas, of that regiment. The
 “ ship got out from the quay, to an anchoring in
 “ the harbour a few days before this, where

“ three of the Midshipmen, a sailor, a marine,
 “ and a woman, died of a fever. This created
 “ some alarm, but it soon vanished on every symp-
 “ tom of that dreadful disease disappearing, and
 “ every countenance glowed at the prospect of
 “ soon seeing the land of liberty again.

“ We weighed anchor and got out of the har-
 “ bour on the morning of the 12th. We got clear
 “ out from the land that day, and the next morning
 “ Lieutenant Miller, first Lieutenant of the ship,
 “ and several of the ship’s crew and of the sol-
 “ diers, attended the Surgeon and his Mate, com-
 “ plaining of head-achs, and other symptoms, of
 “ an alarming appearance of the Yellow Fever.

“ There was very little wind, and that was
 “ against us for seven days ; we got sight of St.
 “ Domingo on Saturday morning, the 16th. That
 “ night two men and two boys died. We con-
 “ tinued tacking between Cape Tiberon and Na-
 “ vasa island for two or three days, during which
 “ the two Lieutenants (Miller and Avery), and
 “ the only Midshipman now left, died, as also
 “ four of the 85th regiment, two of the sailors,
 “ and two marines. On Wednesday morning a
 “ fine favourable breeze sprung up, and upon the
 “ Captain being saluted in the morning, accord-
 “ ing to custom, upon deck, he expressed his re-
 “ gret at the loss he had already suffered in officers
 “ and men, and said, ‘ I have lost my two Lieu-

“ ‘ tenants, all my Midshipmen, and the Master
 “ ‘ is now taken ill; I have hardly any body to
 “ ‘ trust to the watch, and my men getting, and
 “ ‘ likely to get, too few for the task that is before
 “ ‘ them,’ and was himself obliged to take to his
 “ bed in the afternoon. We passed Cape St.
 “ Nicola Mole about eleven o’clock, and in the
 “ evening took our departure from Tortuga, a
 “ little island on the north west coast of St. Do-
 “ mingo. It is impossible to describe the dis-
 “ tressing sufferings of the sick, nothing could be
 “ heard between decks but the most dreadful
 “ screeches and howlings of delirious men in the
 “ last agonies of death. The medical gentlemen
 “ (Surgeon Miller and his Mate Mr. Varley) ex-
 “ erted themselves to the utmost of their power,
 “ in performing the duties of their profession,
 “ and of humanity, to afford every means they
 “ could invent for the relief or ease of the dis-
 “ tressed. It was particularly recommended to
 “ them, before we left Jamaica, to use calomel in
 “ every case of the Yellow Fever; they attended
 “ to this in too strict a manner, until they had
 “ convincing proofs of its inefficacy.

“ Mr. Miller had, among his collection of me-
 “ dical books, the Treatises of Dr. Jackson on
 “ fevers and other diseases, which led him, accord-
 “ ing to that eminent Physician’s advice, to try
 “ bleeding.

“ The symptoms, from the beginning to the
 “ end, of this dreadful malady, were such as Dr.
 “ Jackson recommends bleeding for. The first
 “ trial of this specific was rather as an experiment
 “ upon a very desperate case; indeed Mr. Miller
 “ entertained very little hopes of the effect; he
 “ was therefore averse to it, but was prevailed
 “ upon by others to give it a trial, when one of
 “ the Quarter-Masters had been seized with
 “ every symptom that hitherto had proved fatal;
 “ before he was done bleeding he said he was
 “ greatly relieved, but such was his imprudence
 “ that he was found by the Surgeon upon deck,
 “ next day, smoking his pipe, after taking more
 “ than a moderate glass of some spirits, which
 “ checked his recovery, yet it continued slowly,
 “ until he was perfectly well, and the effects of
 “ bleeding decided indisputably in favour of fur-
 “ ther trials; but both the Surgeon and his Mate
 “ were taken ill very soon after this, and were in
 “ such a deranged state that they did not know
 “ the relief and benefit it afforded.

“ The intellectual feelings of all who died were,
 “ for about twenty-four hours before their death,
 “ succeeded by a turbulent distraction of mind,
 “ and they all emitted a great quantity of blood
 “ directly before or after their last breath.

“ It is already observed, that on Wednesday
 “ evening we took our departure from the island
 “ Tortuga; died this day five men and a boy.

“ Thursday, the 21st, got in sight of the island
 “ Henegar ; died four men.

“ Friday, made the island Mayaguany, and in
 “ the evening took our departure, it being the
 “ most northerly land in our intended course ;
 “ died five men.

“ The Master (Roger Taylor) had been till now
 “ able to look after the duty of the ship ; his
 “ disorder was a bilious one, and which, at this
 “ time, reduced him to the necessity of keep-
 “ ing his bed. Every day now increased our
 “ despair.

“ Saturday, the 23d, latitude $25^{\circ} 10' N.$ died
 “ Captain Steven and two men. The remains
 “ of the Captain were committed to the deep,
 “ with military honours, at twelve o'clock at
 “ night.

“ Monday, died three men. This day the Sur-
 “ geon, after suffering long from severe head-achs,
 “ occasioned, as was thought, by want of rest, was
 “ found lying under the table of the ward room,
 “ from whence he was brought to his cabin, where
 “ he was locked up, or attended by some of the men,
 “ to prevent him from running distracted through
 “ the ship. His indefatigable attention to the sick,
 “ as long as he was able to stand, deserves the grateful
 “ recollection of those who witnessed it ; and so
 “ far was he prejudiced against bleeding, though
 “ he saw something of the good effects of it, that
 “ he would not submit to the operation.

“ Our prospects were now very gloomy ; in an
 “ immense wide ocean, the ship full of a con-
 “ tagious fever, deprived of every medical assist-
 “ ance, and also of those who were entrusted, or
 “ in the practice of navigating the ship.

“ The Purser (James Hatton) was the only
 “ one on board, except the Master, (whose life was
 “ now despaired of) that understood any thing of
 “ navigation. Perhaps one who would only think
 “ of the situation we were in may say, Why did
 “ you not put back, or put into one of those islands
 “ you have passed ? And, probably, one may sup-
 “ pose that the Captain, as above, insinuated a
 “ wish to have advice on that subject, but no such
 “ thing could be thought of ; for, were we to put
 “ back to Jamaica, it would look timid, or, in
 “ plain terms, be called cowardly. To put in at
 “ St. Domingo or Cuba, (which latter was on our
 “ larboard side as we passed the other) we could not
 “ expect to recover from the unfortunate state we
 “ were in, for no accommodation or comfort would
 “ be afforded us, and we could get nobody to come
 “ near us, and much less get any one to supply the
 “ place of any of those we had lost. The last
 “ islands we passed are commonly called the Turtle
 “ Islands, and are thinly inhabited by turtle
 “ fishers only, so that there was no alternative
 “ but to proceed and trust to Providence.

“ To supply the place of the Medical gentle-
 “ men now became one of the most serious con-

“siderations ; it is observed, that bleeding has,
 “before this, been tried with apparent success,
 “and Lieutenant Douglas of the 85th, who under-
 “stood nothing more of the profession than how
 “to use the lancet, found himself under the ne-
 “cessity of undertaking the treatment of the sick.
 “*The place allotted for them was now full, and*
 “*others thought it dangerous to go near them ;*
 “*but it did not appear in the least that those, who*
 “*were inseparably connected with the sick, were*
 “*more subject to the disease than those who took*
 “*every precaution possible to keep away from them.*
 “*Notwithstanding the fate of the Surgeon and*
 “*his Mate, there are a great many more in-*
 “*stances in favour of this argument than against*
 “*it, which, for the sake of brevity, we pass over.*

“Tuesday, 26th, latitude 28° 13', died four men.
 “Thirteen men, having the most unfavourable
 “symptoms of the fever, were bled this and the
 “preceding day.

“Wednesday, latitude 39° 9', died five men.
 “It evidently appeared that the men were, till
 “now, prejudiced against bleeding ; but seeing
 “that all who had been bled, except two, (who
 “had concealed their illness until the disease was
 “too far confirmed to give way to the remedy)
 “commenced their recovery from the first mo-
 “ment of the operation, they resigned themselves,
 “with a degree of confidence, to it.

“Lieutenant Douglas observed some shyness

“ in the sailors and marines, when any of them
 “ was taken ill ; one of the 85th, or Serjeant of
 “ Marines, would come to report it, and ask if
 “ Mr. Douglas could be expected to take the
 “ trouble of bleeding him ; but he took the earli-
 “ est opportunity of removing their foolish ideas,
 “ and gave particular orders to the petty and non-
 “ commissioned officers, that the moment a man
 “ was seized with any of the leading symptoms of
 “ fever, he should be informed of it, and, that at
 “ any hour, whether in bed, at dinner, or at
 “ breakfast, no consideration would induce him
 “ to delay his affording any assistance to a sick
 “ person, and that it was absolutely necessary to
 “ inform him on the first appearance of the dis-
 “ ease. This had the desired effect, for no shy-
 “ ness appeared afterwards, and there was hardly
 “ a night, until the fever began to disappear, but
 “ Mr. Douglas was called up three or four times ;
 “ and, to the inexpressible happiness of every one,
 “ his attention was well rewarded with the reco-
 “ very of all (the two before-mentioned and one
 “ other excepted) who came under his hands. It
 “ appeared evident that, if the patient had not
 “ been bled on, or very near, the first appearance
 “ of the leading symptoms of the fever, there
 “ could be but very little hopes of his recovery,
 “ and such was the ill consequence of trusting to
 “ the mode of curing by calomel, that, out of se-
 “ venty-nine, whose fate had been entrusted to it

“ four only recovered. No fewer than sixty-five
 “ had been bled by Mr. Douglas, and so power-
 “ ful was the good effects of it, that the greatest
 “ part of them would be found, the next or se-
 “ cond day after they had undergone the opera-
 “ tion, attending the work of the ship. They
 “ hardly felt any inconvenience from the incision
 “ after the second day at furthest. The faculty
 “ recommend large incisions, on the few occa-
 “ sions they agree to bleeding, but Mr. Douglas,
 “ from want of practice in that way, has been
 “ more timid, and was always careful to cut only
 “ sufficiently large to bleed freely, and, if the first
 “ did not give relief, to repeat it by drawing the
 “ same quantity; in some instances three times
 “ were found necessary. The quantity drawn
 “ at a time, from a strong able man, was half a
 “ pint.

“ Thursday, died six men. Since we had lost
 “ the use of the Master, how to supply his place
 “ in navigating the ship was a matter of very se-
 “ rious consideration. All were equally exposed to
 “ the fatal foe, and Mr. Hatton, seeing all his com-
 “ panions, with whom he had been a long time,
 “ and in many a perilous situation, taken away in
 “ so short a time, appeared to have an idea that he
 “ must very soon follow; and he often said he had
 “ no wish to live after them. Lieutenant Doug-
 “ las, for some days before this, applied the most of
 “ the time he could spare from the sick to the study

“ of the practical parts of navigation, in which he
 “ soon made a tolerable good progress; and keep-
 “ ing Mr. Hatton’s mind a good deal engaged in
 “ explaining the most difficult parts, was of itself
 “ very useful. This way we passed the time until
 “ affairs began to take a turn. There were two
 “ other gentlemen, passengers, on board, (Lieute-
 “ nant Franchisen, of the 60th, and Ensign Rich-
 “ ard Longfield, of the 85th regiment) and thus,
 “ forming a small society of four, endeavoured at
 “ all times, when it was possible, to drive away all
 “ melancholy thoughts, and speak of the happy
 “ days we were yet to see in Old England.

“ Friday, 29th, latitude $31^{\circ} 30'$, died the Sur-
 “ geon, the Boatswain, and three men. Mr.
 “ Taylor now began to get better.

“ Saturday, died the Surgeon’s Mate, Mr.
 “ Varley, one of the three women on board, and
 “ three men.

“ Sunday, latitude $33^{\circ} 6'$, died four men.
 “ The sick by this time were getting few by deaths,
 “ and some were still in a desperate state.

“ Monday, the 1st of November, died three men.
 “ Hard gale all day and night, with rain and
 “ lightning, going our course at the rate of nine
 “ to ten knots an hour. The rage of the disease
 “ now began to abate. The hard gale, which con-
 “ tinued for nine days, though against us, except
 “ the first day, must have greatly eradicated the

“ disease, for now every day lessened the com-
 “ plaints.

“ Tuesday, died two men, latitude $37^{\circ} 55'$,
 “ wind squally and changed against us.

“ Wednesday, died one man. Mr. Taylor
 “ was now able to come out of his cabin, sup-
 “ ported by two men ; his recovery was slow,
 “ but he attended his duty from this time.

“ Thursday, strong gales continued with rain,
 “ died Mr. Steven, Master's Mate, a fine lad
 “ of about thirteen years old, son to the deceased
 “ Captain ; he was taken ill on the last Sunday,
 “ but concealed it until the next day, when he was
 “ bled twice : he was thought to be better that
 “ night, but the next morning he was so ill that
 “ bleeding a third time was thought necessary,
 “ but to no effect.

“ Friday, strong gales and rain. No death this
 “ day, for the first since the 16th of October, and
 “ only three men died after this, who had lingered a
 “ long time under something of the bad effects of
 “ the fever. We had a continuance of the same
 “ unpleasant stormy weather until Thursday,
 “ November 11. Latitude $42^{\circ} 16'$.

“ Friday, 12th, moderate and fair, made sound-
 “ ings in ninety-five fathom water.

“ Saturday, at nine, saw the land. South coast
 “ of Nova Scotia. Sounded in fifty fathoms.
 “ The men of the 85th were now suffering severe-

“ ly from the cold ; they had no kind of bedding,
 “ but slept in a bare hammock, nothing of the
 “ kind being allowed them on embarking from
 “ Jamaica, notwithstanding that application had
 “ been made, and the Captain having represented
 “ the likely ill consequence of men changing, at
 “ that time of the year, from the West Indies to
 “ the neighbourhood of Newfoundland ; but they
 “ were most humanely treated by General Bowyer,
 “ upon our arrival in Halifax, where they were im-
 “ mediately supplied with a sufficient quantity of
 “ bed-clothing, and money to buy them other
 “ warm articles. We hardly lost sight of land
 “ after this, and got into Halifax harbour on
 “ Wednesday, the 17th, when we met with so
 “ generous a reception as to make us forget our
 “ late distresses. We were put under quaran-
 “ tine till the 30th of this month, but were sup-
 “ plied with every article that would make us
 “ comfortable, from the shore ; and the Admiral,
 “ Sir A. Mitchell, who was there, as well as the
 “ General, regretted the necessity of keeping us
 “ so long confined from any other society.

“ The necessary officers were now appointed
 “ to the ship by the Admiral ; a Surgeon was the
 “ most necessary one in our present situation ;
 “ though there were very few seized with any
 “ thing like the Yellow Fever, we had several sick,
 “ and we got a gentleman on Friday, that is, the

“ second day after we came into harbour, well
 “ deserving the charge. After we got out of
 “ quarantine the sick were put into the Navy
 “ Hospital, which is an uncommon comfortable
 “ one, and where they all recovered before we
 “ sailed. We got several articles put in, particu-
 “ larly spars for Portsmouth Dock-yard, and left
 “ Halifax under the command of Captain Joseph
 “ Spear, on Sunday, the 16th of January.
 “ Nothing particular occurred on this passage.
 “ We arrived at Spithead, on Sunday, the 13th
 “ of February, where we performed a quarantine
 “ of four days.

“ The Pratique Master, according to his orders,
 “ got all the wearable articles belonging to the
 “ deceased officers, and took them to some distance
 “ from the anchoring places, where they were
 “ sunk.”*—*Annual Register, 1802, Page 814.*

* “ In laying before the public this very interesting narra-
 “ tive, we cannot avoid remarking upon the modesty, presence
 “ of mind, and magnanimity, of the gallant relator of it,
 “ (then Lieutenant of the 85th Infantry, now Captain Nor-
 “ man Douglas, of the 61st) in terms of the highest admira-
 “ tion and praise. His conduct in the hour of the severe
 “ trials, it shews him to have undergone, was marked by the
 “ humanity and reliance on Providence of the Christian, and
 “ by the steadiness and decision of the British Soldier. It is
 “ here given in his own words, which it would be the height
 “ of injustice to alter, and it is hoped that he will consider
 “ its insertion in a work which has been the depository of

Mr. Douglas having been requested to attend the Commissioners of Sick and Hurt, on his arrival in London, related the foregoing narrative to them, and Dr. Harness published the heads of it in the Medical Review, from which I copied it, as follows, viz.

*“ A successful Method of Treating the Yellow
 “ Fever at its commencement ; communicated
 “ May 25, 1803, by Dr. Harness, Commis-
 “ sioner of Sick and Wounded Seamen.*

*“ Lieutenant Douglas, of the 85th regiment,
 “ relates that he embarked on board the Chiches-
 “ ter store ship, at Jamaica, for England, with one
 “ hundred and eighty men, seventy-four of whom
 “ died on the passage, previous to reaching Hali-
 “ fax, in North America, exclusive of the Captain,
 “ two Lieutenants, Surgeon, and Surgeon’s Mate,
 “ of the ship. In consequence of the two latter
 “ having fallen victims to the disease, Lieutenant
 “ Douglas felt himself driven to the necessity of
 “ undertaking the treatment of the sick ; and,
 “ from the great fatality attendant on the calomel
 “ and purgative plan, pursued by the late Surgeon*

*“ the most valuable and interesting narratives to be found in
 “ the English language, for nearly forty years, as no tri-
 “ fling tribute of praise to his very meritorious character and
 “ conduct.”—Editor.*

“ and his Mate, he (Lieutenant D.) was induced
 “ to adopt bleeding, (as recommended by Dr.
 “ Jackson, and as had been suggested in Lieute-
 “ nant D.’s presence, by the Surgeon’s Mate of
 “ the 60th regiment,* a short time previous to
 “ Lieutenant D. leaving Jamaica) which proved
 “ to have been productive of the happiest effects,
 “ as will evidently appear by the following state-
 “ ment :

“ Lieutenant D. relates, that, after the cure of the
 “ sick had devolved upon him, sixty-two men (thir-
 “ ty-seven of whom were seamen) were attacked
 “ with symptoms of Yellow Fever, the whole of
 “ whom recovered by bleeding ; three others were
 “ likewise bled, but, he observes, so late in the dis-
 “ ease, or not until the symptoms of fever were so
 “ fully established, as not to be within reach of the
 “ remedy.

“ Lieutenant D. remarks, the success in treat-
 “ ing the disease was so evident to the troops and
 “ ship’s company, that, after a short time, they
 “ would, on being taken ill, apply to be bled, and
 “ Lieutenant D. became so confident of its good
 “ effects, if had recourse to at the onset of the dis-

* This is a mistake, I never saw Lieutenant Douglas in
 Jamaica, my practice in bleeding, and the success attending
 it, was communicated to him, as I have said, by Lieutenant
 (now Major) Franchisen, who was in the same battalion with
 me, during the most sickly part of the season of 1802.

“ ease, as to induce him to give particular direc-
 “ tions to be called any hour of the night to per-
 “ form the operation, should any one be seized
 “ with the leading symptoms of the disease ; and
 “ in every case (the three alluded to excepted) he
 “ had the happiness to see every symptom give
 “ way or diminished, and all unfavourable ap-
 “ pearances removed by one, two, or three repeat-
 “ ed bleedings, performed at intervals of a few
 “ hours, as the necessity of the remaining symp-
 “ toms indicated.

“ Lieutenant D. not being educated to the pro-
 “ fession, and consequently ignorant of the doses
 “ of medicines, was induced to have recourse to
 “ clysters, when the procuring of evacuations ap-
 “ peared necessary ; on which, with bleedings, as
 “ before-mentioned, he rested the whole means of
 “ cure.”

Mr. Douglas has favoured me with the copy of
 a letter from the only surviving officers of the
 Chichester, to the Commissioners of Sick and Hurt,
 and which has not been published. I insert it
 here in corroboration of Mr. D.'s testimony.

*“ His Majesty’s Ship Chichester,
 “ Spithead, 11th May, 1803.*

“ GENTLEMEN,

“ As the only surviving officers of His Majesty’s
 “ ship Chichester, during her passage from Ja-
 “ maica to Halifax, we conceive it a piece of
 “ justice to state to you the very essential service
 “ rendered by Lieutenant Norman Douglas, of
 “ 85th regiment, a passenger on board, to the
 “ crew, as well as a party of his regiment, who
 “ were in the ship, after having lost the Surgeon
 “ and his Mate.

“ A very short time before his death, Doctor
 “ Miller adopted bleeding, with those who were
 “ attacked by the fever, when he fell a victim,
 “ his Mate only surviving him one day. Most for-
 “ tunately for those remaining Mr. Douglas un-
 “ derstood bleeding, and humanely stept forward
 “ to render every service he could.

“ His most unwearied assiduity, losing every
 “ sight of his own comfort to give the sick all his
 “ attention, was happily rewarded with the reco-
 “ very of almost all who came under his hands.

“ Out of nearly one hundred and ninety on board,
 “ on our leaving Port Royal, not fewer than be-
 “ tween seventy and eighty died on the passage.
 “ Nearly the whole of them had taken calomel,
 “ and lost their lives previous to the Surgeon;
 “ while out of sixty or seventy bled by Mr. Doug-

“ las only three died; and those, we conceived,
 “ from their not making timely application, al-
 “ though he had most anxiously recommended to
 “ every person to acquaint him the moment of their
 “ being seized with the least symptom of illness.

“ We have the honour to be, &c.

“ *The Commissioners of*
 “ *Sick and Hurt.*”

“ R. TAYLOR.

“ J. HATTON.”

The consideration of bleeding, and early attention to energetic practice, in the fevers of the West Indies, is elegantly pourtrayed in Dr. Dickson's circular letter to the Surgeons of the Fleet on the Leeward Island station, inserted in the Edinburgh Medical and Surgical Journal, 1st January, 1813.

It is so greatly in unison with my own opinion on the subject, that I shall transcribe the extracts made from it in the above work, under the following head, viz :

“ *Extracts from a Circular Letter to the Surgeons*
 “ *of His Majesty's Ships and Vessels on the*
 “ *Leeward Island Station. By J. H. Dick-*
 “ *son, M.D. Physician to the Fleet.*

“ *His Majesty's Ship Pompee,*

“ *Leeward Islands, 1st Jan. 1810.*”

“ Believing that the Medical Officers of the
 “ squadron are fully aware how many lives depend

“ upon their knowledge and discrimination ; what
 “ gratification arises from success, and what
 “ heavy responsibility attaches to omissions, which
 “ too often cannot be retrieved ; I trust it is un-
 “ necessary for me to animate their zeal by re-
 “ presenting how much may be done by ener-
 “ getic and judicious practice, in the early stages
 “ of disease, in this country, and particularly
 “ in the rapid and dangerous Caribbean Fever.

“ Anxious to guard from the extremes of over-
 “ weening confidence, and a proper reliance on
 “ the resources of the medical art, while I warn
 “ them of the untractable nature of the disease
 “ with which they have to contend, I could, at
 “ the same time, bring forward much incontro-
 “ vertible evidence to prove, that, by attention,
 “ not only their own health is in no danger, but
 “ that the health of those under their charge may
 “ be preserved to an extent far beyond what they
 “ have been led to believe or expect : but my
 “ object is to excite to vigilance, not to lull into
 “ security. For the benefit of the unexperienced,
 “ I think it necessary to make some remarks on
 “ the treatment of fever, referring occasionally
 “ to the best authorities on the points in question ;
 “ but taking it for granted, that the relative
 “ opinions of those who have written professedly
 “ on tropical diseases, are perfectly known and
 “ understood, and, therefore, do not require being

“adverted to in this paper. The most powerful
 “means with which we are acquainted for cut-
 “ting short, or changing those morbid actions
 “which constitute fever, consist in blood-let-
 “ting, purgatives, and the cold affusion. The
 “propriety, quantity, and repetition of the first,
 “will depend upon the strength and fulness of
 “the vascular system; the oppression of the
 “sensorial and other functions; the youthful
 “and unseasoned constitution; the effects during
 “and after the abstraction; the ardent nature of
 “the fever; and, above all, upon the short dura-
 “tion of the disease. On the contrary, its em-
 “ployment will be more sparing, equivocal, or
 “altogether prohibited, in the weakly, aged,
 “intemperate, long assimilated, or previously
 “diseased habit; and, especially, in an advanced
 “stage of the complaint. Systems vary so much
 “in their powers, and fevers in degree, that it
 “is evident no rule can here obtain universally.
 “There cannot be a doubt, however, that the
 “efficacy of this remedy will greatly depend upon
 “its being used as early as possible, particularly
 “within the first twelve hours; and, although it
 “may sometimes be extended to double that
 “period, or even farther, yet I would here be
 “understood to speak with great limitation and
 “caution; because its too late, or injudicious
 “employment, will infallibly hasten dissolution.

“ Under the circumstances which I have men-
 “ tioned as most favourable, this remedy should
 “ be copiously used, and may be repeated accord-
 “ ing to its good effects ; but these, I repeat,
 “ will much depend upon its being resorted to
 “ before the chain of febrile actions is completely
 “ linked ; and especially before the stomach and
 “ small intestines have suffered in structure or
 “ organization.—(Without enumerating an host
 “ of authorities, the reader is here referred to Dr.
 “ Clutterbuck’s very excellent observations, and
 “ to those which he has collected in his ‘In-
 “ ‘ quiry into the Seat and Nature of Fever ;’ to
 “ ‘ Researches Anatomical and Practical, con-
 “ ‘ cerning Fever, as connected with Inflamma-
 “ ‘ tion,’ by Dr. Beddoes ; where this subject
 “ is farther, and, in some respects, differently
 “ illustrated ;—and, to some comments and com-
 “ munications in the recent periodical medical
 “ journals.)

“ The free exhibition of purgatives, in the
 “ beginning of this fever, is indispensably neces-
 “ sary ; and frequently, from the torpor of the
 “ bowels, they must be given with a liberality
 “ that might appear alarming in more temperate
 “ climates. They ought to be repeated, and, if
 “ necessary, assisted with enemas, until they
 “ have produced at least five or six copious eva-
 “ cuations. I cannot here too much press upon

“ the attention, the importance of the thorough
 “ evacuation of the whole intestinal canal, during
 “ the first hours of fever, and the danger of
 “ trusting, in this respect, to the report of the
 “ patient, or even of the attendants, without
 “ minute and satisfactory enquiry. The best
 “ purgatives are cathartic extract, jalap, &c. com-
 “ bined with calomel, and sometimes the stomach
 “ will bear the neutral salts ; but those medicines
 “ ought always to be preferred which are least likely
 “ to be rejected. Where early evacuations are of
 “ so much consequence, calomel, which is a most
 “ useful addition to other purgatives, should never
 “ be trusted to alone, from the uncertainty of its
 “ operation, particularly where there is much heat
 “ and febrile action. The bowels should be kept
 “ freely open during the whole period of the
 “ disease, but they should not be too much ex-
 “ cited during the latter stage ;—a distressing
 “ diarrrhœa, or constant attempts at evacuation
 “ with tormina, &c. being a most harassing and
 “ unfortunate occurrence late in the disease.
 “ Much that might be requisite to be observed on
 “ the preventive and curative effects of purga-
 “ tives, and upon the febrifuge powers of the
 “ cold affusion, is rendered unnecessary by the
 “ very estimable works of Hamilton and Currie,
 “ with which every surgeon is supposed to be
 “ intimately acquainted. The efficacy of the

“ cold affusion in destroying, deranging, or les-
 “ sening febrile action, by the shock it occasions ;
 “ by reducing the vascular system, and the energy
 “ of the brain ; and by subducting morbid heat,
 “ ranks it very high as an auxiliary in the cure of
 “ fevers. That it here exerts eminent febrifuge
 “ and soothing powers, is most evident ; but these
 “ are often rendered transitory, and sometimes
 “ even inadmissible, from the formidable nature
 “ of the disease, or an unfortunate concatenation
 “ of circumstances with which we have to con-
 “ tend.—(Besides other authors who have written
 “ from an acquaintance with Yellow Fever, I
 “ here particularly refer to the original observa-
 “ tions in the works of Dr. Jackson, and espec-
 “ ally to his late ‘ Exposition of the Practice
 “ ‘ of affusing Cold Water on the Surface of the
 “ ‘ Body, as a Remedy of Fever.’) The mo-
 “ mentum of the affusion, regulated by the ear-
 “ liness of the disease, and the strength of the
 “ patient, should be considerable, when these
 “ will permit. The frequency of repetition will
 “ depend upon the effects resulting, and the recur-
 “ rence of re-action, heat, &c. The benefit to be
 “ expected from the shock will almost wholly de-
 “ pend upon its being given before the fever is
 “ fully formed ; but, although this is the case,
 “ the affusion, in a less powerful degree, should
 “ be assiduously repeated, at such intervals as the

“ symptoms of re-action indicate ; and, when the
 “ vital powers become much impaired, gentle
 “ aspersion, or ablution, will produce grateful
 “ and soothing effects, and dispose to sleep, when
 “ the patient is heated, restless, or delirious. These
 “ will be farther promoted by cold applications
 “ to the head, after cutting off, or shaving the
 “ hair ; or, as the head is more accustomed to
 “ changes of temperature, it is probable that
 “ greater effect will be produced by the applica-
 “ tion of cloths wet with spirituous or aqueous
 “ fluids, to the epegastrum, or other sensible
 “ parts ; and when there has been much anxiety,
 “ and heat, I think I have occasionally seen
 “ much relief from this practice.—(Amongst
 “ others, see Dr. Stock on the Effects of Cold ;
 “ the Edinburgh Medical and Surgical Journal,
 “ Vol. II. ; and Dr. Bateman’s Report, in the same
 “ work, for July 1807.) A partial moisture
 “ upon the upper parts of the body, if the skin
 “ is hot, should not prevent the use of the cold
 “ bath, particularly in the early stages of fever.
 “ Abstaining here from any disquisition upon the
 “ comparative merits of the cold affusion, and
 “ general spirituous refrigeration, as foreign to
 “ a relation wholly practical, I shall be glad to
 “ receive any observations upon this subject,
 “ which are the offspring of experience. Upon
 “ the spiritus ætheris nitrosi, which is an excel-

“lent medicine, the effervescing draughts, and
 “some other prescriptions, which are occasion-
 “ally useful in this disease, I think it unneces-
 “sary to make any remarks. Having noticed
 “those agents which have the most powerful
 “influence on the course of fevers, and which
 “are the most likely to induce a state of the
 “system favourable to free and general perspi-
 “ration, it is of great importance to observe,
 “that, if these fail, this desirable event cannot
 “be brought about by any forcing medicines
 “whatever, such as antimony, opium, or other
 “nauseating preparations; all of which, I con-
 “ceive, are highly improper in this disease.
 “Whilst I have seen no satisfactory evidence
 “whatever in support of this practice, I think
 “it sufficient reprobation to observe, that pain-
 “ful ought his feelings to be, who, without any
 “adequate end in view, has persisted in exciting
 “an irritability of stomach, which no art has
 “been able, subsequently, to allay.

“Were it proper to allow theory to assume
 “the language of experience, or did I treat of
 “any other than the most formidable of diseases,
 “I should sanguinely predict, that, of all the
 “measures which are likely to free the body
 “from fever by copious perspiration, the great-
 “est benefit, after adequate reduction of the
 “vascular system, may be expected from the

“ very ingenious and efficacious vapour baths ;
 “ which are now directed to be furnished to the
 “ naval hospitals on this station. The powers of
 “ this herculean remedy, in a variety of com-
 “ plaints, it is not, at present, my business to
 “ consider. But in the premonitory symptoms,
 “ preceding the invasion of active fever, as well
 “ as under circumstances, and in stages of this
 “ disease, where the cold bath is inadmissible,
 “ very great advantages are likely to be derived
 “ from the administration of the vapour baths ;
 “ which, to use the language of many eminent
 “ physicians, who have examined their construc-
 “ tion, possess such, ‘ a degree of efficiency,
 “ ‘ accuracy, and variety of application, that
 “ ‘ there are few diseases in which they may not,
 “ ‘ at some stage or another, be useful ; and, in
 “ ‘ the prevention of disease, as well as during
 “ ‘ the periods of convalescence, they will also
 “ ‘ produce effects highly beneficial.’ —(Vide
 “ ‘ An improvement in the Modes of Administer-
 “ ‘ ing the Vapour Bath,’ by the Honourable
 “ Basil Cockrane.)

“ If bleeding, purging, and the cold affusion,
 “ which mutually assist each other, have been
 “ vigorously employed before the fever is fully
 “ established, there is great reason to hope that
 “ the danger of the second stage will be averted,
 “ and the most unpleasant symptoms diminished,

“ within the first twenty-four hours. The young
 “ practitioner is here, however, very apt to be
 “ deceived. It is very necessary to caution him
 “ against the appearance of a deceitful lull, which,
 “ like the calm preceding a storm, is often wit-
 “ nessed about this period, and to recommend his
 “ watching the disease with the most assiduous
 “ attention. If the patient is really better, the
 “ pulse and skin should not only become more
 “ natural, but the most distressing and unplea-
 “ sant sensations should be much relieved, and
 “ his feelings altogether much more comfortable.
 “ If, on the contrary, an evident change or amend-
 “ ment is not perceived in the course of the second
 “ day, or if, after an apparent remission, the symp-
 “ toms become aggravated, with anxiety, sighing,
 “ restlessness, nausea, or a particular disagree-
 “ able sensation at stomach, the worst is to be
 “ apprehended, and every exertion used, by mi-
 “ tigating the heat, general irritation, and par-
 “ ticular symptoms as they rise, to avert that
 “ state of fatal irritability, and disorganization,
 “ which may be expected to supervene. The
 “ means employed in the first stage having
 “ failed to cut short the fever, we can now only
 “ hope to counteract or arrest the fatal changes
 “ taking place in the stomach, or viscera, by early
 “ recourse to blistering, and the internal exhibi-
 “ tion of simple, but powerful stimuli, as carbo-

" nate of ammonia, capsicum, wine, if not nau-
 " seated, spices, &c. The carbonate of ammo-
 " nia, in doses of six or eight grains, made into
 " pills, and given every two or three hours, is
 " highly recommended by Mr. McArthur, late
 " of the Naval Hospital at Barbadoes, whose
 " great practical opportunities necessarily give
 " his opinions the greatest weight. The capsi-
 " cum given the same way (and also under
 " the form of what is called pepper-punch) has
 " likewise been found highly useful, and is ex-
 " tolled for allaying vomiting, by several West
 " Indian practitioners.—(Vide, Medical Facts
 " and Observations, Vol. VII. ; Medical Commu-
 " nications, Vol. II. ; Dr. McLean on the Fever
 " of St. Domingo ; the New Dispensatory, &c.)
 " When we apprehend the approach of vomiting,
 " and other dangerous symptoms, these remedies
 " are immediately to be employed, without being
 " deterred by the fever that may be present ; for
 " it is evident, that if we wait for the reduction
 " of heat and vascular action, previously to the
 " exhibition of stimulants, they will too frequently
 " not be employed, until the very changes we
 " wish to prevent have taken place, and the pa-
 " tient is sinking into the grave. To prevent
 " the inverted action of the stomach, which is
 " of great consequence and difficulty, should
 " farther be attempted, by giving frequently a

“ table-spoonful or two of arrow root, or some
 “ other gelatinous or mild agreeable matter, ac-
 “ cording to the patient’s fancy, but so little, and
 “ often, as equally to avoid total emptiness, or
 “ offending the stomach by quantity or quality.
 “ I have seen a few instances, where, by such
 “ attention, day and night, the fatal event was
 “ protracted to double the usual period, and
 “ vomiting altogether averted; and I have the
 “ great gratification of knowing that several have
 “ recovered from the greatest debility, by this
 “ kind of nursing, long after medicine had no
 “ farther power to save.

“ Referring for a detail of the less pure,
 “ mixed, and anomalous shapes, under which this
 “ disease appears, from various modifying cir-
 “ cumstances, to Drs. Jackson, Rush, Mosely,
 “ Blane, Chisholm, and other writers on the
 “ Yellow Fever, it will appear, from the plan
 “ of treatment here laid down from experience as
 “ the best, that I consider this fever in its sim-
 “ plest and legitimate form, (viz. as it attacks the
 “ youthful plethoric stranger, after exposure to
 “ strong exciting causes) as highly inflammatory
 “ in the first stage, with great determination to
 “ the stomach, viscera, and brain, which, if not
 “ immediately remedied, becomes a specific in-
 “ flammation, running into organic disease of
 “ those parts, of the most destructive and irre-

“ mediable nature, and terminating rapidly in
 “ disorganization, gangrene, and death. It is,
 “ therefore, evident, that the result will greatly
 “ depend upon reducing increased vascular action,
 “ and the energy of the brain, and fully evacua-
 “ ting the whole intestinal canal, in the first,
 “ and thus averting the danger of the second stage,
 “ by the above powerful remedies; and in pro-
 “ portion as these have been early and judiciously
 “ employed, may we look for success. When
 “ this fever has been neglected, or feebly treated
 “ at first, or the Surgeon lulled by the insidi-
 “ ousness, or unacquainted with the power and
 “ rapidity of, the disease, has been induced to
 “ remit his vigilance, the patient is too often
 “ lost, before he is aware of his danger:—*what*
 “ *is to be done, must be done quickly.* From the
 “ above view, also, the frequent fatality of this
 “ fever will excite less surprise, particularly when
 “ we reflect how frequently inefficient are the
 “ powers of medicine to arrest the progress of
 “ even the milder fever of temperate climates,
 “ when fully formed; a truth which every man
 “ of experience must acknowledge, and which is
 “ demonstrated by Dr. Brown’s Exposition, in
 “ the Annals of Medicine, for 1802.

“ The mercurial plan in Caribbean Fever, has
 “ very repeatedly had the fullest trial, and the ut-
 “ most I can say is, that I have seen it succeed
 “ sometimes in certain loco, mixed, protracted,

“ cases, where fever had almost, or totally ceased,
 “ yet the brain, &c. remained affected, or oppres-
 “ sed; but I have great doubt, and some of those
 “ most conversant unconditionally deny, that the
 “ ptyalism can be excited during the existence of
 “ increased heat, and febrile action, and hence it
 “ is inferred, that it is not the cause, but simply
 “ an indication of the cessation of fever.”

Towards the close of the season of 1802, I received the following letter from the late Mr. Lind, then Assistant Inspector of Hospitals in Jamaica, dated

“ *Spanish Town, 25th November, 1802.*

“ SIR,

“ I beg leave to congratulate you on your
 “ promotion, and confidently expect a conti-
 “ nuance of that zeal and exertion I have noticed
 “ in your late station. These qualities, founded
 “ on a liberal education, have sanctioned my re-
 “ commendation to the Commander in Chief, who
 “ has consequently consented, without hesitation,
 “ to appoint you directly to the surgency of his
 “ regiment.

“ I have the honour to be,

“ SIR,

“ Your most obedient Servant,

“ CHARLES LIND,

“ Assistant Inspector of Hospitals.”

“ *Acting Surgeon Doughty,*

“ *85th Regiment.*”

I have inserted this letter not from a motive of vanity, but to evince I had that season been assiduous and zealous in my attention to the cases which came under my care, and this I do that some validity may be given to the opinions I have advanced

As I said on another occasion,* where my zeal lead me day and night into hospitals, where a fever of very similar features to the concentrated Endemic of the West Indies prevailed, “it was
 “not by visiting the sick soldier only once in the
 “twenty-four hours, that I made my observations
 “on, and acquired a knowledge of, the disease
 “called Yellow Fever: no, six and eight times
 “a day I visited them, nor have I forsaken them
 “at night, but swinging my cot in the same
 “ward, passed my nights in it, amidst the same
 “beds on which were laying many sick soldiers
 “labouring under a disease which developed,
 “in its every morbid symptom, a train of appearances varying in no one respect from those
 “lately seen in the *Epidemic Fever* of Cadiz; but
 “which I have ventured to pronounce *Endemic*,
 “excepting, as far as I have seen, that it was
 “here more of a typhoid and virulent tendency,
 “than in the endemic sick between the tropics.

* In my address to a general court martial at *Isla de Leon*, near Cadiz, in December, 1810.

“ When in the climates to which I am alluding,
 “ the but too frequent consequences of this de-
 “ structive disease, have baffled every human
 “ exertion, I had recourse to the same means *
 “ which I have pursued here, and which have
 “ terminated in bringing me a prisoner before
 “ this honourable tribunal.”

It was my custom, during the season of 1802, in my attendance of the sick at Up-Park Camp, to go at uncertain intervals in the night, as well to see what change might have taken place in the cases under my care, as to observe if the orderlies were alert, and assiduous to their duty ; because I considered my own attention and orders would be of no avail, if those who were to carry them into execution went to sleep, which is but too often the case, as I have known, in military hospitals.

Towards the middle of the season, finding the fatigue too great of visiting the hospital night and day, I had a cot swung in the ward where the most dangerous cases of fever were placed, that I might observe more particularly the progress of the disease, and evince what was then, and is yet, my opinion, that no direct contagion existed in the nature of the fever in any one of its stages : for neither myself, the other medical officers, or any

* Dissection.

one of the hospital attendants became attacked with the disease.

It was a consideration that greatly influenced my mind then, and which I endeavoured to inculcate, but more particularly on a later occasion,* where the dread of contagion was much greater, that confidence in believing it divested of the power of propagating itself, by emanations from bodies labouring under its influence, is the surest means of really rendering it so.

Every one who died of the disease at Up-Park Camp, in 1802, was opened. This task, by choice, fell to my share ; the other medical gentlemen occasionally assisted, and always one or two of the orderlies, yet no derangement of health ensued, and which, I think, must have been the case, had it been possessed of those contagious qualities ascribed in two recent publications : because almost all those who died had the symptom of black vomit, said to be the most marked feature of the fever designated *Bulam*.

I would not have it implied that I disregard the precautions recommended to prevent the spreading of fever, from whatever cause it may arise. I am aware that whitewashing and well ventilating the apartments of the sick, and all the means pursued to dilute and destroy *supposed* contagion, will

* At Cadiz, in 1810.

prove beneficial in Yellow Fever, which, I feel convinced, arises from a cause emanating from the earth, in particular situations, and at particular times, in the West Indies, where, though a given number may be exposed to its influence, only a part be affected, from the aptitude, or peculiar susceptibility to receive the morbid impression, varying so greatly in the human constitution, I mean the European constitution ; for in the natives of Africa, those blacks and people of colour, born in the West Indies, the constitution appeared to me as secure against Yellow Fever, as a person who has had the small pox, is against its recurrence. But I think this would not be the case if the fever was contagious. The pioneers, who are blacks, and who remove the most obnoxious matters from the sick, could not be exempt from attack of the same order of fever if contagion emanated : yet I do not remember to have seen one affected with the concentrated or aggravated form of fever, which terminates in black vomit, in Jamaica. I saw a negro boy in the hospital, *San Juan de Dios*, in Cadiz, who laboured under the fever then prevailing, with all the symptoms which affected Europeans, and who died vomiting the black matters, common to the most violent form of the disease. But how long he had been in Europe, or whether born in it, I could not learn.

Towards the close of December, 1802, the fever in the camp began, as usual, to decline, both in the number admitted, and quality of the disease. About the 20th of the month I quitted the battalion to join the 85th regiment at Stoney Hill.

This is a mountainous situation, and has ever been considered a healthy station.

The 85th regiment consisted of seven hundred men and upwards, at the time I joined them. Two hundred and fifty, however, were in hospital; and amongst this number not more than two or three cases of fever, of the mild remitting, or intermitting kind. Dysentery and ulcerated legs formed the aggregate of the disease which came under my observation at the time I first visited the hospitals at Stoney Hill. But there were causes, distinct from the climate, to which I attributed so many ulcers and fatal dysenteries: although these stages of morbid action have always been the prevailing complaints at this and every mountainous station in the West Indies amongst troops.

In the 85th regiment a system of discipline was pursued, too rigid and harassing for men in that climate. They were drilled to excess, and, moreover, one-third of the regiment was employed on fatigue, in the erection of barracks without regard to hours, as they were compelled to work

both in the heat of the sun, and in rain, which almost daily falls at Stoney Hill in heavy showers. Besides which, every man, for the minor order of offences, had his grog taken from him for a week, fortnight, or a month, as the case might be. And which, I am well convinced, was greatly prejudicial in more than one consideration. It depressed the soldier's mind, and made him drink new raw rum, whenever he could get it, with greater avidity. The quantity allowed by his Majesty's regulations, mixed with a proper proportion of water, as it always is, tends to assist in digesting the salt provisions, which is a soldier's fare five times a week in Jamaica. And this rum must always be of a certain age, and good quality.

I considered it my duty to represent to the Commanding Officer the seeming cause of so numerous a sick report ; but, although he stated to me that he would attend to my suggestions, no alteration was made in the hours of fatigue, or in the system of discipline carried on. He did not, however, continue long in the command, being removed on promotion, but died, shortly after quitting us, on board the packet, a few days after sailing from Port Royal.

His successor attended to every thing I pointed out, as well to lessen the number of sick, as to remove, as far as could be done, the apparent

causes from which the hospital had been so crouded. But, until a ship was obtained from the Admiral, moored in the bay of Kingston, all our endeavours in the treatment of ulcerated legs were unavailing. To this ship we sent as many as it would contain ; where, being confined from the shore, without having access to spirits, the influence of the sea air, and the judicious and assiduous attention of Mr. Carter, then doing duty with the 85th, and late Surgeon of that corps, their recovery was rapid and permanent, with some exceptions, where the sloughings had been extensive, which left, on the healing of the sore, a contraction of the limb. I continued with the 85th regiment, at Stoney Hill, from the latter end of December, 1802, to the middle of April, 1805.

In the seasons of 1803 and 1804 some few cases, of the same order of fever I had seen at Up-Park Camp, were admitted into hospital, but they bore no proportion to those with flux and ulcerated legs.

During the time the 85th regiment remained at Stoney Hill, a period of three years, three officers died there of fever, all of whom imbibed the seeds of the disease in the low lands ; two of them I particularly remember, but they did not communicate any infection to their brother officers, who visited them in the acme of the fever.

Mr. Pym has inserted in his publication a letter

from Mr. Redmond, Surgeon of the 54th regiment, and extracts of two letters from Mr. Rocket, Deputy Inspector of Hospitals, to Mr. Keate, respecting the fever which prevailed in that corps at Stoney Hill, and other stations, in the autumnal season of 1808.

That the 54th regiment was attacked with the aggravated form of Yellow Fever, as described in these letters, I readily admit ; and that other corps, in the same quarters, did not suffer, as stated by Mr. Rocket, I also firmly believe. Now as Mr. Redmond and Mr. Pym agree that the fever which prevailed in the 54th regiment was highly contagious, and Mr. Rocket asserts the other corps remained unaffected with it, I ask from what source did the 54th imbibe its contagion ? The fever developed itself at the season when the endemic cause prevailed, and which might that year be more powerful, and exert its influence to a wider extent, than it had done the preceding years. The soldiers of the 54th were susceptible of its influence, whilst those of the other corps were not, in the same degree ; because one of these latter regiments had been in the island, to my knowledge, not less than three, and the other six years, and a great part of the time in quarters, annually visited with Yellow Fever. I believe it, however, to be a rare occurrence to attack so extensively, or virulently, at the station

of Stoney Hill, or the Apostle's Battery, an equally healthy post, as mentioned in Mr. Rocket's letter.

Since I wrote the foregoing, I have put my hand upon a letter from a gentleman, with whom I corresponded at that time, on business of a private nature. It is dated Kingston, Jamaica, 9th Nov. 1808; the following is an extract from it :—

“ This place has been extremely sickly these
 “ three months past. We have had *more incessant*
 “ *rain* in Kingston than was remembered for
 “ a long time, which of course must have been the
 “ cause. Though numbers of our merchants, &c.
 “ were unwell, and I may say dangerously ill,
 “ the only *great man** was John O'Hara, that
 “ it pleased Providence to call from this busy
 “ world.

“ Numbers, I am sorry to say, of the troops
 “ have died. The 54th has lost, in less than two
 “ months, upwards of 200 at Stoney Hill, besides eight officers; amongst them are Captain
 “ Hutton, Lieutenant Arnold, &c. &c. Major
 “ Heyliger, of the 55th, and Lieutenant and Adjutant
 “ Nicholson, of the same regiment, were among
 “ the sufferers. The 18th regiment has also lost
 “ a number of men and officers, and at this present

* He was a very corpulent large man.

“ moment numbers of men and officers are unwell.
 “ I hope that a complete change having taken
 “ place in the weather, the disease will be checked,
 “ or altogether disappear.”

From what is here stated it does appear, that the cause of sickness was more particularly manifest this season : and I agree with my friend, (now no more) that to the heavy and incessant rains may be attributed the violent order of fever which followed, and which extended to many besides the officers and soldiers of the 54th regiment. The atmosphere surcharged with those exhalations at this time, I am aware, great and powerful in their effects on a susceptible habit of body, might, without surprise, extend their influence to Stoney Hill, not six miles distant from Kingston in a direct line, or one from the foot of the hill, where I have known the exhalations from the earth, in the rainy season, to have often produced fever.

In the Spring of 1805, an alarm was created in Jamaica, by the arrival of a French fleet at St. Domingo, which induced General Nugent, the Lieutenant Governor, to assemble the troops in brigades nearer the coast. We marched from Stoney Hill, about the middle of April, to Up-Park Camp, between five and six hundred strong. No fever was in the regiment at the time we left the hill, nor was there any amongst the soldiers of the

6th battalion. With the exception of some few chronic cases, both regiments might be considered to enjoy perfect health.

We remained at the camp, in brigade with the 6th battalion, near three weeks. Shortly after we quitted Stoney Hill the 1st battalion of the 18th, or Royal Irish, regiment arrived from England, and were ordered to our late quarters.

In the early part of May we marched to occupy the barracks in Spanish Town, which the 4th battalion of the 60th regiment had quitted, to embark for England. We left the camp in as good a state of health as we arrived in it from the hill ; and when General Nugent inspected us, in the beginning of June, the hospital was closed.

It was in this month a second alarm was produced in Jamaica, from certain information that a powerful French fleet had arrived at Martinique, with troops on board. It was this fleet the immortal Nelson pursued to the West Indies, and finally conquered off Trafalgar.

It being fully supposed their object was an attack on Jamaica, every precaution was adopted by General Nugent to guard against the same. Martial law was declared ; the militia called forth, and formed into brigades with the troops of the line. The 55th regiment was ordered from its several stations on the north side of the island to Spanish Town, a distance of more than one

hundred and twenty miles, which it had to march. Although the men were often drenched with rain during their route, they joined us in a very healthy state, and continued with us in brigade near two months. For one month and upwards, after their arrival, they continued free from sickness. Their several stations on the north side were, for the most part, considered healthy. The old Maroon Town, situated high in the mountains, is even a more healthy post than that of Stoney Hill—this was their head quarters. The regiment had been separated from the date of its arrival in Jamaica, and at the time of its junction again, in Spanish Town, three years had elapsed. From so long a residence in the colony it might be supposed the men were so far seasoned to the climate as to be unsusceptible, in a great degree, to that cause which generates Yellow Fever. To the men of the 85th regiment this consideration might stronger apply, as they had been near four years in the island. But what was the result, when the season of sickness arrived, and which commenced early this year, (1805) at least in Spanish Town, which has ever been found a very unhealthy quarter for troops?

About the middle of August several cases of fever, of the most violent type, were admitted into hospital, both of the 85th and 55th regiments, and which continued to increase so ra-

pidly, as soon to fill it. A large building, which had been formerly a theatre, was fitted up to receive cases, and this also soon became crowded.

The number admitted, and aggravated state of the disease, created an early mortality. So great and alarming was the fever, and so inadequate were the accommodations to the number attacked, in both regiments, that the 55th was ordered to Up-Park Camp, the 6th battalion of the 60th having embarked to proceed to Port Antonio. Their change of situation produced no change in the nature of the disease, or any diminution in the number of admissions: the hospital at the camp was soon filled, and the mortality was uncommonly great. Our situation was not less deplorable; the admissions amounted daily to seven or eight, for more than a month, after the commencement of the sickness.

One of the first cases which came under my care this season was an officer of the 85th regiment. He was a very robust, athletic man, about thirty years of age. At the time of his attack he had been near four years in the island, which he had passed principally at Stoney Hill. From the situation he held, of superintendant over the artificers and labourers in the erection of barracks, he had been greatly exposed to the heat of the sun. He was a most active man, and walked several times from the hill to Kingston and back, a dis-

tance of near twenty miles, which is a great exertion in so hot a climate. This, however, he was accustomed to do with seeming ease in a few hours. He drank greatly of spirits and water, or strong grog. From the time of our arrival in Spanish Town, to the date of his sickness, he was in the habit of amusing himself by shooting wild pigeons amongst the lagoons and brushwood, in the neighbourhood of this town, regardless of the season or sun's influence. From one of these excursions he returned, with great pain in his head, and uneasiness generally. It was between three or four hours before he sent for me, after the symptoms of fever had manifested themselves. When I saw him he complained of great pain in his head, with lassitude and debility ; suffusion of the eyes ; great heat of skin ; white appearance of the tongue ; and a seeming oppressed pulse. I immediately had recourse to the lancet, but, before I had abstracted eight ounces of blood, he became sick and faint. He was in the erect position, and by laying down I was enabled to obtain about twelve ounces. After this I gave the pills as mentioned in page 12. His bowels were obstinately constipated, and not being moved by the above, an ounce of the sulphat of magnesia was administered, and a short time afterwards a strong purgative injection. By these means some copious evacuations were procured. After the bleeding there was consider-

able diminution of the pain in his head, and, after the alvine evacuations, relief in all his symptoms. I had him put into a warm bath, which produced a temporary relaxation of the exhalent vessels, and consequent perspiration. Not having by me notes of his case, I can only state from memory, that the heat of skin and restlessness returned, with irritability of stomach, and pain in the head. A blister was applied to the nape of the neck, and another to the region of the stomach. The pills, with calomel and James's powder, were given, followed by the effervescing draught. This plan was pursued till the third day of the disease, when, on visiting him, I found he was sitting in the bed and dressing, in order to get up, as he expressed to me that he found himself much better. Being at this time so fully occupied with the numerous cases that I had to attend to, I did not remain long with him. However about three hours afterwards I was sent for in great haste, and on my arrival I found him laying on the bed, with his clothes on, *in articulo mortis!*

These delusive intervals of hope, in the latter stages of this insidious fever, I have too often witnessed amongst others my brother officers, soldiers, and companions of many a sultry day.

As phlebotomy was not a mode of practice pursued or approved by the medical gentlemen in Spanish Town, or by the head of the department

(Mr. Rocket) who resided there, it being head quarters, I was censured for having, as I learned, taken too much blood in this case. I am, however, of opinion, and I thought so then, that I had not taken sufficient to produce a change in the morbid action going on ; and which if not effected at the commencement of the disease the chance of success is ever precarious. The strength of body and constitution which this officer appeared to possess indicated the propriety of taking away three times the quantity of blood that was abstracted. I bled an officer in Up-Park Camp, of much less strength in person, to the extent of two pounds of blood at one venesection ; and which effected an instantaneous change in every unfavourable symptom, and an early and permanent recovery.

In our hospital, which I have stated, was soon crowded, and with cases of the most aggravated nature, the mercurial plan of treatment was for a time tried, but with no success, as in seven cases out of ten the mouth could not be affected ; where the mercurial action did manifest itself, the patient was considered safe : but this effect was so uncertain, that I shall never be lead to adopt it again, as a general plan, should any circumstance induce me to revisit the West Indies.

The great mortality which took place this season in Spanish Town, induced us to try every

remedy but bleeding, which was only performed in the one case stated, from the bias there was against it, and because I was not entirely at my own controul.

The warm bath and cold aspersions were occasionally had recourse to. Purgatives were invariably given at the commencement of the disease. Opening the bowels well at first, and keeping them open with a determination to the surface by the aid of the pills composed of calomel and James's powder: the application of blisters to the nape of the neck and region of the stomach, to lessen the vascular action in this important viscus and the head; sponging the surface of the body over with vinegar and water, and placing the patient in a current of air, seemed to be the most successful plan.

The disease passed through the greater part of the regiment. It commenced in August and did not cease its ravages till near the end of January.

The Apostle's Battery, a post situated amongst rocks on the bay of Port Royal, being elevated and open greatly to the sea breeze, has always been considered a very healthy station. To this post we sent our convalescents, with a proportion of non-commissioned officers and privates, to do the duty of the place, and assist them in hospital. These men, however, having imbibed in Spanish Town the seeds of the disease, were attacked with

the same violent form of fever as their comrades at head quarters; and the mortality was equally great in the like number of cases. Of those who died, the symptom of black vomit was prevalent in five cases out of seven. Mr. Carter, whom I have before mentioned, had charge of this hospital.

The advocates for the doctrine of contagion may ascribe the sickness at this reputed healthy post, in those who were sent free from disease, to their having received the infection from the convalescents whom they accompanied. But I consider that the same cause which created the fever first in Spanish Town, and which had not ceased to operate its influence at the time they were removed to the Apostle's Battery, occasioned the fever amongst them here. Their constitutions had been saturated with those noxious exhalations in Spanish Town, and which might be brought into action by that additional excitement, peculiar to change of situation in the West Indies. It is probable had they not removed from the focus of the disease, the morbid cause might have remained dormant in the system, and not have had sufficient power to produce febrile derangement. For although the disease was very general throughout the regiment, yet several remained exempt from any attack.

It will be seen from what I have stated respect-

ing the 85th and 55th regiments, that a residence of four years in the West Indies does not secure the soldier against the influence of the endemial cause of fever, at the season when, and situation where, it most prevails ; if previous thereto the constitution had not been exposed to the operation of that cause : and which was the case with the above corps, whose quarters were principally at stations where Yellow Fever is only a rare occurrence.

Had the 4th battalion of the 60th regiment continued at Spanish Town, and the 6th battalion at Up-Park Camp, during the time the fever was so destructive to the 85th and 55th, I am well aware they would have been affected with the disease in a comparative small degree ; because the men composing those battalions had been one of them three, and the other four, preceding seasons inhaling an atmosphere surcharged with those noxious exhalations, generative of Yellow Fever, by so long a residence in those stations where it annually prevails.

The extraordinary sickness and mortality in the 85th and 55th regiments made such an impression on General Nugent as to determine him never to remove the troops again from one station to another, if it could possibly be avoided. In the spring of 1806, however, this excellent officer was relieved in his government and command by Lieutenant General Sir Eyre Coote : and in the

month of June the 85th received orders to return to England.

The men remaining were allowed a bounty on volunteering to the other corps in the island, and permitted their choice as to regiment. About one hundred and fifty quitted us. We had orders to proceed to Fort Augusta, from whence two companies embarked, and sailed for England, the latter end of July. The other six companies, band and staff, remained in barracks at Fort Augusta, with the second West India regiment, from the above period to the month of May, 1807, when we were removed to the barracks in Kingston.

I have stated these circumstances to shew the comparative effect of different stations in the production of disease. During the whole period of our residence in Fort Augusta we only lost one man. Some slight cases of remittent and intermittent fever were admitted into hospital occasionally after the commencement of the rainy, and, at our late station, fatally sickly season.

Fort Augusta is washed in three-fourths of its circumference by the sea. On the north-east and west side of it is an extensive lagoon, which, but for the counteracting influence of the salt water and sea breeze, would indicate the production of fevers of the virulent order; and which have at times prevailed here to an extraordinary and fatal degree. On quitting this post at an early hour in

the morning, when the land breeze blows over the lagoon, the air is impregnated with a most noxious and offensive effluvia. I have often been exposed to this disagreeable exhalation, whilst going up in the market boat, at an early hour, from the fort to Kingston.

The lagoon extends in a north-easterly direction, to near the western extremity of this city, and is, I apprehend, conducive, with the other Endemic cause, after the fall of rain, in the autumnal season, to the production of the concentrated form of fever, denominated *Yellow*, which annually visits, more or less, this extensive and populous town.

If marsh miasmata alone are sufficiently powerful to generate Yellow Fever in the West Indies, those residing within the sphere of action of this marshy lagoon, would be attacked at all times of the year, if there was pre-disposition in the constitution to febrile action. But I never remember any case of the violent form of the disease amongst those so residing, except at the usual season; viz. from August to December or January: which convinces me the earth appears to acquire, by long continued drouth and heat, certain powers obnoxious to health, and which it imparts after the heavy rains set in.

One or two occasional showers in the dry sea-

son would have no effect in the production of disease, as I have known.

At the time we quitted Fort Augusta for Kingston barracks, in the month of May, 1807, there were only three or four chronic cases in hospital. The whole of the regiment, officers and men, now assembled together, amounted to about one hundred and thirty persons. We might be considered free from sickness, no acute disease prevailed at this time in the corps, or even in Kingston. In this state we remained until August, when, after the rainy season had set in, several cases of fever, of very bad type, were admitted into the hospital, and which continued to increase, both in the violence of the symptoms and number attacked. Many of the officers were affected, and three of them fell victims to the disease. I did not escape its influence, and very narrowly recovered; but was left in such a state of extreme debility, that I was obliged to proceed on a cruise in the *Peterel* sloop of war, and to which I ascribe the re-establishment of my health.

The Royal Irish, as I have stated at page 57, succeeded us at Stoney Hill. During their residence at this station, which did not much exceed a twelvemonth, they suffered little from fever. Fluxes and sore legs, however, prevailed to a great extent.

When we quitted Spanish Town they again succeeded us, and shared an equal degree of sickness and mortality in the season of 1806, to that of ourselves, and the 55th in 1805. From this I think it will appear, that the most violent form of fever, whether denominated *Yellow*, *Bulam*, *Ardent*, or *Continued*, does at times prevail in the West Indies, at particular situations, and particular seasons, and which is generated from causes peculiar to those situations and seasons, and no ways attributable, in its origin, to animal contagion. And although there are several varieties, or modifications, of the disease, yet I believe the milder or most aggravated form to be the same, varying only in degrees of concentration in itself, and producing different stages of morbid action, according to the difference of constitution acted upon, and other circumstances before enumerated.

I am aware there are occasionally occurrences, where the fever prevails in the most violent degree, and where the cause from which it arises is so far involved in obscurity, as to elude every research, and baffle the judgment in the contemplation of its origin.

It did not fall within the sphere of my observation, in the course of the eight years that I resided in Jamaica, to witness the prevalence of the violent, or *Yellow Fever*, to any extent, but at

the times when, and places where, it has ever been found more or less to shew itself. The only marked distinction to this rule, which I remember, was with respect to the Royal Artillery stationed at Port Royal.

This town, standing on a projecting isthmus of land, of about seven miles in extent, forming the bay or harbour bearing its name, and that of Kingston, has been considered from its contiguity to the sea, with which it is washed in three-fourths of its limits, a healthy situation; at least far more so than Kingston or Spanish Town. It is to this place that convalescents and valetudinarians repair to recruit their health.

Without any apparent cause, that I could learn, fever, in the same violent form and attended with the same fatal consequences, has prevailed, two or three successive seasons, in the garrison of Port Royal, in the month of May, when the troops in every other station of the island have been entirely exempt from it. This repeated occurrence, at so usually healthy a part of the year in other parts of Jamaica, induced the principal medical officer to recommend, and the commander of the forces to approve, the removal of the greater part of the garrison to Up-Park Camp, for a month or six weeks, the time it generally continued. I remember their removal to the camp produced no fever *sui generis* with that under

which they laboured, amongst the other troops in the same quarters ; and which must have ensued had the disease been contagious, because they indiscriminately mixed together : and those labouring under the disease were placed in the same hospital with those confined from complaints of a total distinct nature.

If, on one of the principles said to be a peculiarity of the fever named *Bulam* “ that its “ powers are increased by heat, and destroyed by “ cold,” I ask, could this be applied to the difference of station between Port Royal and Up-Park Camp, where the degrees of heat in the month of May, and indeed in every month of the year, are nearly the same. If there is any difference, Port Royal enjoys a cooler temperature. No, the earth at, and around the station of Up-Park Camp, had ceased to impart, as I observed it for seven years, the principle generative of fever, in the month of May. And although several of the artillery, from having imbibed the seeds of the disease at Port Royal, were attacked at the camp, yet it soon ceased ; and there was not an instance of any of the 6th battalion of the 60th being affected, notwithstanding their indiscriminate intercourse.

Although I have related this to evince that heat alone neither creates or propagates Yellow Fever,

I yet consider it a powerful predisposing cause to both.

I readily admit that cold will destroy the spreading of the disease named *Bulam* Fever. I am well convinced, if the order of nature could be so changed as to produce a frost for one week in the West Indies, at the season when the violent order of fever prevails, that the disease would entirely cease ; because the earth would be then locked up, and incapable of imparting the morbid cause. Let, however, after that short period, the native heat return, the disease would immediately recur, and continue, till by the abstraction of the effluvia, through the sun's influence, it became exhausted of the morbid principle. I will submit another position.

Let six or any number of patients labouring under Yellow Fever, in its most violent degree, be conveyed to any one of the most elevated places of residence in the blue mountains of Jamaica, and let the same number of persons in health, there residing, be compelled to superintend them throughout the fever, whether of favourable or fatal termination : I feel every assurance the disease, in that station, would not be imparted from those labouring under it, to any one of those in attendance. It cannot be propagated in a soil which does not in itself impart the seeds of the disease : and the situations I allude to are exempt from the prevalence of Yellow Fever.

Suppose, again, six persons were to come down, in a state of health, from their residence in the blue or higher mountains of Jamaica, to Kingston, Spanish Town, or any place where Yellow Fever prevails in the autumn or sickly season, remain a few days or a week, and then return, without being attacked, it would be a very extraordinary circumstance, if, on their return home, one or more of them did not become affected with fever. Their residence in the mountains would not destroy the susceptibility to the influence of the morbid cause, as I have shewn from facts, explained by the destructive fever in the 85th and 55th regiments, which had been some time stationed in mountainous situations.

The 6th battalion of the 60th regiment sent, in the season of 1803, a serjeant and twelve men in pursuit of some runaway negroes, who had been guilty of such acts of criminality as to call forth the aid of military power for their being taken into custody. Before this was accomplished a fortnight or more elapsed, and they were exposed in their search to considerable fatigue and the influence of the sun, and also drank a much greater quantity of rum than if they had remained in quarters with their regiment. It was in the sickly season when they went and returned. The battalion, as I have stated, had been extremely sickly the preceding year, but were attacked this

season in a comparative small degree with the prevailing fever, from the susceptibility in the constitution to the action of the morbid cause being so greatly diminished by an exposure to its influence in the years 1801 and 1802.

Whether the serjeant and men I have mentioned were exposed to any cause more exciting than the sun's heat, fatigue, or drinking a greater than their accustomed proportion of spirits, I have not learned, or whether these alone were sufficient to produce a change in the constitution, by which an additional degree of susceptibility was superinduced, I can only conjecture. However this fact I learned from Mr. Brown, then senior Assistant Surgeon of the battalion, that every one of them on their return was attacked with the Yellow Fever in its most violent form, and that all fell victims to the disease. This aggravated state of the fever was confined solely to them, very few others in the battalion were attacked, and those had the disease in a far milder degree.

When I embarked to proceed on a cruise on account of my health, it was the 13th of December, 1807; the sickness still continued in the 85th at the barracks in Kingston; and had not ceased, as I afterwards learned, the end of January, 1808. The chain of febrile action drawn out to so long an extent, with so few materials as the corps now consisted of, and these too so long resident in the

island, is an extraordinary circumstance. Small as the number yet remaining was, they were removed, by order of the Commander of the Forces, to Up-Park Camp, as the most probable means of eradicating the disease. There I found them, on my return, in barracks with the 55th regiment.

The commanding officer of this corps being apprehensive the disease in the 85th was contagious, had directed they should not be admitted into the same hospital with men of his regiment : but, there being only one building for the reception of sick, this arrangement could not take place, and those patients labouring under fever in the hospital at Kingston, were removed and placed in that at the camp, without communicating any disease to those around them. The morbid cause had ceased its operation at Up-Park, as I had known it to do the six preceding seasons, the beginning of February, when the 85th arrived, otherwise their removal would have been attended with no benefit. I returned to them in the early part of March, when there was no fever in hospital.

Kingston barracks have ever been found to prove fatal to many who happened to be there in the sickly season. They are situated at the upper part of the town, on its western extremity, and not half a mile from the lagoon I have mentioned. At the time I was in them there was some defect

in the common sewer, from which a most offensive effluvia diffused itself throughout their extent. They are also (particularly the hospital) ill constructed for the free circulation of the sea and land breeze, so essential to health and comfort in that climate. These circumstances combined might tend to render more powerful the common cause of fever in the West Indies, and extend its influence beyond the usual period, when it has been found generally to subside.

I perfectly agree with the Editors of the Medical and Physical Journal, who say, in their review of Mr. Pym's publication, for November, 1815, at page 404:—"We must ever protest against
 " the arguments advanced by the contagionists,
 " and indeed admitted by some of the other party,
 " namely, that where there are no *swamps*, or
 " *marshes*, there can be no febrile miasmata.
 " Thus it is triumphantly brought forward, in re-
 " futation of Dr. Bancroft, that at Cadiz and
 " Gibraltar there are no such things as marshes,
 " and consequently there are no miasmata; but
 " we know well, that whenever the thermometer
 " rises to a tropical height, for any length of time,
 " miasmata will be engendered in, and elicited
 " from, *vegeto-animal* matters, wherever they
 " may be situated, whether in streets or houses,
 " and the fevers resulting from thence will be in
 " proportion to the predisposition of the inhabi-

“ tants, the previous state of the atmosphere, the
 “ crowded state of the population, and a thousand
 “ other circumstances, whose combinations cannot
 “ be calculated upon.”

I shall have occasion to apply this annotation more particularly when I come to relate the fever of Cadiz, in 1810, as it fell under my observation. In the West Indies, however, I have advanced an opinion that there is imparted from the earth, in particular situations, after the fall of rain, in the autumnal season, a principle obnoxious to health, and generative of fever ; and which manifests its effects in a ratio with the progress of vegetation, as I particularly observed in Up-Park Camp, in 1802—so when the earth has become exhausted of this principle, and which it generally does before the close of January, the cause is, for the season, at an end, and febrile action ceases.

The earth may acquire this principle by long continued drouth and heat, even where vegetation is scanty, or on a barren soil, but I believe not in so powerful a degree as in the more fertile spots.

The surface of the ground in the low lands of Jamaica, by being exposed to a daily degree of heat of from 90 to 110, and a continued drouth for six months, acquires that peculiar restoration of fertility which the agriculturist expects from fallowing his land. Heat and moisture being the

two great principles which influence vegetation, it may easily be imagined how rapid this must be in the West Indies, after it has been dormant for want of rain for six months, and when the latter falls in torrents, as it is ever accustomed to do, more or less, in the months of August, September, October, and November, without any diminution in the degrees of heat. I observed according to the early or later period when the rainy season commenced was the accession of sickness or febrile action, in the low lands of Jamaica; for if it set in early the disease was neither so general in extent or aggravated in degree as when protracted to September or October. If it be asked, why does not the principle of vegetation in the mountainous situations of Jamaica produce fever? A reply may be made that in those parts there is an eternal verdure, and scarcely a day without some fall of rain. Therefore, on this consideration, it may be inferred whatever exhales from the earth there is of so bland a nature as not to have power to produce fever, although another form of morbid action is effected, viz. ulceration and fluxes, which are the endemic diseases of the mountains of Jamaica amongst troops.

Fevers to a great extent, and violent degree, have occasionally visited Stoney Hill, but I believe never at the old Maroon Town, in the parish of

Trelawny on the north side of the island, situated higher, and at a far greater distance from every unhealthy station, than Stoney Hill.

At page 348 of Sir James Fellowes's publication, is the following account of the Endemic of Zealand, by the Dutch Physician, Dr. Wind; quoted from Dr. Lind's Essay on European Diseases, and which bears me greatly out in the opinion I have formed respecting the remote cause of Yellow Fever.

“ ‘ At Middleburgh,’ says he, ‘ the capital of
 “ ‘ West Zealand, a sickness *generally* reigns to-
 “ ‘ wards the latter end of August, or beginning of
 “ ‘ September, which is always most violent after
 “ ‘ hot summers.

“ ‘ It makes its appearance after the rains, which
 “ ‘ generally fall in the latter end of July; the
 “ ‘ sooner it begins the longer it continues, being
 “ ‘ checked only by the coldness of the weather.
 “ ‘ Towards the end of August, and beginning of
 “ ‘ September, it is a continual burning fever, at-
 “ ‘ tended with a vomiting of bile, which is called
 “ ‘ the gall sickness; this fever after continuing
 “ ‘ three or four days intermits, assumes the form
 “ ‘ of a Double Tertian, and leaves the patient in a
 “ ‘ fortnight, or perhaps sooner; strangers, who
 “ ‘ have been accustomed to breathe a dry pure
 “ ‘ air, do not recover so quickly.

“ ‘ Foreigners, in indigent circumstances, such

“ ‘ as the Scotch and German soldiers, who are
 “ ‘ garrisoned in the adjacent places, *are apt, after*
 “ ‘ *those fevers, to have a swelling in their legs*
 “ ‘ *and a dropsy, of which many die.*

“ ‘ Fluxes are frequent in September and Octo-
 “ ‘ ber, towards the latter end of which, indeed,
 “ ‘ the air becomes more healthy, and then few
 “ ‘ diseases prevail ; at this time, those who have
 “ ‘ laboured under the fever, sometimes suffer a
 “ ‘ relapse, but then it is into a Simple Tertian,
 “ ‘ which seldom confines the patient.’

“ Dr. Wind further observes, ‘ that *those dis-*
 “ ‘ *eases are the same with the Double Tertian*
 “ ‘ *Fevers* common between the Tropics,’ and he
 “ adds, that, ‘ such as are seized with the gall sick-
 “ ‘ ness have, at first, some flushes and heat over
 “ ‘ the body, a loss of appetite, a white foul tongue,
 “ ‘ a yellow tinge in the eyes, and a pale colour of
 “ ‘ the lips,’ &c.

“ Sir John Pringle and Dr. Cleghorn have con-
 “ firmed all that has been said by the Dutch Physi-
 “ cian in this short extract from the History of the
 “ Endemic of Zealand. The former observes,
 “ ‘ that the Epidemic of autumn, and prevailing
 “ ‘ distemper of this and other marshy countries,
 “ ‘ is a fever of an intermitting nature, commonly
 “ ‘ of a Tertian form, but of a bad kind ; which in
 “ ‘ the dampest places, and worst seasons, appears a
 “ ‘ *Double Tertian, a Remitting, a Continued, or*

“ ‘ even *Ardent Fever*; all of which, however, varying in their appearance, according to the difference of constitution or other circumstances, yet are of *similar nature*.’ Chap. I. p. 7.

“ And he adds this candid and useful remark, that, during the campaign of 1742, the great number of sick, *and their want of experience in the cure of diseases incident to a moist climate*, was the reason that at that time, the fevers were perhaps less successfully treated afterwards.

“ ‘ Many of the remittents degenerated into continued fevers, which were often fatal, and the *intermittents*, by being stopped before the proper *evacuations* were made, or not secured against relapses, changed likewise into *Continued Fevers* or ended in dangerous obstructions of the *viscera*.’ Pringle on Diseases of the Army, Part I. chap. 9, p. 14.”

What is stated in these extracts accords with my own observations made in the island of Walcheren, in the autumnal season of 1809.

It was my fate to be one of the staff surgeons on the unfortunate expedition to Zealand of that year.

I landed with Major General Graham’s (now Lord Lynedock) brigade on the evening of the 30th of July, on the sandy beach near Tervere. The whole of the troops which debarked that night amounted to near ten thousand men. As

the boats grounded before they reached the shore, the men had to jump up to their middle in the sea, in which state they landed and formed on the beach. They lay on their arms that night, during the greater part of which it rained heavily, and they were without shelter. My Assistant and myself landed in the same wet state, and were equally exposed all night to the rain.

The following day the weather became serene and fine.

After the several brigades were formed and ready to march, I received orders to proceed with that under Major General Houstoun's command. We marched to within a short distance of the city of Middleburgh, where we halted during the night of the 31st. We lay on the ground uncovered, but as the weather was fine and very warm, I remember I never slept sounder than I did on a little straw which my assistant had procured.

Early on the morning of the 1st of August the brigade got under arms, and shortly afterwards marched. We passed through Middleburgh, and about half a mile on the other side of the city, were opposed by the greater part of the garrison of Flushing, which, however, was soon driven into that fortress.

About fifty wounded of the enemy, and our own men, fell under my care, and were placed in a very elegant house in the village of East Soubourg.

Three or four days afterwards, however, they were removed to Middleburgh, and my assistant and I accompanied them.

Those of the enemy were placed under the care of the French Surgeons, and our's were provided for in an hospital named Segersberg, where I received orders to do duty, by Mr. Webb, then Inspector of Hospitals, and Chief of the Medical Staff of the Expedition.

During the time the active operations of the siege of Flushing were carried on, the army so engaged suffered in no way from sickness, although they lay on the ground, and in ditches, exposed to rain and the swamps, without covering, until the town surrendered.

We had no admissions into hospital but wounds, until the latter end of August, a circumstance which corroborates the opinion, that when the mind is energetically engaged in military pursuits, the body will thereby be rendered greatly unsusceptible to any cause of disease.

A very short time after the surrender of Flushing, and when the ulterior objects of the expedition were abandoned, and the soldier had nothing novel to excite his hopes or expectations, sickness developed itself generally.

The first cases of fever which came under my care were of the intermitting and remitting order. From the number admitted, and soon crowded state

of the hospitals, it shortly exhibited symptoms of an Ardent Continued form, and many cases degenerated into the Typhoid order.

From the great and rapid increase of sickness, and the total disproportion both of medical attendance and accommodations, may be ascribed that want of due discrimination, so necessary to the effective application of physical remedies. Moreover, what could be expected from the medic art, where the whole assembled sick were necessarily exposed, during their malady, to the very focus of that cause from which it arose? The only chance for those men, and which was carried into effect as early as it could be done, most particularly after the arrival of the present Director General, Sir James M'Grigor, was to send them to England.

I was attacked with the intermitting fever about the beginning of October, from being constantly exposed to that cause, added to the great fatigue I daily experienced in my attendance on the numerous cases under my care.

As soon as I was enabled, I returned to England, by order, in the general charge of about eleven hundred men.

To quit further this digression, and apply the circumstances of this general sickness, as to its cause, with that which creates fever between the Tropics, I have to observe that the soil throughout

the island of Walcheren is of the most fertile kind. I particularly noticed the height and strength of the corn, and the general rich appearance of the country altogether, as well as the numerous dykes and canals with which it is intersected. From these latter communicating with the sea, the marine exhalations over the whole surface of this island must be general. But I do not attribute the sickness, which ever prevails here amongst strangers, entirely to that consideration.

The richness of the land in all Walcheren is so great, as to give it the appearance of a garden.

Dr. Wind observes, the sickness at Middleburgh *generally* reigns towards the latter end of August or beginning of September, "*which is always most violent after hot summers.*"

"*It makes its appearance after the rains, which generally fall the latter end of July ; the sooner it begins, the longer it continues, being checked only by the coldness of the weather.*"

Now how greatly does this order resemble the annual Endemic of the West Indies. The natural fertile soil of Walcheren, after an exposure to the summer heat, acquires thereby an *accumulated quantum of morbidic miasmata*, and which, as between the Tropics, it imparts so freely after the autumnal rains. I feel every conviction if the island of Walcheren was exposed to a degree of

heat for six months, accompanied by drouth, as in the West Indies, and that heat to continue during, and after the autumnal rains, the fever would be attended with the same violent symptoms as that named *Yellow* or *Bulam*.

I shall now, for the present, close what I have to advance on the nature of the fevers seen between the Tropics, and proceed to state the observations I made respecting that of Cadiz, in the year 1810.

MEMOIRS OF THE FEVER

WHICH PREVAILED

IN CADIZ, IN 1810,

ILLUSTRATED BY

CASES AND DISSECTIONS.

PART II.

Usus & experientia dominatur in artibus.—CIC.

IN the summer of 1810, I received orders to proceed to Cadiz, and arrived there on the 7th of July.

I was directed by Sir James Fellowes to do duty at the *Hospicio*, a large public building which was in part occupied as a general hospital for the sick of the British troops.

I took up my residence at this quarter, which, from its situation and exposure to the sea was one of the most pleasant and cool in Cadiz. I remained at this station about five weeks: during which time no other diseases were admitted from the regimental hospitals, but those of a chronic and general nature, as dysenteries, intermittents, &c.

From the *Hospicio* I was ordered to the *Aguada* an extensive building without the walls of Cadiz, about three quarters of a mile, and close to the

water-side, which forms the bay or outer harbour of this city.

In this building, fitted up also as a general hospital for the English troops, were received, at the time I arrived, the convalescents and surgical cases.

Men, however, arriving sick from the regimental hospitals at the *Isla*, about seven miles distant, and head quarters, halted here, where their arms, clothes, and packs, were deposited, and where they had a warm bath; and, being washed clean all over, received hospital dresses, and the medical cases forwarded on immediately to the *Hospicio*.

When recovered so far as to become convalescent, they returned to the *Aguada*, and on the perfect re-establishment of their health by sea bathing, &c. they were discharged, received their necessaries, and were marched to their respective corps.

Such was the arrangement of Sir James Fellowes during the time I did duty at this establishment, which was equally good and beneficial.

The months of July, August, and September, were excessively sultry, hot, and dry, at Cadiz. I found the heat as oppressive as I ever experienced it in Jamaica, and towards the latter end of August and beginning of September, was so extremely bilious and dyspeptic, that I requested of Sir James

Fellowes to obtain leave for me to proceed to Gibraltar, where I then had an old military friend. This he readily assented to, and Lieutenant General Graham (Lord Lynedock) was pleased to grant me a month's leave of absence.

I arrived at Gibraltar the latter end of September, and took up my quarters with my friend, Staff Surgeon Vance, who kindly invited me to his house.

In Gibraltar I found the heat more excessive than at Cadiz. However the difference of scenery and amusements of the place proved very beneficial to me.

I remained in Gibraltar about a fortnight. Before I left it I learned that some cases of *Yellow Fever* had been discovered on board one of the transports in the harbour, as mentioned by Mr. Pym. I had a very great desire to see these cases, but just at the time of their occurrence, an opportunity offered to return to Cadiz with a division of gun-boats, under the command of Captain Fellowes, (brother to Sir James) with whom I had been acquainted in Jamaica, and in whose boat I took my passage.

On my arrival in Cadiz, which was in the early part of October, I learned that an alarming fever had manifested itself, and the period of its development was simultaneous with that at Gibraltar.

The opinions regarding the cause from which

it arose were various and discrepant. One that it was brought in a ship from Carthagera, in the West Indies ; whilst the general belief was, and which appeared to me the most probable, that it was of local origin, and peculiar to the season of the year.

The first case which I saw was in the *Hospicio*, under the care of Dr. Snow, one of the Physicians to the Forces.

From the general bright yellow suffusion in the skin, which took place shortly after the attack in this patient, I predicted a favourable result. I had often seen this affection in the early stage of fever in Jamaica, and never found it of dangerous import, but always the contrary.

I was directed, on my return from Gibraltar, to do duty in the *Hospicio*, to which hospital many of the surgical cases were removed from the *Aguada*, in order to make room for men falling sick of the *Epidemic* Fever, as it was termed. It being judged advisable by Sir James Fellowes, to send every case of this description without the walls of Cadiz. Two wards were fitted up for their reception at the *Aguada*, and they were placed under the care of Dr. Snow.

The surgical cases in the *Hospicio* came under my superintendence, and I took up my quarters in the St. Elena Barracks, distant from the hospital about a mile, and near the inner barrier gate

of Cadiz ; which enabled me to observe the greater part of the dead, as they were conveyed for interment to the public cemetery beyond the city ; the body being placed in a coffin without a lid, and the face always exposed.

Before the end of October, the fever had spread so far as to excite considerable apprehensions and alarm. I was immediately struck with the peculiar coincidence between the disease, as it then prevailed, and the Yellow Fever of Jamaica, in all the prominent symptoms and appearances observed : and I expressed my opinion of its nature verbally to Dr. Snow and Dr. Plenderleath.

Two officers having died of the fever in the St. Elena Barracks about this time, I obtained permission to open one of them. I made a report of the dissection to Sir James Fellowes, which will be found in the following copy of a letter to him, dated

“ St. Elena Barracks, Cadiz,

“ 4th November, 1810.

“ Sir,

*“ Lieutenant Clarke, of the 2d battalion, 47th
“ regiment, having died on the night of the 31st
“ ult. about 10 o'clock, of the fever under which
“ you, Dr. Plenderleath, and myself, saw him on
“ the preceding day ; I feel it my duty to state to*

“ you the appearances his body exhibited on the
 “ following morning to my observation.

“ Over the whole surface there was a light
 “ yellow suffusion, interspersed, in different parts,
 “ with dark livid blotches, particularly about
 “ the angles of the lips, on the neck and should-
 “ ers, scrotum, and internal parts of the thighs.
 “ In short, these several appearances were pre-
 “ cisely of the same order I had, on a late occasion,
 “ observed when examining the body of Lieute-
 “ nant Godby, of the Royal Artillery, shortly after
 “ his disease, and which, I believe, I verbally com-
 “ municated to you. And they also correspond
 “ with those appearances I have so frequently
 “ seen in many hundred cases of dissolution from
 “ fever in the West Indies, where I served eight
 “ years.

“ This fever, indeed, exhibiting in its nature,
 “ rapid progress, and fatal tendency, so many
 “ symptoms resembling those attendant on the
 “ the Concentrated *Endemic*, or *Yellow Fever*, of
 “ America and the West Indies, created in my
 “ mind a great desire, the first opportunity, of
 “ examining the morbid changes produced by this
 “ disease, in the brain, thoracic, and abdominal
 “ viscera, which I had often done in the West
 “ Indies.

“ I communicated my wishes to Mr. Short, first
 “ Assistant Surgeon of the 47th regiment, who

“ cheerfully and zealously acceded to my propo-
 “ sal ; and we, on the morning after his decease,
 “ carried our intentions into effect, in conjunction
 “ with the second Assistant Surgeon, and Mr.
 “ Venables, Assistant Surgeon in the Royal Artil-
 “ lery.

“ Before, Sir, I relate to you the morbid appear-
 “ ances discovered on this inspection, it may
 “ not be uninteresting to detail to you the state of
 “ this officer’s health, for a week or ten days be-
 “ fore he was confined, and had applied for medi-
 “ cal assistance.

“ This information was communicated to me
 “ by Mr. Short.

“ It appeared this gentleman had dined as usual
 “ at the mess, and drank the quantity of wine he
 “ was accustomed to do, which was moderate, as
 “ his habits were of a temperate order. His bro-
 “ ther officer, quartered in the same barrack-room,
 “ had observed him come home almost every
 “ night he was off duty at an early hour, and
 “ throw himself on the bed with his clothes on,
 “ complaining of great heaviness and stupor
 “ in the head ; and in this state he would fall
 “ asleep. In this manner he went on for several
 “ nights, when it was judged prudent by his bro-
 “ ther officer, on finding him lay down and sleep
 “ in his clothes, to direct his servant to undress
 “ him and put him to bed.

“ These circumstances occurred for nearly ten
 “ days previous to his applying for medical as-
 “ sistance, and the mode of practice* adopted,
 “ when medical treatment was had recourse to,
 “ you are, Sir, acquainted with.

“ This gentleman was only in the nineteenth
 “ year of his age ; of a stout and athletic form ;
 “ and, when in health, of a florid complexion.

“ Having related, Sir, these particulars, I shall
 “ proceed to detail the several morbid appearances
 “ that presented themselves on examining the in-
 “ ternal parts of the body.

“ First the Thorax. On cutting through the
 “ cartilages of the ribs, and separating the lower
 “ part of the sternum from the diaphragm, we
 “ observed, on lifting it up, that the right lobe of
 “ the lungs was in a perfect sound state, and not
 “ the slightest adhesion with the pleura had taken
 “ place. The left lobe, however, was very dif-
 “ ferent. Here we found the most evident marks
 “ of active inflammation, and the adhesions to the
 “ pleura were general and difficult of separation.
 “ These adhesions appeared to be the effect of the
 “ previous and recent inflammation. A considera-
 “ ble quantity of serous fluid was in this cavity of
 “ the chest.

* Which was an emetic in the beginning, followed by pur-
 gatives, antimonial preparations, and the saline draught:

“ Opening the pericardium, we observed with-
 “ in its cavity a considerable quantity of fluid, more
 “ than is generally found on such examinations.

“ The heart exhibited the strongest marks of
 “ active inflammation having prevailed on its ex-
 “ terior surface. Cutting into the ventricles,
 “ there issued forth a quantity of blood in a per-
 “ fectly fluid and dissolved state. In short both
 “ ventricles and auricles contained blood of this
 “ kind, and very little in a coagulated state was
 “ found. Marks of considerable inflammation were
 “ observed also throughout the whole substance
 “ of the heart.

“ We now proceeded to examine the œsopha-
 “ gus, and trace its appearance with that of the
 “ cardia, stomach, pylorus, and duodenum.

“ Placing the head and neck in a more recumbent
 “ position, for the better convenience of inspecting
 “ the œsophagus, there gushed forth from the
 “ nose and mouth a quantity of black fluid, which,
 “ on falling and being diffused on the brick floor,
 “ exhibited that coffee ground appearance which
 “ had been observed in what he had vomited pre-
 “ vious to his dissolution. Cutting into the œso-
 “ phagus we discovered this fluid coming from the
 “ stomach. We found no evident marks of dis-
 “ ease further in the œsophagus, but, proceeding
 “ on to the cardia and stomach, we observed the

“ strongest appearances of a great and previous
 “ morbid action.

“ When this viscus had been emptied of the
 “ black fluid, (which, as far as we could judge, was
 “ about a pint) there appeared over the whole of
 “ its interior surface, including the cardia and
 “ pylorus, a quantity of coagulable lymph-like
 “ mucus, greatly resembling pus ; in which there
 “ was enveloped much of the bloody matters
 “ above mentioned. Removing this mucus from
 “ the surface of the stomach, we found, in dif-
 “ ferent spots, very striking marks of a previous
 “ active inflammation : indeed, in several places
 “ there were small abrasions of the inner mem-
 “ brane, very similar to an incipient and spread-
 “ ing chancre.

“ The duodenum, for about two inches from its
 “ connection with the pylorus, had much the same
 “ appearance as exhibited on the surface of the
 “ stomach.

“ The other intestines were in no particular
 “ manner changed from what is found to be their
 “ general state after death.

“ The liver was in no respect diseased, it ap-
 “ peared rather large. The gall bladder con-
 “ tained about six drachms of black, thick, viscid
 “ bile.

“ We took out the spleen which very little ex-

“ceeded its natural size : and we could not ob-
 “serve any morbid change produced in it, that
 “we could ascribe to be the effect of the fever.

“The kidneys also became the object of our in-
 “spection : they were large, but in no other way
 “diseased. We did not investigate into the con-
 “tents of the pelvis. I pressed upon the bladder,
 “and some urine was discharged of a light yellow
 “colour.

“We now, and lastly, proceeded to open the
 “head. Having divided the scalp around, and
 “sawn through the cranium, we found it firmly
 “adhering to the dura mater, which, on being
 “separated with the knife, discovered to us over
 “the whole surface of the pia mater, covering the
 “cerebrum, a layer of coagulable lymph, into
 “which we saw the small arteries ramify in a beau-
 “tiful manner : indicating, however, in a strik-
 “ing degree, the previous state of violent action.
 “These ramifications were particularly manifest
 “in their course through the dura mater into the
 “skull, which accounted for the difficulty we met
 “with in separating it from the brain. Through-
 “out the several convolutions of the cerebrum
 “this vascular distention was observed. The
 “ventricles contained a greater quantity of fluid
 “than is generally found in ordinary cases.

“The cerebellum had its small arterial vessels

“ greatly distended, but I think not in so great a
 “ degree as those of the cerebrum.

“ The muscular parts of the body, through
 “ which we dissected, had a very florid and heal-
 “ thy appearance.

“ No foetor, or offensive effluvia, was imparted,
 “ either from the exterior surface of this gentle-
 “ man’s body, previous to our opening it, or from
 “ any one of the internal parts that became the
 “ object of our examination.

“ To sum up, therefore, the diseased appear-
 “ ances discovered on this dissection, the morbid
 “ changes that were most particularly observable,
 “ appeared in the left lobe of the lungs, heart,
 “ stomach and duodenum, brain, and dissolved
 “ state of the blood.

“ My wishes having been gratified, and my
 “ mind satisfied in this anatomical enquiry, which
 “ has now more firmly convinced me, by the result
 “ of these researches, that the Epidemic Fever at
 “ this time prevailing in Cadiz, is, in its general
 “ characteristics, of the same order, is attended
 “ with a similar train of symptoms, and exhibits
 “ the same appearances after death, as the Yel-
 “ low Fever, or Concentrated Endemic of the
 “ West Indies.

“ Perhaps, Sir, I have, in giving this opinion,
 “ deviated from that line of duty required in my

“ station. But I must beg to assure you that it
 “ arises solely from an ardent zeal which I have
 “ for the service and my profession. And as I
 “ have often before, so I will cheerfully now, run
 “ any risk in prosecuting these enquiries, if I can
 “ feel for a moment that they may tend to throw any
 “ light on this insidious and fatal disease ; or in-
 “ dicate a mode of practice which might preserve
 “ to his country any one of the gallant soldiers of
 “ this army.

“ I have the honour to be,

“ SIR,

“ Your very obedient humble Servant,

“ EDWARD DOUGHTY,

“ Surgeon to the Forces.”

“ Sir James Fellowes, M.D. Director

“ of Hospitals, &c. &c. &c. Cadiz.”

It might not be unreasonable to infer that Sir James would have *officially* acknowledged the receipt of this communication ; but he never did, nor has even deigned to mention it in his publication. Perhaps it was better to be silent regarding a circumstance, which might militate against the theory of contagion.

Once, some time afterwards, Sir James told me, as I met him *en passant* in one of the streets of Cadiz, that he should like to be present at a dissec-

tion. However I never had the honour of seeing him by the side of any one of the many bodies I opened.

“*Ne cujus facti dictive contagione præsens violer.*”

This might have some influence over his mind, particularly as the Spanish practitioners had such an aversion to anatomical enquiry, from their dread of contagion, and Sir James was on terms of the most social intimacy with them.

To quit further this digression I have to state, the indifference of the head of the department in what regarded my investigations into the nature of the prevailing fever, did not in the least diminish my endeavours to obtain every possible information respecting it, both in the British and Spanish hospitals.

So strong was my opinion of its not being contagious, that I expressed it on every occasion to the whole of the medical staff, and I wrote my sentiments respecting it to his Royal Highness the Duke of Kent, in a letter dated St. Elena Barracks, Cadiz, 9th November, 1810. The following are extracts from it, viz.

“That your Royal Highness will receive with
 “that generous candour which so eminently dis-
 “plays itself in every thing relating to the sick
 “and wounded soldier, a brief statement of the
 “destructive fever that prevails at present in this

“ besieged city, and which has appeared, with
 “ some baneful consequences, in that part of the
 “ British army stationed within its walls.

“ To your Royal Highness, who having served
 “ both in this climate and the West Indies, a rela-
 “ tion of the prevailing fever may perhaps be, in
 “ some degree, more particularly interesting.

“ No medical officer of this army, I feel con-
 “ vinced, has taken such probable steps to acquire
 “ a knowledge of this disease as I have, being the
 “ only one who has had recourse to dissection to
 “ obtain information on this head.*

“ This communication, which I have presumed
 “ to make from my profound respect for your
 “ Royal Highness, is the first, I am of opinion,
 “ that will be transmitted to England, relative to
 “ the Epidemic Fever (as it is here termed) of
 “ Cadiz ; excepting what is contained in the official
 “ documents of Sir James Fellowes to the me-
 “ dical board.

“ The great alarm produced in England last
 “ year at this season, from the destructive fever
 “ prevailing in the British army then serving in
 “ Walcheren, will, I fear, in some degree be ex-

* It was this passage, which, though not intended, was, from circumstances that cannot be here explained, seen by Sir James Fellowes, and which called forth, through him, the censure of the General commanding the forces, for having so written.

“ cited from various rumours, that will probably
 “ be propagated, as to the state of health of this
 “ division of the British forces.

“ As I am now busily engaged in acquiring
 “ every practical information, both in our own and
 “ the Spanish hospitals of this city, to ascertain
 “ the contagious nature of the prevailing fever, I
 “ can only, at this time, confine my relation and
 “ opinion to a few observations.

“ With regard to its being contagious, I am firmly
 “ of opinion it is not so. It is my real belief that
 “ it is *Endemic*, peculiar to this climate and season
 “ of the year, and that it does not propagate its
 “ baneful effects, by emanations from bodies labouring under its influence, or impart any thing
 “ prejudicial when every vital function has ceased.
 “ And this opinion is corroborated by the certain
 “ fact, that not one of the medical officers, nurses,
 “ or orderlies, attendant on the sick, have as yet
 “ been affected with the disease. Not one of the
 “ medical gentlemen who assisted me in opening
 “ the body, as related in my letter to Sir James
 “ Fellowes, and of which I have the honour to in-
 “ close herewith a copy to your Royal Highness,
 “ has been indisposed in the smallest degree.
 “ Two days since I opened another body in the
 “ *Aguada* British General Hospital, a private in
 “ the 2d battalion 47th regiment, who died with

“ the strongest exterior characteristics of *Endemic* or *Yellow Fever*.

“ When I opened the body of this soldier, the
 “ fourth finger of my left hand had been torn the
 “ preceding day by a rusty nail, and it was at this
 “ time in a state of inflammation. And although
 “ my hands were embrued in matters highly offen-
 “ sive, yet not the smallest increase of inflamma-
 “ tion took place, and it is now quite well. More-
 “ over, the young gentleman who assisted me in
 “ this last dissection, had his finger accidentally,
 “ and rather severely, cut by me, yet it is now
 “ healed, and he continues well. And although I
 “ have had, in executing my duty, very great fa-
 “ tigue, and been exposed to the effluvia of bodies
 “ labouring under this disease, and to that of those
 “ who have become its victims, yet I have not had
 “ the smallest derangement of health: on the con-
 “ trary, I am at this time in better health and spi-
 “ rits than I have been since my arrival in Cadiz.

“ These circumstances are highly important,
 “ and should be made public, in order to remove
 “ that dread of contagion which unfortunately
 “ exists in this city, and is an opinion that per-
 “ vades the minds of the Spanish practitioners in
 “ medicine.

“ The prejudicial consequences of this un-
 “ founded doctrine, should this fever continue
 “ long to prevail, will be severely felt in this po-

“pulous city. Blockaded by a French army on
 “the land side, and deprived of the resources of
 “other countries by sea, from the dread of this
 “supposed contagious disorder, the fatal conse-
 “quences that must ensue, where there is a popu-
 “lation of near one hundred and thirty thousand
 “people, should there be a non-arrival of those
 “regular supplies of vegetables, poultry, and
 “fresh meat, will soon manifest themselves, if, as
 “I have been informed, the ports of Portugal and
 “Barbary have been closed against any inter-
 “course with Cadiz, on the knowledge of this
 “fever prevailing, and of the unwise and un-
 “founded opinion having been propagated of
 “its contagious tendency. But, as I fear I am
 “intruding, and certainly trespassing, upon the
 “time of your Royal Highness, I shall conclude
 “with repeating that it is my firm and conscien-
 “tious opinion it is not contagious :—that it is an
 “*Endemic* peculiar to this climate and season of
 “the year :—that it is within the controul of me-
 “dicine, if attended to on its accession or early
 “stage, which I have had an opportunity of seeing
 “in all those who have been treated from this
 “period of the disease, not one of whom has
 “fallen a victim to it as yet.

“I shall subjoin, for the further information of
 “your Royal Highness, a return of those who have
 “been admitted from these barracks into the

“ *Aguada* General Hospital, from the 14th of October to the 6th of November inclusive, which I copied from the hospital register.

“ The British troops quartered in these barracks consist of detachments of the Royal Artillery, 2d battalion 47th regiment, three companies 95th regiment, and detachments of other corps that have left this station for Portugal. The number of those who have fallen sick are as follows: viz.

	Admitted	Died	Remaining
“ Royal Artillery	5	2	3
“ 2d Battalion 47th Regiment	24	7	17
“ 2d ditto 95th ditto	3	1	2
	—	—	—
“ Total	32	10	22
	—	—	—

“ These men have been under the care of Dr. Snow, Physician to the Forces.”

SECOND CASE OF DISSECTION.

William Walker, of Captain Kirk's company, 2d battalion 47th regiment, died on the night of the 5th of November. He was admitted into hospital on the 28th of October. This man had been sent from the barracks in Cadiz to the *Aguada*. I examined the exterior appearances of his body, which had a general suffusion over it, of an inter-

mediate colour, between the light and dark yellow, interspersed, in different parts, with livid blotches, more general about the neck and shoulders, lips, scrotum, and internal parts of the thighs.

I opened his body on the morning of the 6th of November, assisted by Mr. Clark, a young gentleman on the medical staff. I shall state the appearance of the several parts as they followed in the order of examination.

Removing the sternum, the lungs were first inspected, and they exhibited, on their convex surface, a white lymphous pus-like appearance; and this, also, was found to be the case throughout the whole surface of their pleuritic membrane. The left lobe was perfectly free from any adhesion, but the right had a very firm one, extending nearly over the whole of its convex surface. The vascular appearance was livid, and the air cells contained blood in a dissolved state. No fluid was found in either cavity of the chest.

The heart was very small: its auricles and ventricles were quite empty; but, from the position of the body, the blood might escape into the aorta, where we found some in a state of solution. No portion of coagulated blood was seen either in the veins or arteries, and very little of any kind was found within their cavities.

The liver was surcharged with bile. It exhibited, on the convex side of its great lobe, an

appearance, which, in colour, was between the light and dark yellow. Cutting into the substance of the liver, the same appearance was observed.

The gall bladder was full of bile, of a very dark green colour: it was quite fluid, and free from any viscosity.

The *pori biliarii* on that concave portion of the lobe to which the gall bladder is attached, were distended with bile to an extent of several inches, and had exactly the same appearance as the gall bladder in colour.

I tied the cardialdic and pyloric portions of the stomach, and, cutting above each ligature, dissected it out, the more conveniently to examine its interior surface, through the medium of a better light, and the fluids which might be found in it.

On the outer surface there was a more florid vascularity than I observed in the lungs or pleura.

Cutting into its cavity I found a small proportion of fluid, resembling that kind of ill-conditioned pus often seen in a bubo, but without any coalescence in its particles.

The duodenum and transverse arch of the colon had, adhering to their villous membrane, a slimy kind of matter, very much in resemblance to the above. A very offensive effluvia escaped on cut-

ting into the colon. No other morbid change was discovered in these or the other intestines.

The spleen was quite of its natural size, and of the same colour in which it is seen in ordinary cases after death.

The kidneys were of their natural size, but they exhibited on their exterior surface, and cutting into their substance, a resemblance in colour to that observed in the liver.

The bladder was distended with urine to a very great degree. There was an inflammatory appearance on its peritoneal covering. The urine was of a bright yellow colour.

Not being provided with a saw I was unable to examine the brain.

THIRD CASE OF DISSECTION.

Mr. Thomson, a gentleman of the Commissariat Department, died in the *Hospicio* British General Hospital, on the night of Friday, the 9th of November, of the Endemic or Yellow Fever.

The symptoms under which this gentleman laboured, for three or four days before he was confined, and had applied for medical assistance, were a kind of shooting pain across the forehead, succeeded by cold shiverings, with heaviness and dis-

position to sleep. These were followed by a profuse perspiration, and, after this had ceased, he expressed a wish to have his linen changed, when the gentleman who related this to me recommended his own shirt and flannel waistcoat, on the consideration that they were better aired, having only been put on that morning. This was acceded to, and they were accordingly made use of. Afterwards medical assistance was applied for, and Mr. Renny,* Assistant Surgeon to the Forces, was first called in, who prescribed some *saline mixture* every two or three hours.

This was on Sunday, November the 4th. In the evening of this day he had an attack of vomiting, and the matters which he brought up were black, resembling blood. Some rhubarb was now prescribed, and his bowels became open. But, from the history of his primary symptoms, the fever appeared to develope itself in affections of the same order with cholera morbus. Vomiting and purging prevailed during a great part of his fatal sickness, and which was only seriously noticed on the 4th of November.

The people of the house, with whom he lodged, were Spaniards ; and, being anxious for his welfare, they, of their own accord, on the third day

* This gentleman died afterwards on the coast of Africa.
De mortuus est nil nisi bonum.

of his sickness, administered an injection, and which is a principal part of the practice amongst the Spanish physicians in this disease.

On the fourth day of his confinement I saw him, about eleven o'clock, A.M.

At this time he was delirious, had great hiccup, and was vomiting matters that were quite black, and perfectly resembling coffee grounds.

I reported his case to Sir James Fellowes, who, with Dr. Plenderleath and myself, repeated the visit, and to appease the anxiety of the people with whom he lodged, he was, at their request, removed, and conveyed to a room in the *Hospicio*.

When he had been settled on his removal, the above symptoms recurred with encreased violence, and he expired on the fifth day of his fever.

A few hours after his decease I opened his body, and the following is a report of what was observed on the occasion.

Removing the scalp in the usual manner, and having sawn through the cranium, we observed on the surface of the pia mater, covering the convex hemisphere of the brain, a white appearance, like unto coagulable lymph. The vessels also of this membrane, and the dura mater, were very turgid.

This vascularity and coagulable lymph-like resemblance, extended through the several convolutions of the cerebrum.

The left lateral ventricle was found to contain about three drachms of a yellow sanious fluid, the right about one drachm.

The lungs were of a natural appearance on their anterior surface, and had no adhesion to either pleura. But, examining those portions of their lobes resting on the spine, we found, on removing them from each cavity, that about two ounces of bloody fluid appeared to have been extravasated into both divisions of the chest. The lungs, in these parts of their lobes, were very black and distended. Cutting into them much black frothy blood escaped, which was in a state of perfect solution, and, from the particles of air intermixed with it, there was an appearance displayed that resembled pus.

On cutting into the pericardium, rather more than the usual quantity of fluid was found, and it was of a yellow colour; in other respects the heart appeared sound. The liver was very large, but of a natural healthy appearance.

The gall-bladder contained about half an ounce of a thick dark bottled green coloured bile. That concave portion of the lobe to which it is attached, had, for a considerable extent over its surface, an appearance in colour very similar to the bile.

The stomach contained about two ounces of the same coloured matters observed in what he had vomited previous to his dissolution. In

several parts of the interior surface there were apparent marks of inflammation having prevailed.

From the duodenum a considerable quantity of black foetid fluid, of the above resemblance, escaped. Cutting into the transverse arch of the colon, the same was seen, and likewise in the ileum.

The spleen was remarkably small, and could in no way be considered diseased. We cut into the bladder, which contained about half a pint of urine, of a dark yellow colour.

The body on its exterior surface exhibited an appearance of a light yellow colour, interspersed with lived spots on the anterior part of the neck, back, sides, and scrotum.

No very disagreeable foetor was imparted either from the exterior or interior parts of this young man's corpse.

The most particular morbid changes, produced by the febrile action in this case, were exhibited in the inflamed state of the brain and stomach, greatly distended order of the lungs in those parts of their lobes resting on the spine, and the escape into the cavities of the chest of four ounces of bloody fluid, and the general dissolved state of the blood in every part it was seen.

This gentleman was in the 28th or 29th year of his age ; of middle stature, and slender ; his complexion of rather a dark hue when in health.

He had been nearly two years in Spain, and

six months in Cadiz. His habits, as far as I could learn, had been temperate.

Mr. Simpson of the same department had fallen a sacrifice to this fever about a month before : and, from information communicated to me, his symptoms, throughout their fatal progress, were of a nature very similar to those of Mr. Thomson. At the time of Mr. Simpson's decease I was on my passage from Gibraltar.

FOURTH CASE OF DISSECTION.

This case I shall precede by relating the history and treatment of the disease, as I copied it from the prescription book of Mr. Renny, Assistant Surgeon to the Forces.

“ Samuel Mason, ætat. 20, was admitted into
 “ hospital November 6th, 1810, and complained
 “ of pain in the head, chiefly of the forehead, and
 “ a feeling of stiffness, approaching to pain of the
 “ knees and *ossa femorum*. His looks dull and
 “ languid, his skin preternaturally hot ; his pulse
 “ quick and full, but not hard ; his tongue is
 “ furred with a white crust and dry ; he feels no
 “ nausea, but has little appetite : says he has been
 “ *sickish* two days, and has had no motion of his
 “ bowels during that time.

“ R Calomel. grs. v.

“ Pulv. rhab. grs. xv. M. fiat pulvis statim sumendus.

“ *Vespere.* Is nearly in the same state as before, and has had no stool, the purgative remedy having failed to produce a motion.

“ R^x Magnes. vitriol. ʒj. statim sumend. et si alvus non ritè solutus fuerit in horâ, capiat æger alterum.

“ November 7th. Appears rather better this morning: the purge operated favourably, having produced several copious motions. The patient says he feels himself much better, and that he has at present no pain; but his countenance has an appearance of anxiety and restlessness; and the crust which covers his tongue has become of a dark brown colour, approaching to black; his pulse is less quick and less full than yesterday, and his skin is much cooler; his appetite, however, is now much impaired, and his thirst is great.

“ R^x Kali pp. grs. xv.

“ Acet distillat. ʒj.

“ Aq. menth. pip. ʒj. sacchar. com. q. s. M. f. haustus quart. quaq. hor. sum. et bibat frequenter succ. lemon. cū. aq. et sacch.

“ *Meredie.* Is nearly in the same state as in the morning. His face is more flushed, and his skin is hotter than before. Feels some inclination to vomit. His coffee and bread were both retained, and he says his drink is very grateful to him.

“ Rep. haust. salin. ut antea.

“ *Vespere.* Is in the same state as before.

“ Cont. haust. salin. cū. tinct. opii. gtt. xxx. statim
 “ sumend. Lavetur totum corp. aq. frigid. st.

“ November 8th. Has had no sleep during the
 “ night, and appears worse to-day. His inclination
 “ to vomit has increased; his pulse is full and
 “ quick; his skin is hot; his face more flushed, and
 “ his tongue more furred and dry. Says he found
 “ the cold bathing very agreeable. But he was
 “ occasionally raving during the night. Coughs
 “ a little, but has no pain of the chest, expectora-
 “ tion, or difficulty of breathing.

“ Applicet. emplas. canthar. sterno statim.

“ Rep. haust. salin. et pot. acid. frequent. bibend.

“ *Meredie.* Seems much improved. His skin
 “ is more cool; his pulse more moderate, and
 “ his tongue more clean than in the morn-
 “ ing; his tendency to vomit is at present re-
 “ moved, *and the fever has evidently displayed*
 “ *a considerable remission.*

“ Rep. haust. et potus.

“ *Vespere.* His skin is again hot, and his pulse
 “ quick, but it is now much softer. He says he
 “ has no pain, and seems considerably relieved.

“ In other respects he is in the same state as
 “ formerly.

“ Lavetur totum corpus aqua tepida statim

“ R Calomel. grs. iij.

“ Pulv. antimon. grs. ij. M.f. pil. stat. sumend.

“ November 9th. Dr. Plenderleath, Physi-
 “ cian to the Forces, was called in on this day,
 “ who considered it a lost case, but prescribed as
 “ follows, viz.

“ R Infus. serpentar. ℥iss.

“ Pulv. cinchon. ℥j.

“ Tinct. cinchon. ℥ij. fiat haustus 3tiis horis sumendus.

“ R Camphoræ grs. x.

“ Pulv. serpentar. grs. xv. conf. opiat. qu. suff. ad massam
 “ conficiend. quam in bolos ij. divide ambos h. s. sumend.

“ Bibat potum ex acid. muriat. ℥ij. et decoct. avenæ
 “ lib. ij.

“ Habeat in die vini lusitani ℥xvi. injec. enema ex aqua
 “ marina lib. j. olei ℥ij.”

About ten o'clock at night he had a violent fit of vomiting, which lasted about five minutes, and the quantity of fluid ejected, appeared, as I was informed, to amount to nearly three pints, and to be quite black, resembling coffee grounds.

He then became in a state of insensibility, and at four the following morning expired.

This young man had been in Walcheren ; and, on his return to England, was attacked with ague, which continued upon him, with short intervals

of intermission, until about six weeks previous to his last and fatal sickness.

Two or three days antecedent to his admission into the *Hospicio*, and becoming under the care of Mr. Renny, he had complained of great pain in his head and loins, with considerable debility. He was in stature of the middle size, not stout, and from the period of his return from Walcheren his countenance was always pale.

This information was communicated to me by the Serjeant of the Ward, who knew him.

About ten o'clock in the day on which he died I opened his body, and the following appearances were observed :

On sawing through the skull, and separating it from the dura mater, we found this membrane in a state that indicated a previous and violent vascular action, with considerable extravasation of blood in the direction of the falx, in a perfectly dissolved state. The vessels of the pia mater, covering both hemispheres, and throughout the several convolutions of the brain, were highly turgid. On the surface also of this membrane there were appearances of the same white lymph kind, as seen in the other dissections.

On removing the cerebrum a considerable proportion of serous fluid was seen resting on and about the tentorium. Much of this same fluid

was likewise found in every cavity of the cranium, and also in both the lateral ventricles.

On cutting into the cavity of the thorax we found the lungs to exhibit a sound appearance on their anterior surface, but in those parts of the lobes resting on the spine, and filling the posterior cavities of the chest, they were observed to be more turgid with black dissolved blood, than in those of Mr. Thomson, and the quantity of bloody fluid effused was in greater proportion.

The pericardium contained a very considerable quantity of a yellow serous fluid. Cutting into the ventricles of the heart I found much blood very black, and in a state of solution. When this was removed there was found adhering to the carnia columnia of the left ventricle a considerable hydatid-like gelatinous substance, of a yellow green colour, and in shape somewhat resembling the gall bladder. In the right ventricle this substance was of a darker hue, and more like coagulated blood. In each auricle there was found also a small substance of the above kind.

The liver, as in the case of Mr. Thomson, was very large, and found very turgid with black dissolved blood on cutting into its substance. The gall bladder was very full of a dark green coloured bile, which was of a very viscid tar-like consistence.

On cutting through the cardia a considerable proportion of black bloody fluid escaped, perfectly of the coffee ground order seen in the other cases. The villous membrane exhibited, in several parts, appearances of a previous inflammation, more particularly about the cardia and pylorus.

The whole of the abdominal viscera were suffused with a yellow tinge.

The duodenum contained a small proportion of fluid resembling that which escaped from the stomach. The ileum had also within it some of the same dark matter, but in the colon it was of a lead colour: in the former intestine I perceived appearances of inflammation on the villous membrane.

The spleen in this case was much larger than what I had observed it to be in the preceding dissections. It was very tender from its turgid state, being distended with dissolved blood. It resembled that kind of appearance described by Dr. Cleghorn, in the Diseases of Minorca, when he compares it to coagulated blood wrapt up in a membrane.

The kidneys were sound, nor did we find any particular change in the urinary bladder. The urine was in considerable quantity, and of a dark yellow colour.

There was more foetor imparted in this dissection than in that of Mr. Thomson, which I had previously performed. The exterior surface

of the body was of the same appearance with the last mentioned case.

FIFTH CASE OF DISSECTION.

Samuel Standish, ætat. 25, was admitted into the *Hospicio* on the 13th of November, and died on the morning of the 16th.

This man had, about a fortnight preceding his being admitted into hospital, been attacked with fever in his lodging, which was a small room adjoining a stable, in which there were three or four horses belonging to Major Murray, Assistant Deputy Adjutant General, whose servant he was.

In this indisposition he was attended by Dr. Plenderleath, and recovered so far as to be considered out of danger, and that no further attendance was required.

In this state of convalescence he was so imprudent as to frequent the wine-houses, which are numerous in Cadiz, and was guilty of excess in drinking that brought on a relapse, and he continued some days in an indisposed state, without any medical remedies being applied.

On the morning of the 13th he walked to Dr. Plenderleath's *billet*, which was about two hundred yards from his own residence, complaining of great debility and sickness at stomach. At this time there was a yellow suffusion over the skin.

Dr. Plenderleath considering him in a very alarming state, directed him to proceed immediately to the *Hospicio*, and took him under his care, reporting his case to Sir James Fellowes.

On the 14th Dr. Plenderleath did me the honour to ask if I would see him, premising that he considered it a case of great danger. I immediately went to examine into his symptoms, which clearly indicated there was no probability of his recovering.

There was a marked anxiety, with great stupor, or delirious heaviness of the head; a marcid countenance; great irritability of stomach, and a constipation of the alimentary canal, which could not be affected by any purgative. The matters which he vomited at this time were little more than what was given him to drink—his medicines, and some mixture of bile.

Four or five hours, however, before he died, he vomited a similar admixture of fluids resembling coffee grounds which had been observed in the other cases.

In the progress of the symptoms of this young man's last sickness blisters were applied to the neck and *scrobiculus cordis*, and sinipisms to the internal parts of the legs.

I saw him about ten hours before he expired, in conjunction with Dr. Plenderleath. We desired him to put out his tongue, which he did with great difficulty, and continued, when it was out, to let it

remain so for some time, a symptom I have observed in many other cases, and have always found it a dangerous one. It was very dry like a parrots.

He had at this time great singultus, for which æther and laudanum, with small quantities of brandy, were administered, but with no effect.

Injections, consisting of bark, tinctur. opii, and gruel, were thrown up.

It is remarkable that, at the time I am now alluding to, viz. ten hours before his decease, there appeared very little variation of the pulse from its natural standard. This I have likewise observed frequently in other cases, and, therefore, I am not guided in my opinion of the actual state of danger by that of the arterial action. There are other more prominent and easily distinguished symptoms which point that out in this insidious disease.

I arrived at the hospital on the morning of his decease about nine o'clock, and, this event being made known to me, I immediately proceeded to examine the body, assisted by Mr. Venables, of the Royal Artillery.

The exterior appearance displayed a light yellow suffusion, interspersed with livid blotches, as in the preceding cases.

I opened first the head, after dividing the scalp around, which was of great density, and its ves-

sels, on being cut, poured forth much blood of a very dark colour.

On removing the cranial hemisphere, the surface of the dura mater had a very livid appearance, more especially in the direction of the falx, forming the longitudinal sinus; and when we removed this membrane a considerable quantity of blood escaped from the fissure of the cerebrum. The arterial vessels of the dura mater were turgid and of a florid complexion. Over the surface of the pia mater, on the convexity of the two hemispheres of the brain, we found a considerable quantity of serous fluid, in colour between green and yellow. When the dura mater was removed, and this had escaped, the same white lymphic appearance was seen as in the other dissections; the ventricles contained a considerable proportion of the same fluid; the plexus choroides was very florid and vascularly distended; the several sinuses formed in the skull contained much extravasated bloody fluids, upon the whole not less than six ounces.

The vessels of the pia mater enveloping the cerebellum were very turgid, and much watery fluid was seen on cutting through the arbor vitæ, and was perceived down the medulla oblongata to the spinal marrow.

It was particularly remarked by us that the blood, after being a short time on the table, be-

came in a state of coagulation, a circumstance I had not observed in what escaped from the other bodies I had opened, and who had died of the same disease.

The pericardium contained a small proportion of yellow fluid ; the heart had in every respect a very healthy appearance ; no blood was found in either auricles or ventricles.

Dividing the diaphragm and peritoneum to examine the abdominal contents, we particularly directed our attention to the greatly distended state of the stomach, which had pushed up this muscle, and spread out the peritoneal membrane in a manner I had never before observed. Before we opened the stomach we examined the liver which was found to exhibit, both on its exterior surface and within its substance, a very sound healthy appearance ; the gall bladder contained about two drachms of a dark green coloured bile.

The spleen was rather large ; on cutting into its substance it exhibited a black appearance, but was in no other respect diseased.

We now opened the stomach, from which escaped a quantity of very foetid air, by which it had been distended ; we tied the cardia, and, dissecting down to the duodenum, we took in this intestine and a considerable portion of the jejunum, which being also tied, the whole was removed from the body for more convenient inspection.

We slit up the stomach and found at its fundus about three or four ounces of a dark greyish fluid, very much of the same coffee ground order observed in the other examinations.

Directing our attention to the state of the villous membrane, we perceived a diffused surface of very red spots about the fundus, which indicated a previous inflammatory action. This red appearance was not observed in the cardia or any other part of the stomach.

The duodenum and jejunum had on their villous membrane, a kind of dark mucilaginous quality of fluid, which, on being removed, displayed in some places a few red spots, but in no other consideration could they be said to be diseased. In the other intestines we found several red blotches of the same order.

The bladder was greatly distended ; I opened it, and a great quantity of urine escaped into the pelvis and abdomen, of a light yellow colour. It exhibited no other morbid appearance either on its exterior or interior surface.

I have to remark, and I observed it in many other cases of dissolution from this fever, that no urine was passed for more than forty hours previous to his death.

No foetor of a disagreeable nature was imparted, either from the exterior or (the stomach excepted) interior parts of the body, in this dissection.

SIXTH CASE OF DISSECTION.

Mr. J. Bower, of the Paymaster General's Department, ætat. 41, was attacked with fever on the 19th of November, which first displayed itself in the form of cholera morbus—violent vomiting and purging, and the matters ejected had a bitter taste. In this state of the disease, he was seen by Mr. Renny, who directed some pills, consisting of calomel and cathartic extract, which he took, and they effected very copious evacuations.

The following evening Dr. Plenderleath was called in, and whom I saw shortly afterwards, when he told me that he considered it a well-marked case of the *Epidemic*, and wished me to look in and see him, as he had a room in the barracks, only a short distance from my quarters. Accordingly, about an hour afterwards, I saw this gentleman, whom I found sitting on the bed, having just been at the close-stool.

His countenance, at this time, exhibited a very flushed appearance ; he had much pain across the fore-head, and great sickness at stomach. His tongue was white ; his skin hot and dry ; his pulse rather full, strong, and expanding. He vomited frequently, and said what he brought up was very bitter.

Dr. Plenderleath had directed a pill to be taken every two hours, composed of two grains of

calomel, two of James's powder, and half a grain of opium. A purgative, consisting of four ounces of infusion of senna, had been prescribed him to take, but which, by mistake, was given to a patient under my charge, whose case will be hereafter mentioned.

The pills were continued all day, and a purgative injection was administered. About nine at night I accompanied Dr. Plenderleath to see him. His symptoms were nearly the same. The injection was repeated, a blister applied to the region of the stomach, and one grain of opium given to procure rest.

The following day I saw Dr. Plenderleath, who stated to me that he considered his patient had a remission of fever, and accordingly directed the bark in substance to be given every three hours, to the quantity of from one to two drachms in each dose.

On learning this was the state of the patient I did not go to visit him, being most particularly engaged with cases under my own immediate direction.

This was the third day of the disease, the bark was continued during the whole of it and the night, and he retained it on his stomach. The pills were given alternately.

On the morning of the 4th day Dr. Plenderleath considered his patient in a state favourable

to recovery. In the evening, however, Dr. Plenderleath called upon me, and observed that a most unfavourable change had taken place. The nausea and vomiting recurred ; a diffused yellowness appeared over the surface of the body, and there was considerable stupor and disposition to sleep.

Dr. Plenderleath immediately directed a blister to be applied to the nape of the neck, a purgative injection to be given, and a table-spoonful of the following mixture to allay his vomiting : viz.

Rx Tinct. cinchon comp. ℥iv.

Spir. æther. vitriol. comp. ℥ij. M.

One grain of opium was given at bed time. The next morning, the 5th day, I saw this case with Dr. Plenderleath.

On inquiring of the patient as to his feelings, he expressed himself much better, but that he felt yet very drowsy, and appeared as if he had awoke out of a dream, and had just arrived from a long journey.

Examining his pulse, at this time, we could not discover any great difference from its natural standard, excepting a weaker expansion of the artery.

His tongue looked black downwards towards the uvula ; it was moist. The yellow suffusion over the surface of the body was of a darker hue, particularly on the anterior surface of the neck,

and that part of the sternum where the sterno-cleido mastoideus muscles take their origin.

Three hours after our first visit, and about twelve o'clock, I returned to see him, and sat down by his bed-side to write such a history of his case as I could acquire. I remained with him two hours, during which time he was in a dose or slumber, alternately groaning. He never spoke, or took any notice, unless roused. One hand and arm lay reclined by his side, the other rested on his breast. Before I quitted him, I examined again his tongue, which was black, dry, and rough.

Eight o'clock at night. He is now in a state of perfect torpor and groaning. When I sat down upon the bed and took hold of his hand, he started up as from a reverie, and was for a minute or two convulsed. His pulse at the wrist was now scarce perceptible.

He expired about ten o'clock.

After his death, I learned from Mr. Boys, Deputy Paymaster General, that for some days previous to his confinement, he had been affected with a bowel complaint, which had at times been rather violent. During this intestinal affection, he used to say his appetite was so greatly increased that he could not refrain from eating at intervals between his usual meals. At this period, likewise, there appeared some affection of the

head, as he would commit very apparent mistakes, in his relation of any occurring circumstance, particularly with regard to his own indisposition, saying he had vomited when he had been purged, and *vice versa*.

Until about twelve o'clock on Monday, the 19th November, his purging remained, when, from this hour, its spontaneous continuance ceased.

Towards evening he had some slight cold chills, which were succeeded by heat, and he passed a restless night. He complained also of a tightness across his forehead, and said he felt some pain on the left side in respiration. He likewise expressed a sensation of swimming in the head, with nausea and sickness.

He was a very fat plethoric man, and had experienced, I believe, many unpleasant vicissitudes in life.

Examination of the body after death. The exterior appearance exhibited a light yellow suffusion, with livid blotches, as in the other cases.

I first opened the head, and found, on removing the cranium, a considerable quantity of extravasated dissolved blood, in the direction of the falx. The whole surface of the cerebrum was in a great degree inflamed, in several parts there were bright red spots, and over the pia mater generally a white lymph appearance. Throughout the several convolutions of the cerebrum there was a

turgid or inflamed state of vascularity. When I cut into the substance of the brain a considerable portion of a red bloody fluid escaped. I examined that part of the frontal portion of the brain, resting on the optic nerves, and it seemed greatly inflamed from the distended state of the vessels. The lateral ventricles did not contain more than about a drachm of fluid each, which was of a yellow colour. Over their whole surface, however, there was a great degree of vascularity, and the plexus choroides more so than I ever remember having seen it on other occasions.

When I removed the cerebrum I observed the several cavities of the skull contained each some portion of extravasated blood.

The surface of the cerebellum appeared inflamed, and covered with a lymph matter, as in the cerebrum. When I lifted up this part of the brain, I observed behind, upon the medulla oblongata, a quantity of sanious fluid, amounting to about an ounce. The arbor vitæ, and medullary substance of the cerebellum, were dotted in various parts with red particles of blood.

When I had removed the cerebellum, and soaked up the several fluids, I observed the vessels entering the spinal marrow had a florid beautiful appearance.

On proceeding to open the thorax, I found the muscles covered with fat to the extent of an inch,

and those of the abdomen to an inch and a half. On lifting up the thorax a great quantity of fat was found covering the mediastinum. The lungs on their anterior surface had a natural appearance, no adhesion on the left side, but on the right a very firm one, extending over the whole convex surface of the lobe. When I lifted the left lobe from the cavity of the chest, it appeared of a dark livid hue, and cutting into the air cells, a quantity of black frothy blood escaped. The same appearance was observed on the right side.

The heart was exceeding fat, and rather large. The left ventricle contained a quantity of blood, perfectly dissolved, on the removal of which there was found, adhering to the *carnia columnia*, a very large hydatid-like substance, of a green yellow colour. The left auricle had a small portion of fluid black blood, and a small hydatid similar to the above. The right auricle was full of black blood, and on its escape a large substance of the above description was found. In the right ventricle and auricle there was a smaller proportion of dissolved blood, with this gelatinous substance.

Dividing the abdominal muscles and peritoneum I observed the omentum, covering the whole intestines, extremely fat, and a great thickness of fat adhered to the several convolutions of the intestines.

The stomach contained about half a pint of a greyish fluid, highly foetid. The whole villous

membrane of this viscus, exhibited an appearance like matter of this colour ; and in various parts had evident marks of great inflammation, particularly about the fundus.

I took out the spleen which was rather large, and cutting into its substance exhibited a black appearance.

The kidneys were very fat, but otherwise healthy.

The liver was very large, but its substance on cutting into it looked healthy. Towards the edges of the great lobe, and on the concave surface, to which the gall-bladder is attached, there was an appearance of an olive colour.

The gall-bladder contained about half an ounce of dark, thick bile, resembling tar in consistence.

The intestines throughout their exterior surface had a very healthy appearance. Cutting into the transverse arch of the colon, there appeared a fluid of a lighter colour than what was found in the stomach. In the ileum it was much darker, and the villous membrane appeared inflamed.

The bladder was contracted ; it contained about half a pint of a dark yellow coloured urine.

SEVENTH CASE OF DISSECTION.

After repeated applications at the Spanish hospital of *St. Juan de Dios*, I at length obtained per-

mission to open some bodies which had died of the prevailing fever. I can only find notes of one, which I subjoin.

On Saturday, the 17th of November, I repaired to this hospital, where I found a man had just died of the disease, whose body exhibited the peculiar yellow suffusion, and livid interspersions, as seen in the former cases.

I opened the head: there was a general lymph appearance over the pia mater, and the vessels were very turgid. A considerable quantity of extravasated blood was found in the direction of the falx, and within the several sinuses of the skull, in a state of dissolution. There was only a small proportion of sanious fluid in each of the ventricles, but a larger quantity was found on removing the cerebrum, resting on the tentorium, and in the direction of the medulla oblongata.

Opening the thorax, I found the concave surface of both lobes of the lungs, in a sound healthy state, without any adhesion to either pleura. Removing them from the posterior boundary of the chest, I observed the under or concave surfaces extremely black, which, on being cut into, discharged much frothy fluid blood.

On inspecting the heart I found it firmly adhering to its pericardium, throughout the whole extent of this membrane. The ventricles and auricles were quite empty; but there was a considerable quantity of dissolved blood in the aorta.

The stomach contained a large proportion of vinous fluid, which he had taken a short time before his dissolution. But, in all my former dissections, in cases of death from this fever, I never observed this viscus so little changed by disease: not the slightest spot, or appearance of inflammation, could be perceived.

EIGHTH CASE OF DISSECTION.

Serjeant Hassell, of the 2d battalion 30th regiment, ætat. 32, was attacked on the morning of the 16th November, in his lodging, which was a room partitioned off from a large one that was occupied for the reception of purveyor's stores, and was part of a building situated at the back of the *Hospicio* General Hospital.

His first symptoms were cold shiverings; headache; pain in his back, loins, and limbs; great thirst and sickness at stomach; pulse quick; bowels constipated; skin hot; tongue white and furred, with great prostration of strength.

In this stage of the disease he was seen by Mr. Davies, an Hospital Assistant, who prescribed for him the following pills, viz.

R Extr. colocynth. comp. grs. xij.

Calomelan. grs. iv. fiat pilul. statim sumend:

He continued in his lodging until the morning

of the 17th, when the above pills had not operated; and his symptoms being aggravated, he was sent, about eleven o'clock, to the *Aguada* General Hospital, where he became a patient of Dr. Snow's.

I was at the *Aguada* shortly after his admission, but, being occupied in an important case of surgery for nearly two hours, I did not see him until near half past two P.M. At this time (which was the first of my seeing him) his symptoms were violent pain across the fore-head, in the direction of the optic nerves; great pain in the back and loins, with considerable prostration of strength: his pulse was strong and full, his tongue white, and he had great irritability of stomach.

He was prescribed a draught, consisting of equal parts of *saline and camphor mixture*, to be taken every four hours. As the pills had not operated on the evening of this day, and not having any stool *during the first two days of his sickness*, an injection, consisting of an ounce of the sulphat of magnesia, dissolved in some gruel, with common oil, was thrown up. This procured stools, and emptied the rectum; after which a grain of opium was given to procure rest. His head was directed to be shaved.

Between six and seven o'clock, on the morning of the 18th November, I walked over from my

quarters in Cadiz Barracks, to the *Aguada* : I arrived a few minutes past seven, and immediately saw this case. His symptoms were, at this hour, a very quick, small, and languid pulse ; great irritability of stomach, rejecting every thing he swallowed ; a constant inclination, during the whole night, to go to stool, without being able to pass any thing ; no sleep whatever ; his skin hot and dry, without the smallest disposition to perspire ; his tongue still white, with a restless anxiety, and great prostration of strength. The pain in his head, he says, is not so great. The matters which he vomits are very bitter. I could not examine the stools, procured by the injection, the pan having been emptied, but the orderly informed me they were of various colours, and principally of a green cast.

Six o'clock P.M. I have just returned from seeing this man. His skin continues hot and dry, his tongue white, but appears to have a greater secretion ; his pulse not so quick, and more expanding ; the irritability of his stomach not so great ; he has still a constant inclination to go to stool and can pass nothing ; he complains also of great difficulty in passing his urine. He had been taking, during the day, two grains of calomel, and a quarter of a grain of opium, every three hours ; and thirty drops of sweet spirits of nitre every four hours.

About nine at night his inclination to go to stool diminished and an opiate was administered.

An important case of surgery having detained me in Cadiz I did not see him again until about twelve o'clock on the 20th. However, I copied from the hospital register the following, viz.

“Nineteenth November. Vomiting continues;
 “when he takes any thing it is immediately re-
 “jected. He cannot be prevailed upon to take
 “the camphor and saline draught this morning.
 “The matter thrown off the stomach, as seen for
 “the first time, was of a yellow colour. Treat-
 “ment as yesterday, and he had a small blister
 “applied inside each leg. This evening he had an
 “egg beat up with some wine, which he retained
 “on his stomach. His constant inclination to go
 “to stool abated, and he had a natural one this
 “evening. As he nauseated the saline and cam-
 “phor draught, the nitrous æther was continued
 “every three hours in some gruel.”

Twelve o'clock, 20th November. I visited the *Aguada*, and saw this patient, whom I found at the close stool, his constant inclination to go there having returned. I examined afterwards what passed from him, which appeared of a light yellow colour, and in lumps of the size and shape of olives. His vomiting has also recurred, and the matters ejected are of a greyish colour, and mucilaginous consistency. He says they leave, on pass-

ing through his mouth, a very bitter taste. There is great yellow suffusion of the tunica albuginea in both eyes; his tongue is rather red, and perfectly moist; his pulse is not quick, it is soft, and of that order in which I have observed it in numerous cases that have died, where the blood has been found in a state of dissolution; he has very great debility and anxiety of countenance; his gums were observed by Dr. Snow in my presence, they exhibited a red spongy appearance, not produced, however, by the mercury he had been taking, as no foetor was perceived in his breath; his skin was less hot, but still dry, nor has he, during the progress of his fever, had the least perspiration.

I anticipate an unfavourable termination to this case.

His medicines directed were the calomel and opium, with nitrous æther and gruel, as before. His pulse was last night extremely quick and his tongue foul.

Seven o'clock, morning, 21st November. I am just returned from seeing this patient, who was, on my arrival at the *Aguada*, in a dose: I felt his pulse, which was small and wiry; it required to press firm on the artery to examine it. He says, however, that he feels much better, has less vomiting, nor goes so frequently to stool: his tongue looks much cleaner, but it has a peculiar red ul-

cerated appearance. There is but little heat in the skin, and as yet no disposition to perspire; he has slept some part of the night; he passes nothing but a kind of watery fluid when at the close-stool; he complains of great soreness in the blisters. I consider him yet in great danger. This is the 6th morning from the accession of his fever. He is now taking æther and laudanum, as singultus had come on in the evening, which this removed, but it returned at intervals during the night.

Eleven o'clock A.M. 22d November. I am returned from seeing this soldier. I found him at the close stool, to which he has again a constant inclination to go. His symptoms now are very alarming; his pulse very quick, small, and fluttering; there is a diffused yellowness on the anterior part of the neck and sternum; his tongue is becoming rather dark in the middle, towards the uvula; he has had violent singultus during the night, and no sleep; he craves greatly for nourishment. His medicines now are the calomel and opium, and twelve drops of laudanum added to each dose of the nitrous æther. He took, during yesterday, half a pint of port wine mulled with an egg in it; and in the course of the night another half pint of wine.

Five o'clock P.M. At this hour I repeated my visit to the *Aguada*, and found this patient's

symptoms to exhibit a more favourable appearance. His singultus has occurred only twice during the day ; his vomiting has ceased, and his inclination to go to stool is by no means so frequent ; his tongue is, however, of rather a darker red appearance than as it was seen in the morning ; his pulse is more full and strong, but not increased in quickness ; it beats now, by as accurate a calculation as I could make without a stop-watch, about 108 in the minute ; his skin is hot, and there is yet no moisture on its surface. In short, as described by the author of *Zoonomia*, the *concatenation* of morbid motions continues, but there is greater excitement, because there has been a greater application of exciting powers : every half hour during the day he has been taking a portion of egg mixed up with some sherry-wine, and has retained it on his stomach. He expressed to me a wish that he might have, to-morrow, some chicken. From experience, on former and similar occasions, I am yet of opinion this is a lost case.

Seven o'clock, morning, 23d November. I am just returned from my visit to this patient, whose symptoms appear far better than I expected to have found them. His pulse is nearly the same in quickness, but more feeble ; his tongue has a more natural look, and secretes well ; his hiccup did not return during the night, and he slept some part of it. He has just now taken

about a pint of milk, which has produced some flatulent eructations. His inclination for some chicken continues. His stomach now retains whatever is given him; his skin has not yet had any moisture on it; his inclination to go to stool is nearly gone; his blister sores have a dark red appearance. It is impossible to predict, under the present circumstances, what may be the event of this singular case.

Seven o'clock, morning, 24th November. Every indication that was seen yesterday on my visit, and which had so favourable an aspect, is now, I infer, for ever vanished—all was an illusion—he is sinking, but he has appeared to be in a sleep most part of the night, interrupted, at intervals, by the most violent and distressing singultus. I found him labouring under this affection, with his head and neck reclined over the side of the bed. His pulse is now extremely quick, weak, and tremulous—his tongue not so clean, and his gums are becoming black, and a fur of this colour is incrusting on the teeth. He neither vomits now what he swallows, or has any inclination to go to stool. His debility is greater than ever. This is the ninth day of his disease; before to-morrow, I fear, his vital efforts will have ceased. During the whole of this day, I was informed, his symptoms were nearly the same, and the following night, having at intervals the most violent singultus.

The next morning being occupied near four hours, in the anatomical examination of Mr. Bower, I was unable to renew my visit, but I wrote a note to Mr. Coulthard, the Resident Hospital Assistant, begging to be informed if this man was living; and to request, if he was no more, that his interment might be deferred until such time as I could get over to open his body. To this I received an answer, as follows:

“ Mr. Coulthard presents his compliments to Mr. Doughty, and he thinks Serjeant Hassell rather better. He has had no return of hiccup, and took a pint of milk and wine during last night.”

I was rather surprised at this unexpected information, but felt convinced, at the same time, that, if his symptoms then appeared more favourable, they could only be illusory.

At two, P. M. I saw Dr. Plenderleath, who called at my quarters, on his return from the *Aguada*, just as I had finished the dissection of Mr. B. I asked him about Hassell, when he told me he was dying.

After I had dined, about five in the evening, I took a walk to the *Aguada*, and learned this poor soldier had been dead near two hours. I deferred opening his body until the next morning, Monday, 26th November, when I repaired to this hospital, and proceeded first to note the exterior surface of the body, which exhibited a dark yellow

appearance, interspersed, in various parts, with livid spots, similar to those related in the preceding cases. The sores left by the blisters, on the region of the stomach, exhibited a dark copper coloured appearance, approaching to a state of gangrene. There was considerable effluvia imparted from the body, of a very disagreeable nature.

I opened first the head: the skull adhered firmly to the dura mater, from which being separated, some extravasated blood was found in the direction of the falx. Removing the dura mater from the surface of the brain, shewed the pia mater in a highly vascular and apparent inflamed state, with the same white lymphic surface as in the other cases. Throughout the several convolutions of the cerebrum this lymphic and vascular order was seen. The ventricles contained each about two drachms of a limpid kind of fluid. Neither their interior surface, or the plexus choroides, appeared in any degree so vascular as in the case of Mr. Bower. Removing the cerebrum and dura mater from the cavity of the skull some extravasated blood was found. The pia mater, covering the cerebellum, was very florid, and vascularly distended. Removing the cerebellum, a considerable quantity of fluid was found resting on the medulla oblongata, and course of the spinal marrow.

On opening the chest, I found the anterior

surface of the lungs had rather a healthy appearance ; on the left side there was a pretty firm and extensive adhesion. Lifting the lobes from the cavities of the chest, I found in each nearly six ounces of bloody fluid, and on examining the lower and under portions of the lungs, I observed the same black colour as in the other dissections, and on being cut into, similar black frothy dissolved blood escaped.

The heart was very fat : the pericardium had an apparent increased quantity of a yellow coloured fluid. Both ventricles and auricles were empty of blood, but a small hydatid-like substance was found on the carnia columnia of both ventricles.

The stomach was greatly distended with the different fluids he had been taking ; on the escape of which the villous membrane was seen in a state which indicated great previous inflammation.

The spleen was very large, and so tender that it ruptured in several places in taking it out, and had a very black appearance.*

The liver was of a light yellow colour, and, like the spleen, was easily ruptured. The gall-bladder contained about two ounces of a dark green coloured bile.

The omentum was very fat, and the intestines

* I am not certain whether this soldier had been in Walcheren, and suffered from the prevailing intermittent ; I believe his regiment was there.

had, throughout their exterior surface, a very healthy appearance. I cut into the duodenum, jejunum, ileum, and colon, from which escaped much foetid air. There was a kind of greyish matter contained in them, but I did not observe their villous membrane to be inflamed.

Considerable offensive foetor escaped in the course of this dissection, which I was compelled to hurry over, from my anxiety to get back to a patient under my own care, as related in the following case.

Hassel's is the last case of dissection of which I can find notes. I opened several other bodies, particularly in the Spanish Hospital *San Juan de Dios*, which had fallen victims to the prevailing fever. In all, it may be said, there was one general appearance—inflammation, congestion, and extravasation in the brain, lungs, and thorax—Inflammation of the villous membrane of the stomach, and frequently of the intestines—The liver surcharged with bile, and the invariably dissolved state of the blood.

The circumstances attending the following case of recovery from this fever are singular and extraordinary: the relation is diffuse, but I give it as noted down at the time.

I have to observe, my anxiety for the result arose from more than one consideration. Had the soldier died, I might, in all probability, have been

severely censured for not sending him to the hospital appropriated for the reception of such cases. And his being confined so close to my own room, enabled me to watch, with narrow inspection, every changing feature of the disease ; and which I felt an uncommon interest in doing, from that discrepancy of opinion which pervaded the minds of the British Medical Staff, as well as the Spanish Practitioners.

“ Minus valent præcepta quam experimenta.”

Lewis Levy, of the 2d hussars, King's German Legion, ætat. 28, was attacked with fever on the night of Saturday, the 17th November, about twelve o'clock, which displayed itself by cold chills, or shiverings, and some pain in the head. These symptoms continued all Sunday, and he remained in bed. At night his chills were succeeded by heat, and he had no sleep during any part of it.

Before I proceed, I will first state what has reference to the subsequent detail of his sickness.

This man had been permitted to occupy two rooms by Captain Fitzgerald, of the 6th regiment, then Town Major of Cadiz, and which formed part of a Field Officer's quarters in the pavilion of the St. Elena Barracks, in this city. These quarters Captain Fitzgerald vacated to go into a *billet*, and granted me leave to occupy them, expressing a wish that Levy might remain, to which I made no objection.

This soldier was detached from that part of his regiment stationed at the advanced posts of the British army, in the *Isla de Leon*, to remain in Cadiz, for the purpose of enlisting such Germans, deserters, or others, that might be disposed to enter into our service. This employment led him to have frequent occasions to go into various parts of the city, and to ride also over to the headquarters of his corps, stationed, as mentioned, at *Isla de Leon*, and which was distant from Cadiz between eight and nine miles.

On the Saturday stated, on the evening of which day his first indisposition manifested itself by the symptoms enumerated, he had rode over to his regiment, where he dined, and, as he informed me, eat a considerable quantity of fat pork. He likewise, on his return to his quarters, eat again of other cold meat.

At twelve that night, as related, he felt himself unwell, in the manner described : and to recommence the further detail of his case, I have to mention, that on Monday, the 19th of November, about twelve o'clock, just as I had returned from my duty in the *Hospicio* General Hospital, this man first made his sickness known to me, by coming into my room ; when I observed, from the manner in which he entered, the aspect of his countenance, and his almost inability to stand, that he was labouring under a very serious indis-

position. He had not spoken three words before he began to fall as in deliquium, which I prevented, so far, by taking hold of him, that he did not tumble on the ground ; when, calling for my servant and another man, I had him undressed, and put to bed. On examining the state, and enquiring into the duration, of his sickness, I found his symptoms at this time to be great heaviness and pain in the head ; his eyes of a dark red-like yellow appearance, in their suffusion ; the vessels in the tunica conjunctiva greatly distended ; the pulse strong, full, and rather quick ; his tongue was white ; his skin hot and dry ; and he complained of great sickness at stomach, with inclination to vomit.

It was my intention to have removed this man to the *Aguada*, into which hospital all fevers discovered amongst the British troops in Cadiz were ordered to be sent, to be placed under the care of Dr. Snow. But I had no means of doing it, and feeling some particular interest for his recovery, I ventured to take his case under my own superintendence. I happened to have by me *ziss magnesiæ sulphatis*, which I immediately dissolved in six ounces of warm water, and I gave four table spoonsful then, and repeated the dose every hour, until he had taken the whole. This remained on his stomach, and in the space of an hour, from his taking the last dose, he had a copious evacuation, and by eight o'clock in the even-

ing his bowels were emptied, having passed five or six stools. I saw him at this hour, when I found his pulse less frequent, full, and strong. His skin continued hot and dry, and his nausea remained : he vomitted a little, which he said was bitter. About nine I gave him twenty-five drops of laudanum, and left him for the night. The next morning, at seven, I saw him. I found he had not slept ; his skin was now more hot and dry ; his pulse quicker, fuller, and stronger, than on the last visit ; his nausea continued, with occasional vomiting. I got from the hospital some pills, composed of three grains of calomel, two of James's Powder, and a quarter of a grain of opium in each, one of which I directed to be given every two hours with a little barley water. Three hours afterwards, I repeated my visit. He had now taken two pills, which remained on his stomach. I ordered them to be continued as before. About nine at night I again saw him, when, on his complaining of being restless, I gave him thirty-five drops of laudanum.

The following morning, 21st November, I went to see him. He had slept a little, and the whole of his symptoms appeared more favourable, excepting his sickness at stomach, and vomiting, which were rather increased. I considered this might arise from the pills, therefore discontinued them, and directed three table spoonsful of the

following mixture to be taken every two hours ;
viz.

R Mistur. camphorat. ℥ij.

Decoct. cinchon. ℥vj.

Tinct. cinchon. ℥j.

Spir. æther. vitr. comp. ℥ij. fiat mistura.

Of this he had taken one dose when I returned from the hospital, about twelve o'clock, and, repeating my visit at this time, I found his skin again very hot and dry ; his pulse accelerated and strong, as before ; and his sickness and vomiting not abated.

I immediately sent to the hospital for a purging injection, consisting of magnes. sulphat. ℥iss. ol. commun. ℥j. et aquæ tepidæ ℥vj. Also a large blister to be applied to the region of the stomach. These were procured in about an hour. I saw the injection administered, and I put on the blister myself, which I retained firm by the application of a bandage, rather tight, in order to expedite its action, as I had frequently known this to do on other occasions. In less than half an hour he complained of great smarting pain being produced by the blister, and that the bandage affected his breathing, on which I loosened it. The injection procured three rather copious evacuations. I gave him at this time some beef-tea, and on his

having craved for an orange, I sent out and bought four ; of which, without my knowledge or permission, he sucked two, when sickness ensued, and he vomited some little, which had otherwise ceased, from the operation of the clyster, and application of the vesicatory. I gave him a little more beef-tea rather salt, and his sickness ceased. Having been particularly engaged till about nine at night, I did not see him again before this hour, when I discovered that a mistake, "*error gratissimus*," had been made, which might not have been so beneficial as I think it proved. The man who attended upon Mr. Bower had been sent to the hospital for four ounces of the infusion of senna, intended for that gentleman, but which he gave to my patient. He had taken this near two hours when I saw him, and it had operated three or four times ; when, fearing it might evacuate him too much, I gave him thirty-five drops of the tincture of opium, and two ounces of sherry wine, with a little warm water. After this, I left him for the night. About seven in the morning, 22d November, I looked in. He had not rested, but appeared better : his tongue was clean, his pulse less frequent, although hard and full ; and the irritability of his stomach nearly gone. I gave at this time a dose of the bark and camphor-mixture, and, about an hour afterwards, permitted him to eat an egg, and drink some tea. At ten o'clock, on my return from the hospital, I

dressed his blister, and shortly afterwards repeated his dose of medicine. I likewise had him removed to have his bed made more comfortable. He had two stools in the fore part of the day.

Six o'clock in the evening. His medicines have been given three times during the day. At twelve o'clock he took a little beef-tea; at one, as he wished for sleep, I gave him twenty-five drops of laudanum, in a little porter. About two, however, he had sickness at stomach and vomited a little. No sleep was procured. I gave nothing further, but a little beef tea, and his stomach became again quiet. At the hour stated in this report, I found his symptoms nearly the same. Being desirous to procure him sleep, I brought from the *Aguada*, where I had been to see Hassel, twelve one grain opium pills, and gave him two in a glass of port wine.

About an hour after taking these, I heard him vomiting, as I was writing in the adjoining room. I immediately went to him, and found he had ejected a little from his stomach, which he said was bitter. He wished for drink, when I made him a pot of green tea, to take a little of when it was cold. Wishing much to procure him sleep, I dissolved six of the opium pills in about as many ounces of beef soup, for an injection, which I administered.

Seven o'clock in the morning, 23d Novem-

ber. The opiates appear to have rendered him essential service: he has passed a good night, having slept the greater part of it. He says he feels *wonderfully* better. His tongue looks more clean and healthy; his pulse nearly natural. No pain in the head, but the effect of the opium is not gone off. He has yet great drowsiness. About eight o'clock, I sent him in a boiled egg, which he swallowed at once, and, in consequence, very soon afterwards ejected it. I then sent some green tea to him, with a small slice of bread and butter, which he took and retained. About half past nine I directed his bark and camphor mixture to be given as before, and continued every three hours. At three P.M. when I returned home, I found his medicine had created nausea, and some little vomiting, with rather an increased heat in the skin, and an accelerated pulse. He now complained of much thirst, when I gave him a glass of good bottled porter, which I repeated to the extent of nearly the whole bottle in the course of the evening. His drowsiness remained, and I was desirous to keep it so for the ensuing night. I ordered some good beef-tea to be prepared by my servant, of which he took a bason, and retained it on his stomach. About eight in the evening, as there appeared some little heat in the skin, with an increased pulse, and not having any motion from the intestines in the last twenty-

four hours, I directed an injection to be thrown up, composed of magnes. sulphat. $\frac{3}{4}$ ss. ol. oliv. $\frac{3}{4}$ j. et aquæ tepidæ $\frac{3}{4}$ vj. This was soon ejected, with a considerable quantity of excrementitious matters. Half an hour after this I gave him another glass of porter and left him for the night. About one in the morning I heard him calling for the orderly that I had appointed to attend him, and continuing to do so for some minutes without being answered, I got up to enquire what he wanted, when he complained of great thirst, and wished for something to drink. I made him a glass of port wine and water, half of which he took, and, as he appeared rather restless, I ventured to give him one grain of opium, and let him wash it down with the remainder of the wine and water. I made him another glass, and left it by his bed-side, with an injunction to drink only a small quantity at a time, as his thirst might indicate, when I returned to bed.

Six o'clock in the morning, 24th November. Before I repaired to the *Aguada* to see Hassel, I went in to look at my patient, whom I found much better, and had slept since taking the opium. He complained still of thirst, and on my return I gave him a glass of porter. An hour after this he took a cup of green tea, a small slice of toast, and eat an egg. The orderly man, however, gave him more tea than I had directed, or his

stomach could bear, and he vomited the egg up again with some little tea, a few minutes after taking it.

This soldier wore *mustachoes*, and, moreover, had not been shaved from the commencement of his sickness ; I therefore directed my servant to cut them off, as he wished it, and shave him, which enabled me to observe more particularly what change the fever had produced in his countenance.

Three o'clock, P. M. His nausea has not quitted him, and he has had some little vomiting ; he has now a disinclination for porter, I therefore made him about half a pint of port wine negus, of which I directed him to take two table-spoonsful at a time, and repeat the quantity at intervals, as his stomach appeared to bear it. Shortly after I dined, and having some soup with rice and vegetables in it, I sent him in a little, with a small slice of bread. Of this he swallowed four or five spoonsful, and retained it on his stomach ; but occasionally his nausea would return, which did not, however, produce vomiting, yet a great secretion of saliva, and what he spit from his mouth had blood intermixed with it. Until about ten o'clock at night I was engaged with other cases, when I returned home and took a view of this patient : he was awake and rather restless, I therefore gave him one grain of opium, in a little

warm port wine and water. The following morning, 25th November, at seven o'clock, I saw him ; he had rested only a part of the night, and complained of thirst. I had breakfast soon afterwards, and sent him in a little tea, a slice of bread and butter, and an egg, his inclination leading him to eat it: this he retained on his stomach for an hour, when he ejected it, and what he vomited, at the same time, had a considerable mixture of blood in it. I now ordered the following mixture, viz :—

R Decoct. cinchonæ ℥vij.

Tinct. cinchonæ ℥j.

Acid. sulphuric. gtts. xx. vel q. s. ad gratum acidulatem.

Of this a wine glass full to be taken every two hours. For six hours after this I was engaged, when I returned, and again saw him, he expressed a wish for some porter, being thirsty ; accordingly I gave him a glass of very excellent bottled. About an hour after this, and whilst I was at dinner, I sent him a little of my soup, with some bread in it. He had not, however, taken this many minutes before I heard him call suddenly for my servant, on which I immediately went to him, when he, at the instant, vomited a black bloody kind of fluid that greatly alarmed me. I found, however, on examination, that it appeared to be the porter, with some blood and bile intermixed.

A short time after this he took a small bit of fish, and some potatoe perhaps about two ounces ; and I gave him as drink a little brandy and water, which he said had a very bitter taste. In the evening I found him much better, but as he had no evacuation for the last twenty-four hours, I administered an injection, consisting of brown sugar, common salt, and sweet oil, of each one ounce, and six ounces of warm water ; he complained of great soreness from the blister, in that part where a boil had previously been, which I found very red and inflamed. I ordered a lotion of Goulard's extract and water, with which I directed it to be bathed. The injection procured two copious evacuations, and a very natural stool intermixed therewith. From this he expressed much relief : half an hour afterwards I dissolved four grains of opium in five ounces of beef soup, and threw it up, and gave one grain by the mouth, washed down with a little gin and water, when I left him for the night.

About seven o'clock in the morning, 26th November, on my going in to see my patient, I found a very alarming change had taken place. He was sitting in a chair, when my servant and the orderly man were undressing him ; he having, unnoticed, got up and put on his whole regimentals and walked out of the room. On his laying down in bed I felt his pulse, which was now rather

increased in quickness, and very weak and tremulous ; it imparted that feel, as I have before observed, which indicates a dissolution of the blood. He was in a state of delirium, and his countenance portrayed that order of physiognomy which is termed *risus sardonicus*. A more dark yellowness was diffused over the anterior part of the neck and sternum ; and over the skin I observed, in various parts, little livid, petechial spots ; also a considerable oozing of blood from the mouth, and in what he brought up from the secretions of the throat. I immediately gave him a little warm brandy and water ; and, afterwards, in about twenty minutes, I beat up an egg with some sugar and hot water, to which I added three ounces of sherry wine : of this he took half, and it seemed agreeable to him. I then administered an injection, composed of half an ounce of the powder of bark, and six ounces of beef soup. Being engaged this morning to proceed to the *Aguada*, to open the body of Serjeant Hassel, I did not see my patient again for two hours. On my return, I found his delirium nearly removed ; his pulse was now less quick, and more full and expanding. I gave him the remainder of the egg and wine, and threw up another bark injection. I also applied a blister to the nape of the neck, which I had previously sent for. One hour after this I gave him a wine glass full of the bark

mixture, with sulphuric acid, as before mentioned. I now went and reported the state of his case to Sir James Fellowes, who desired me to call upon Dr. Plenderleath, which I did, and, on finding him at home, I related the circumstances of an unfavourable change in the case of this soldier, and of its being my opinion that it would prove fatal. I also stated my supposition, from the symptoms, and petechial spots, that the blood was in a dissolved state : and on this consideration I took Dr. Plenderleath's opinion, it being greatly my wish to try the experiment, whether one or two ounces of blood taken from the arm, could be of any serious consequence. Dr. Plenderleath agreed with me that such a quantity could have no avail in doing harm : and as it was important to observe the change in the blood in that stage of the disease, I returned home, and took between one and two ounces from his right arm, which was received from a slow stream into a gallipot. This I covered over so far as to keep flies and insects from it, but yet sufficiently exposed to be influenced by the atmosphere. For two hours there was but little disposition to coagulate : it then began gradually to coalesce in its particles, from the bottom of the pot, and in the course of six hours there was a general appearance of coagulum, without the slightest separation of serum, however, and it was of so slender a texture, that the immersion of the

feather end of a quill returned it instantly into one homogeneous fluid. This blood had, on its being drawn, a very florid appearance, and this was greatly increased by the oxygenic principle of the atmosphere, some little time afterwards. I continued administering the bark injections, and giving the bark decoction, &c. alternately. I ordered a pair of warm worsted stockings to be put on, and he ate a roasted apple. At my dinner hour I gave him some apple-pie, to which he had an inclination, as previously expressed, and therefore it was prepared purposely for him. He ate a part of this with great relish, and drank afterwards some port wine negus.

Six o'clock, P.M. His pulse is now rather full, the artery expands, it is not so quick, and appears stronger; his gums do not bleed so much, and he spits less blood in the saliva; his tongue looks cleaner, and he appears disposed to sleep. When I questioned him to-day as to his feelings, he said, "I feel very tired."

Eight o'clock, morning, 27th November. From the hour of seven last night, until two this morning, he slept sound; when he awoke, I heard him call "Stone," (my servant's name.) I immediately went to him, and found that he wanted something to drink. I gave him the remainder of some port wine negus, left the preceding evening; his pulse was now rather weaker, but, in other re-

spects, its action imparted to the finger a sensation portending well. I left him, and he again slept till four, when I heard him repeat his call to my servant, (for my interest in his case deprived me of sleep) and I got up and went to him, when he wished for more drink ; as his pulse appeared still rather feeble, I made up a tumbler of strong warm brandy and water, into which I squeezed a little lemon-juice, and directed the orderly, whom I found both times asleep, to repeat it occasionally, as he might be inclined to drink : after this I left him.

Eight o'clock, morning, 28th November. His symptoms have changed altogether for the better ; he has made a considerable quantity of urine, which is of a dark yellow colour ; and he had a motion between six and eight, which appeared, however, to be little more than the bark, and some bilious mixtures ; I could observe no fæces. The blood appears this morning to have formed again a slight coalescence, but which is easily separated into one uniform fluid, now of rather a dark colour. I gave him this morning an egg, beat up with some sugar and water, to which I added two glasses of sherry wine. Of this I gave half, and in about twenty minutes following the remainder.

Before I repaired to the *Hospicio*, where I was detained some time on a medical board, I looked

in, and saw my patient had fallen again into a sound sleep, in which state I left him. The blister which I applied yesterday to the nape of the neck, and which I removed at eight o'clock last night, from its being rumped, and not having produced any apparent state of vesication, was, however, at four this morning, found to have excited the exhalent arteries into such a degree of action, as to raise a considerable bladder of water. I felt much satisfaction at finding this to be the case, as, from this circumstance, I drew a deduction favourable to the existing state of the *vis vitæ*, or *excitability*. From the first moment that I took this man under my care I have devoted every leisure moment to observe the progress of his disease, but since yesterday morning, when I found him in such a state of apparent danger, I have been constantly on the watch, nor have I closed my eyes in sleep from that period to the time of writing this, eleven o'clock, A. M. And I feel now like a wearied mariner, who, having conducted the shattered vessel through the violence of the storm, is anxious for an opportunity to obtain some rest.

My hopes for my patient's getting through his severe sickness were greatly revived this morning. On my return from the *Hospicio*, at two, P.M. I found him in a gentle and natural slumber,

from which he shortly afterwards awoke, when I dressed his blisters. The first was nearly healed, a change favourable to my wishes. In the two preceding dressings I had observed, on removing the plaister, that the blood oozed out considerably from the surface in two or three places: in this last dressing it had entirely ceased, and, as I have stated, the sore was nearly healed: nor was there the smallest appearance of any blood oozing out from the surface of the blister last applied. I have noticed these circumstances as important, when the state of the blood drawn, and the petechiæ are considered. I now gave him a dose of the bark and sulphuric acid. In my absence my servant and the orderly man had washed him over with some soap and warm water, and put on a clean shirt.

About half past three, I gave him a larger piece of the apple-pie than yesterday, which he ate and said it was good. After this he drank some port wine negus and again went to sleep, in which state, indeed, he was the most part of the morning; he slept till eight o'clock, when I again saw him: His symptoms were now in every respect favourable; his skin cool and natural; his pulse regular, rather soft, and full. His drowsiness remaining, I gave him no further medicine, but, making up a sufficiency of negus for his drink, left him for the

night, and went to bed. At four in the morning I awoke, when I got up and went to see him, but finding him asleep I returned to bed.

Eight o'clock, morning, 28th November. He was now awake, and when I asked him how he was? He answered "much better." His skin continues cool, but feels loose on the muscles; his pulse appear about seventy, and not so full as last night; he has passed a great deal of urine of a dark yellow colour. I had prepared for him, yesterday, the following mixture, viz:—

R Decoct. cinchon. ℥vij.

Tinct. cinchon. ℥j.

Extract. cinchon. ℥ij.

Acid. sulphuric. q. s. ad gratum acidulatem, fiat mistura.

Of which I gave him three table-spoonsful this morning. On my return from the hospital, about one P.M. I looked in to see him, when he complained of having a bitter taste in his mouth. As he had no fæcal evacuation for nearly three days, I threw up an injection, composed of common salt, brown sugar, and sweet oil, each one ounce, and six ounces of broth; this, in a few minutes, effected a most copious evacuation of fæces, which had a very offensive smell, and were of a dark yellow colour. At three o'clock I dined, when I sent him half a bason of soup, which he took, and a small quantity of fish and potatoe, drinking after-

wards some port wine negus. All these agreed with him very well. In the evening, about six o'clock, I proceeded to dress his blisters : the first one, however, was now quite healed, and the last, at the back of the neck, nearly so. At eight o'clock I again saw him when he was asleep, in which state I left him for the night, having previously prepared two tumblers of port wine negus for his drink, lest he should awake and require it. About four in the morning the orderly man came to me, and said the " Corporal" (this was his rank) had drank the above, and wished for more ; when I got up, and made the same quantity of port wine and water, rather weak.

Eight o'clock, morning, 29th November. On seeing him at this hour, and learning that he had no evacuation since that procured by the injection, and his eyes, skin, and urine of such a yellow colour, together with an occasional bitter taste in the mouth, I was apprehensive of a superabundant accumulation of bile in the liver and gall-bladder, and, therefore, gave him a gentle laxative, formed by half a drachm of the powder of rhubarb, one scruple of the powder of ginger, and a little peppermint-water. About four in the afternoon this medicine operated, when he had a copious stool, of a light-yellow colour, and natural consistency ; his urine, was, however, still of a dark green-like yellow colour. He took twice

this day some beef soup, and, at my dinner hour, some fish and potatoe, followed by the wing and part of the breast of a fowl, which he appeared to relish, and drank afterwards a glass of porter. Nothing further occurred during the remainder of the evening or night. Before I went to bed I made him up a glass of gin and water, sweetened with a little sugar, which was the whole he had for this night. He slept well, and when I went to see him this morning, 30th November, I found so favourable an aspect in the whole appearance of his symptoms as to induce me to consider him out of danger. In the night he had another stool. In the urine the same dark-green coloured yellow continues. His appetite is fast returning ; he ate an egg for breakfast, two slices of toast, and drank two cups of tea ; his pulse for the last two days, and yet, beat very slow—not seventy in the minute ; but the artery expands, and it appears full. Nothing interesting occurred in his case in the course of the day. I gave him for dinner some beef-soup, and afterwards a considerable portion of fish with potatoes, &c. These he ate with great relish, and drank some port wine negus. In the evening, about eight o'clock, he expressed a desire to be able to go to stool, not having had any since that produced by the rhubarb : I therefore threw up an injection of common salt and oil, of each one ounce, and six ounces of warm water, which, in

a few minutes, emptied the rectum of a considerable quantity of fæces ; he complained of much soreness in the throat, and spit up with difficulty a viscid white ropy kind of mucus. I rolled round his neck about two yards of a flannel roller.

Wishing to observe how far the blood had recovered from the change it had undergone, as seen in that first drawn, I tied up the arm again, when the veins swelled out as in sound health. I opened one and let flow about two ounces. This formed, in a few minutes, a very firm coagulum, which I could not separate, as before, by the immersion of a feather. I let it stand for the night, and, on examining it this morning, 1st December, I found a separation of serum, to nearly half the quantity of the whole mass. This was of a deep green-like yellow colour, very much resembling that of the urine. My patient slept well last night, as I had, after the operation of the injection, given him two grains of opium. He continues improving ; he ate for breakfast a large slice of bread and butter, and drank two cups of tea. The soreness in his throat is nearly removed ; he wishes for permission to smoke, which he was accustomed to do when in health ; I have acceded to his desire. At dinner he ate a bason of soup, some boiled beef and potatoes, and drank a tumbler of porter. He passed the ensuing night well, and I found him this morning, 2d December, pro-

gressively recovering. At dinner he ate again soup, beef, and potatoes, and drank some porter and water. As his bowels continued in a constipated torpor, I gave, on the following morning, 3d December, half an ounce of the sulphat of magnesia, which procured, in the course of the day, two or three gentle evacuations.

Tuesday, 4th December, I have just seen my patient, whose only complaint to me was that of excessive hunger. For these four last days the petechiæ have been gradually receding, and scarcely any are perceptible this morning. I perceive, also, the yellowness of the skin, tunica conjunctiva, and urine, is becoming daily less. To-morrow, or the day following, I will take one or two ounces more of blood from him, to observe the progressive order of change to health in this fluid, and then send him to the *Aguada* to convalesce.

Friday, 7th December. Since my last notes my patient has been, and still continues, advancing to a state of permanent recovery. For the last three days he attempted to get up, but found himself in such a state of great debility as to be only capable of sitting a few minutes on the bed. To-day, however, he finally accomplished it; became dressed, and then walked a few turns up and down the piazza, in the pavilion of these

barracks. His bowels continuing in a torpid state, I gave him, yesterday, six drachms of the sulphat of magnesia. His appetite is great; he eats voraciously. To-day I have drawn near three ounces of blood; it is about two hours since, and it is now before me, with a firm crassamentum, not to be diffused by any agitation through the serum: a white, or rather buffy appearance in the center, and round the edges of the coagulum a circle of air bubbles, of a bright red colour. The serum is the same as on the second bleeding in its order of fluidity, but in colour of a much lighter yellow. The petechiæ are now entirely gone, and his countenance is fast returning to its natural appearance, only very pale, as, in his former health, it was dark and manly. A redoubt having been constructed close to the *Aguada*, which induced the enemy to fire in that direction, it ceased being an hospital to-day. I therefore sent Levy to the *Hospicio*, where his health was perfectly re-established. Three months afterwards he fought at the battle of Barrosa, and was severely wounded, which occasioned his being sent to England; when, on passing through London, in June, to the depôt of his regiment, at Ipswich, he called upon me, after I had been dismissed the service, in consequence of circumstances arising, as I have said, from an over anxiety to examine, by anatomical enquiry,

into the nature of that order of fever, of which he recovered. *Felix quem faciunt aliéna pericula cautum.*

From what is related in the history of this case, and from what has been observed in the *postmortem* examinations of those who fell victims to the disease, I appeal to every unbiassed reader, who may honour these pages with a perusal, and who has seen Yellow Fever in any one of the West India islands, or read any of the various publications, which have been written on it, whether the shades of difference, in the several symptoms, during the progress of the disease, or the morbid appearances after dissolution, can any ways be said to constitute a distinct order of fever from that which ever has been annually more or less, and, I fear, ever will be, amongst strangers, from the more northern regions ; a periodical visitant of inter-tropical climates, in particular situations ; and an occasional attendant in certain places laying in or under the 40th degree of latitude : although it may have prevailed, yet I believe but seldom, at a greater distance from the line.

To come, however, to the question respecting the cause and quality of the fever which has so often been destructive in Cadiz and Gibraltar, and on which I have now, with every deference to Sir James Fellowes and Mr. Pym, to offer opinions that differ from those which they have

advanced, inasmuch as I neither consider it of foreign origin in its source, or of possessing the power to impart *direct* contagious qualities in its progress. These considerations I shall endeavour to elucidate on the basis of circumstantial facts which fell within my own immediate observation.

If we give ourselves time to weigh, with an unbiassed mind, the principle of cause and effect, we need not go beyond the precincts of Cadiz to look for a source of fever, and that too of the order which forms the subject of these pages.

Sir James Fellowes, in his *Topographical Description* of this City, says, at page 7, “ The public buildings at Cadiz chiefly deserving of notice, in this report, are, the hospitals, jail, and slaughter-houses ; there are also five charitable institutions, besides eleven convents of religious orders, an academy of arts and commerce, and a royal college of medicine and surgery.

“ All these buildings are well situated, excepting the hospital of *San Juan de Dios*, which stands on one side of the market place, and near the *Boquete* and *Sopranis*, the most crowded part of the *Barrio*, or *District de Santa Maria*. The posadas, taverns, and lodging-houses where the lowest classes of the people principally resort, are in this quarter of the town ; and the sailors, workmen, and porters employed on the wharf, together with the muleteers and

“ strangers from the country usually reside here.

“ *It will be shewn hereafter that the malignant*

“ *disorder, which forms the subject of this report,*

“ *first broke out in those streets in 1800.*

“ The other building, the situation of which

“ appears to me objectionable, is the slaughter-

“ house ; it is built at the back of this *Barrio*, near

“ the sea, and not far from the jail ; both stand

“ at some distance from the dwelling-houses oppo-

“ site ; the two barracks of *Santa Elena* and *San*

“ *Roque*, which are placed on each side of the

“ land-gate, are so near the slaughter-house,

“ that, during the prevalence of particular winds,

“ the stench is very offensive, and renders these

“ quarters unpleasant to the troops, the offal, and

“ other impurities, being thrown over the wall to

“ be washed away by the sea. The barrack-

“ rooms are all bomb-proof, and at one end of

“ each is an opening, funnel-shaped, to allow the

“ confined or impure air to escape. On account

“ of this inadequate ventilation, when the British

“ troops occupied the above barracks, it was found

“ necessary to order the doors to be kept open day

“ and night, and by this and other expedients,

“ such as frequent white-washings, &c. they were

“ kept healthy.”

Before I offer my observations respecting the generation of fever in this *Barrio*, from causes which may be found amply within its narrow

streets and crowded houses, I shall quote part of what Sir James has stated relative to this disease in 1800, in the second part of his first report, to which I refer my readers.

“ Towards the latter end of the year 1799 (it
 “ is related) the weather was remarkably severe,
 “ and it continued so during the months of Janu-
 “ ary, February, March, April, and May, of the
 “ year 1800, with equal irregularity. Excessive
 “ cold heavy rains and violent winds alternately
 “ succeeded each other, so that there was scarcely
 “ any appearance of spring ; the heat of summer
 “ set in from the beginning of June, and by the
 “ month of August the mercury in Fahrenheit’s
 “ thermometer rose to near 90 degrees, according
 “ to Gonzales’s meteorological observations ; and
 “ the prevalence of the east wind, or *Levante seco*
 “ *y abrasador*, as it is called, tended to increase
 “ the distress which the intense heat of the wea-
 “ ther generally occasioned.

“ Notwithstanding this heated atmosphere,
 “ during the months of June and July, no material
 “ alteration was observed in the health of the in-
 “ habitants of Cadiz.

“ About the beginning of August, the scene
 “ began to change ; a certain species of fever
 “ made its appearance in the *Barrio de Santa*
 “ *Maria*, which soon attracted the notice of prac-
 “ titioners, from the violence and singularity of

“ its symptoms, and from the uncommon rapidity
 “ with which its course was terminated. In this
 “ quarter of the town, described in the commence-
 “ ment of this work, *the streets are narrower, less*
 “ *ventilated, and not so clean as in all the other*
 “ *parts, and here the poorer inhabitants, dirty in*
 “ *their persons, and crowded in filthy rooms, ge-*
 “ *nerally live together ; it was amongst these sub-*
 “ *jects, already predisposed to disease, that the*
 “ *disorder broke out*, which afterwards spread,
 “ like a pestilence, over a great part of Andalusia.

“ The malady, although at first confined to
 “ this district, continued daily to gain ground,
 “ and in whatever house it appeared, every person
 “ belonging to the family was attacked. The fre-
 “ quent deaths justly alarmed the magistrates,
 “ who, anxious to check the evil, assembled toge-
 “ ther all the practitioners of the town, to deli-
 “ berate on the measures of precaution necessary
 “ to be taken ; but upon this, as upon other oc-
 “ casions where these numerous consultations
 “ have taken place, and where each individual
 “ thinks it incumbent upon him to talk a great
 “ deal, useless discussions arose, which led to
 “ nothing, and added to the general confusion
 “ and dismay. The prevailing disorder was at-
 “ tributed to all the causes which have ever been
 “ assigned for the production of fever, and as
 “ many names were given to it, as synochal,

“ putrid, bilious, ephemeral, &c. &c. Those who
 “ considered it as a simple epidemic of the season
 “ *rejected all idea of contagion*, and spoke only of
 “ the effects of heat, of the dry state of the atmos-
 “ phere, of the exhalations from the sea, of the
 “ drains, of the low tides, and of the alteration of
 “ the bile, &c. But, unhappily, nothing was deter-
 “ mined upon at this meeting, nor were any
 “ measures of precaution taken.*

“ In the meantime the disorder continued to
 “ make gradual progress *in the district where it*
 “ *broke out*, and by the middle of August the num-
 “ ber of deaths amounted to twenty-five or thirty
 “ a day.

“ The best informed persons now began seri-
 “ ously to inquire into the truth of the reports
 “ which were circulated, that this was a disorder
 “ of a pestilential nature, and that it had been in-
 “ troduced into the town ; the uncertainty of some
 “ of the faculty, and the indecision of the magis-
 “ trates, only tended to increase the suspicion,
 “ and added to the general alarm ; *it was ru-*
 “ *moured that a vessel, called the Dolphin, had*
 “ *arrived from Spanish America, in which were*
 “ *conveyed the seeds of the disorder*, and that
 “ some of the smugglers, who had been frequently

* Qu.—What could they have determined upon, or what measures of precaution could they have taken ?

“ on board during her quarantine in the bay, were
 “ the first persons taken ill, in the streets of *Bo-*
 “ *quete* and *Sopranis*,” which are in the *Barrio de*
Santa Maria “ in which they resided, and where
 “ it was supposed they had secreted their goods.

“ Don José Villialta, the health officer, who, it
 “ has been mentioned, was suspected of having
 “ connived at the smuggling which was carrying
 “ on from the Dolphin, was reported to have
 “ caught the disease, and, it was added, that, struck
 “ with remorse at the dreadful effects which he
 “ foresaw were likely to result from his miscon-
 “ duct, and feeling deeply the reproaches which
 “ were heaped upon him by his acquaintance, he
 “ gave himself up to despondency, and died in a
 “ few days of the prevailing fever, about the 20th.

“ The circumstance of Villialta’s illness, and
 “ the exact period of his death, are faithfully re-
 “ corded at Cadiz ; the event confirmed the gene-
 “ ral opinion at the time, and occasioned so much
 “ alarm amongst the inhabitants of that quarter
 “ of the town, (*Barrio de Santa Maria*) that on
 “ the 23d a great crowd of persons assembled
 “ before the house of Don Francisco Marti,
 “ Syndico Personero, or head of the munici-
 “ pality, and supplicated him, in the most earnest
 “ manner, to permit them to join in procession,
 “ and to carry out the image of our Saviour,
 “ (Nuestro Padre Jesus) from the church of *Santa*

“ *Maria*. Such was the terror of this fanatic
 “ people, that they conceived themselves the ob-
 “ jects of offended Heaven, and imagined that
 “ by following the cross with humility they should
 “ effectually appease the anger of the Deity: the
 “ Magistrate, dreading the assemblage of persons
 “ in a part of the town where the disorder was
 “ spreading, in vain endeavoured to quiet their
 “ apprehensions, but all reasoning was ineffectual,
 “ and the procession took place, passing through
 “ the *Sopranis* and *Boquete*, and from thence to
 “ other quarters of the city, where the disorder had
 “ not yet appeared; but, in five days after, cases
 “ of the fever were reported in the other *Barrios*,
 “ and on the 28th of August there were 157
 “ deaths in Cadiz.*

“ It was ordered now that the dead should be
 “ conveyed away in carts, and buried outside the
 “ town; the ringing of bells was prohibited, and
 “ every measure was adopted to tranquillize the
 “ minds of the people, *but the dread of this great*
 “ *calamity was so strongly impressed on every*
 “ *individual that it only increased the aptitude to*
 “ *take the disease, and many instances occurred*

* Dr. Bancroft has made some very pertinent remarks re-
 lative to this procession and its consequences, which Sir James
 Fellowes has quoted at page 41.—Although, in ascribing the
 effects produced to *marsh miasmata*, I agree with Sir James
 that Dr. B. is mistaken—there is no marsh nearer to Cadiz
 than Isla, distant about eight miles.

“ of deaths accelerated solely by the terror thus
 “ induced.*

After considering the excessive heat which prevailed in Cadiz in the summer of 1800, (and which I well remember to have experienced in England that year, and afterwards at Madeira, on my passage to Jamaica) with the crowded and filthy state of the *Barrio*, or particular district where it first developed itself, need we look beyond the precincts of that (I know) disgusting quarter to trace out a cause of febrile action? Must we, I say, shut our eyes to so obvious a focus of disease, and proceed on board a vessel that had traversed over a surface of ocean to the extent of five thousand miles, to discover the germs or *miasma* of that order of fever which had often before, and which has often since, prevailed in this well known *Barrio*?

As well may we believe, in the mythological story, that the music of Arion called the dolphins together, by which his life was preserved from the fury of the sailors, as that the vessel bearing the name of this beautiful fish imported Yellow Fever into Cadiz.

—————“ Nihil tam præposterè, tam inconditè, tam mon-
 “ strosè cogitari potest.”

The fever first manifested itself in the *Barrio*

* This truly is one of the greatest advantages derived from the doctrine of contagion.

above mentioned in 1800, so again was it first discovered in this noted quarter in 1810.

From the time I took up my residence in the St. Elena Barracks, situated in the above quarter, and not more than fifty yards from the back of its several lanes and buildings, it was my custom, in my daily visits to the *Hospicio* and *San Juan de Dios* Hospitals, to pass through many of the narrow streets of this quarter, and I particularly observed the striking difference, as to cleanliness, in this part of Cadiz, where the poorer classes dwell, to what was found in the open streets facing the sea, where the mercantile and higher orders of society reside. In the latter there was nothing offensive to either sense, whilst in the former the olfactory nerves were assailed with the most noxious exhalations, and the eyes disgusted with every sort of filthy and excrementitious matters thrown indiscriminately into the streets. Fish, bones, rotten vegetables, and rotten matters of every description, mixed together by contents from the receptacles of the night, formed the *delectable* covering of most of those extremely crowded and ill ventilated streets.

Will any one tell me, that if Cadiz was built on a rock of adamant, and its streets to be covered from time to time with matters of this description, on which the solar influence might operate a degree of heat equal to 95 or 100, often experienced

out of the shade in that city, in the summer months, there would not be just grounds to expect the generation of fever? The malady, as stated, first began in 1800 in this irksome quarter of the otherwise clean and beautiful city of Cadiz ; so it did in 1810, so I am persuaded it ever did and ever will, more or less, prevail. In proportion to the extent and degree of the summer's heat and drouth, to the prevalence of filth in the persons, dwellings, and streets of the inhabitants, and moreover to the susceptibility to be influenced by a morbid cause, will be the annual ratio of sickness in this quarter of Cadiz.

The same degree of cause which produces fever one year in a given number of people exposed to its action, will not have the same effect the succeeding year, with the same persons so exposed, should the morbid virulence be in the same degree. No, the susceptibility to its influence is reduced by the change which the constitution undergoes from febrile action. Nay, a given number of people, exposed to the action of the febrile cause which may produce only a slight derangement of health the first season, would not by an exposure to the same cause, the succeeding year, be any ways affected if the degree of virulence in the cause was the same, and they had been residing during the intermediate time of

health in the same quarter where the febrile miasm is generated. Let them, however, quit this focus of sickness for one or two years, and reside in the more healthy parts of Spain, or where Yellow Fever is never seen, then return, and take up their residence in their former dwellings in the *Barrio de Santa Maria*, during the prevalence of the Endemic Fever, I am well convinced they would not escape its influence. The susceptibility to its action would be regenerated, by having, for the time I have supposed, inhaled an atmosphere divested of those morbid miasms which generate fever in the autumnal season at Cadiz, Gibraltar, the West Indies, and other parts. Hence the idea of seasoning. The same cause will not produce the same effects each succeeding year amongst people residing within its sphere of action, and inhaling an atmosphere, impregnated with its morbid principle. As there must, from various circumstances of season and locality, be a wide difference in the degrees of virulence of the morbid principle, or cause, generative of Yellow Fever; so, we know, there is also a wide difference in the degrees of susceptibility to its action, from age, sex, constitution, modes of life, and time of residence within the space annually visited with this Endemic.

I shall suppose a cause prevails which I will

calculate in force equal to 30° , and which creates, in the usual season, fever amongst six or more persons, of which they recover ; the same cause prevailing in the same degree of force, would have no effect upon these persons the succeeding year, they would be unsusceptible to its action ; but let the morbid principle be increased in force to the 40th or 50th degree of concentration, then would they, I am convinced, be again affected with febrile action. This reasoning is not founded on the basis of visionary hypothesis, it is drawn from facts which I have explained in the former part of this work, when speaking of the effects produced in different quarters occupied by the 85th regiment in Jamaica. Hence the great consideration in Mr. Pym's publication, that the particular order of fever which he speaks of "*attacks the human frame but once*" is doubtful. I am aware that persons exposed to the cause, and who have laboured under the effects of the most aggravated form of Yellow Fever, are not likely to have it a second time ; but those who have been exposed to a cause of the minor degree, and laboured under this fever in its milder form, will certainly run great risque in being again attacked, if exposed to the source of this disease in a more powerful degree of concentration ; and more especially if there has been any regenerated susceptibility

from a residence, for a given time, beyond the precincts of the generative cause.

The 85th regiment which suffered so greatly in Spanish Town in 1805 from an exposure to the morbidic miasm, in its apparent higher degree of concentration, was not in the least affected in Fort Augusta the succeeding season, not a man was attacked with Yellow Fever. Here I am convinced their health improved, and a consequent regenerated susceptibility was created. It is only on this consideration that I can account for their suffering again so greatly in the barracks of Kingston, in the autumnal season of 1807. Many of the soldiers who had laboured under fever in Spanish Town, and recovered, were attacked again here, and fell victims to the disease. Three officers died, and I, it is well known to many friends, was on the brink of the grave, although I had laboured under Yellow Fever, in its concentrated form, in the same town seven years preceding.

Mr. Piercy, the Quarter Master, a very robust healthy man, was attacked in these barracks with severe fever in 1802. He was bled and sent to Stoney Hill, where he recovered. In 1807 he was again attacked in Kingston, and, to the universal sorrow of his brother officers, fell a sacrifice to the disease, expiring, as I was informed, after a violent gush of black vomit.

Lieutenant Dowie, of the same regiment, was in Spanish Town the whole of the sickly season of 1805, without being affected, although it was the first of his residence in Jamaica. In August, 1807, he was attacked with fever in Kingston Barracks, and had many of the most violent symptoms incidental to the disease, certainly not black vomit. I attended him, he recovered and went into the country to convalesce ; he returned in good health in October, was again attacked with fever in November, when I was at Port Royal, to which I was removed on account of my own health : the sickness was at its greatest height on his return, and he fell a victim to the relapse, vomiting, before his dissolution, the usual black matters. These, with many other facts within my knowledge, will not permit me to subscribe to the opinion, that this fever attacks the human constitution but once : although I fully admit that those who have laboured under Yellow Fever in its violent form, will be rendered greatly unsusceptible to a second attack, unless exposed to a cause far more powerful in its degree of virulence than that which first created their fever ; or that the constitution has acquired a regenerated state of susceptibility from a residence in a different climate. The same degree of cause, under the same order of circumstances, will not, I believe,

produce its effects twice over, in Yellow Fever, in the same person. There seems to be in the morbid principle of this fever, in its action on the human constitution, a quality resembling spirituous potations as to effect. Whilst those who first commence the pernicious custom of dram-drinking are easily affected by one glass, may go on till the system is almost rendered unsusceptible to a *quantum* that would destroy life in others, who never drank any thing stronger than malt liquor. Again as ardent spirits vary greatly in effect in different constitutions, producing different degrees of excitement, according to the prevailing state of excitability ; so may be considered the morbid principle of Yellow Fever, in its several degrees of concentration and diversified action, on the various states of constitution exposed to its influence.

As, from what I have stated, it will be seen that I consider the fever, which has so destructively prevailed at Cadiz, to have had its source within the walls of that town, so I am equally disposed to give full credence to the excellent and luminous statement of Mr. Amiel, on the Cause of the Epidemic in Gibraltar, whose answers to the queries submitted to his consideration do great honour to his professional discrimination and unbiassed judgment. What he asserts, he substantiates by

facts, what I have advanced I trust is corroborated by similar testimony. Mr. Amiel's answers to the queries submitted to all the medical men in Gibraltar, by Mr. Fraser, Deputy Inspector of Hospitals, may be found in the New Medical and Physical Journal for July, 1815. They merit the consideration of all those who entertain the opinion of Yellow Fever being an imported disease into that fortress. I shall quote such parts as I may find to bear me out respecting the fever at Cadiz.

When we consider that these two places are in the same degree of latitude ; that the solar influence, during the summer months, is often fully equal to what it ever is between the Tropics, and sometimes more oppressive, as I have experienced it ; that this influence so powerful, acting on the surface of a given space of earth crowded with inhabitants, and impregnated with the compound matters I have mentioned, as seen in the *Barrio de Santa Maria*, can it be doubted that the whole surface of the ground, forming that filthy district, may not acquire, by heat and drouth, a power of imparting a principle possessing the same obnoxious quality as that which I have stated, as my belief, to be the cause of Yellow Fever in Jamaica ?

In 1810, to my knowledge there was a continuance of drouth and heat for three months, and

the rains set in about the autumnal equinox ; then, and not until then, did fever, of the order we are speaking of, develope itself, both at Cadiz and Gibraltar.

I was particularly struck, after the fall of a heavy shower of rain in October, whilst walking on the public road near the *Hospicio*, with a peculiar odour, as affecting the olfactory nerves in its exhalation from the earth, the same as that which I had often experienced after rain in the autumnal season on the roads about Kingston and Up-Park Camp.

“ The temperature of Gibraltar,” says Mr. Amiel, “ in the summer months, differs very little
 “ from that of the islands between the Tropics, the
 “ thermometer rising from 80 to 90 degrees of
 “ Fahrenheit : *the weather is usually very dry*
 “ *from the beginning of May to the latter end of*
 “ *August* ; and the town, protected by high
 “ walls on the north and south, stands at the wes-
 “ tern foot of a steep mountain, whose elevation
 “ is about 1400 feet, completely obstructing all
 “ easterly breezes, and rendering, during their
 “ continuance, the atmosphere of this side of the
 “ rock nearly stagnant ; and, therefore, the exha-
 “ lations which a scorching sun raises, from
 “ the many unwholesome substances above enu-
 “ merated, accumulate from the want of ventila-

“ tion, and, becoming a very powerful cause of
 “ diseases, have, most probably, *aggravated the*
 “ *Bilious Remittent Fever, which has long been*
 “ *known in its mild form, to that malignant type*
 “ *which has lately constituted our Epidemic.*”

This is my opinion, I believe the cause from which the Bilious Remittent arises is the same with that of Yellow Fever, varying only in degree, both at Gibraltar, Cadiz, Jamaica, Edam, and other places. This also is Dr. Jackson's opinion, which Mr. Pym has quoted at page 147 of his work, who says, “ I was conscious at the time, and I
 “ am better convinced now, that my circumscribed
 “ situation in Jamaica did not furnish materials
 “ sufficient to enable me to delineate the character
 “ of the Concentrated Endemic, or Yellow Fever,
 “ with precision ; conclusions which I had formed
 “ are also in some respect erroneous. Of the two
 “ opinions which prevailed among medical practi-
 “ tioners, viz. the one, 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 habits of strangers from
 “ 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.*”

If Dr. Jackson, whose genius in thought, and accuracy in observation, combined with the experience of many years service in the West Indies, be any weight in the scale of medical consideration regarding this question, I think what he has advanced is alone conclusive. Let me offer that tribute of respect (though personally unknown to him) which I owe for the advantages derived by the perusal of his *Outline of Fever*. It was the chart by which I regulated my course in the treatment of Yellow Fever in 1802, and by which I was enabled to arrive in the ever to be desired port of practical success.

That there is, in the *Barrio de Santa Maria*, in Cadiz, ample materials for the generation of the most malignant order of fever, when acted upon by a degree of solar influence equal to what has often been experienced in that latitude, cannot, I think, be doubted; and the force or virulence of the morbidic *miasm*, imparted from the earth in the autumnal season, will be in a ratio with the duration and degree of the previous heat and drouth.

Monsieur Berthe, head of the commission sent by the French government to examine into the nature of this fever in 1800, whose statement Dr. Bancroft has quoted at page 465, relative to this quarter's being the focus of the malady of that fatal year, attributes to the *Barrio of Santa Maria* "le

“ *premier Foyer*” of the disease, which, (he adds)
 in that spot, produced “ *une mortalité effroyable.*”
 “ The malignity (says Dr. B.) was, indeed, such,
 “ that the proportion of deaths among those who
 “ were attacked, exceeded, by *ten times*, that of
 “ some other situations. Here the disease not
 “ only began first, but lasted, after it had ceased
 “ in all other parts of Cadiz. A similar differ-
 “ ence, in respect of situation, was observed at
 “ *Seville*, when, according to M. Berthe, (p. 103)
 “ only one in eighteen of the sick died in
 “ the wider and more elevated streets, while in
 “ those which were damp and low, as in Triana
 “ and *Los Humeros*, the mortality amounted to
 “ one-third, and even to one-half; and this differ-
 “ ence was observed, not only in regard to *streets*,
 “ but to *single houses*, in some of which, from
 “ their situation, the disease was much more *fatal*
 “ than in others. *Such wide differences would not*
 “ *have accompanied a disease produced by conta-*
 “ *gion.*”

I believe the cause which created fever in
 Cadiz, in the year 1810, was much less general
 in its prevalence, and diminished in its concen-
 trated powers, than that which proved so destruc-
 tive in 1800: in this latter year more than seven
 thousand perished out of seventy, whilst in 1810
 little more than half that proportion fell victims

out of more than one hundred and thirty thousand people, which number, in consequence of the French invasion and siege, then resided within the walls of that city.

This consideration convinces me, in addition to many others, that in Cadiz there is a local cause of disease, and which will be found to vary in its power of propagating itself with the previous state and duration of heat and dry weather: and that its principle is general, but not diffused by the emanations from bodies labouring under its influence, which of themselves, individually, I believe have little or no deleterious effect.

If the fever was so highly contagious as represented, and derived its source from foreign origin, it would, on that consideration, be very inexplicable why, in 1810, as I have stated, scarce four thousand perished out of one hundred and thirty thousand inhabitants, and in 1800 more than seven thousand out of seventy. In the season of 1810, to which my own particular observations relate, there were, doing duty within the walls of Cadiz and at the *Aguada*, two Physicians to the Forces, two Surgeons to the Forces, one Deputy Purveyor, an Apothecary, five or six clerks, and twelve or fourteen Regimental and General Hospital Assistants, not one of whom (for I do not include myself, Sir James Fellowes, or Mr. Bowles, the

Purveyor, who had been there) had ever been in the West Indies, or where this fever had before prevailed. Yet not one of them was attacked, although several attended patients labouring under the disease, as well as assisted me in the dissections I have given.

“ If,” as Dr. Burnett says, which Mr. Pym mentions at page 256, “ the fever had been of a nature so contagious, will it be credited that, after getting into a barrack, it would have stopped short with only attacking thirteen men? Truly this would be a very accommodating contagion; one, half so civil, I never before heard of. And I may be allowed to ask also how it was that none of the attendants, or others in the hospital, were attacked with this *Bulam*?

“ There is no instance in 1810 of the attack of fever at Gibraltar having been the consequence of any one’s attendance on the sick!!

“ Why Mr. Pym has called this the *Bulam* Fever it is impossible for me to *conjecture*!”

If Dr. Burnett, from these considerations, expresses his opinion of the non-contagious qualities of this fever, as it appeared in Gibraltar, in 1810, I certainly may be permitted, from facts and considerations equally, if not more, evident and demonstrable, to express my doubts, nay, I will say more, conviction, that the fever which I witnessed in Cadiz, of the same year, was not contagious.

“Truly,” with Dr. B. “this would be a very “accommodating contagion,” that would attack between forty or fifty of the 47th, 95th, Royal Artillery, and detachments, in the barracks of Cadiz, and spare more than a thousand.

A contagion so obliging, that it did not in the least interrupt my enquiries whether it was of foreign origin, and really possessing that quality, or disturb the pursuits of any one of the medical officers enumerated, or of any of the orderlies, either those who attended the cases throughout the progress of the disease, or those who assisted me in the subsequent examinations by dissection. *Magna est veritas, et prevalebit.* Reason, calm deliberate reason, will ere long remove the veil of prejudice, which the idea of contagion has thrown over the human mind in regard to this fever, and exhibit, to impartial discrimination, the fallacy of the doctrine. A doctrine highly prejudicial to humanity, as well as to the various commercial and other pursuits in life. A cause which would not have in itself a power to extend but to few, may, by the debilitating influence of fear and apprehension of contagion, become general in its effects, from the highly increased state of susceptibility to its influence, which that fear and apprehension would certainly create. I told the gentlemen who assisted me in the dissections, and I told the orderlies who lifted

the bodies to and from the table, they had nothing to fear ; that what they saw or smelt was harmless. They believed me, and it proved so.

Confidence, as I have said, in thinking the fevers of the West Indies, or South of Spain, to be divested of contagious powers, is the surest means to really render them so.

If, therefore, not one of the medical gentlemen, or hospital officers, numbering between twenty and thirty ; not one of the orderlies in the *Hospicio*, where several cases of this fever were admitted ; nor one of those in the *Aguada*, where the greater number of the British troops affected with the disease were placed and treated, and where many of them died, should not fall sick of the same order of fever ; I think it is a strong presumptive proof that the bodies of those attacked, during the progress of the disease, or after the vital spark was gone, imparted no emanating principle generative of fever *sui generis*. Even had those in Cadiz been attacked, it would be no direct evidence that they imbibed the infection from the sick, exposed as they must be to the general exciting cause. It is, indeed, surprising that, exposed to the same cause, with the possible additional excitement arising from fatigue in their attendance upon the sick, they should escape. But the fact was otherwise in 1810 to my knowledge.

In consequence of the blockade by the French army, it was necessary to convey all supplies for the sustenance of the combined forces, stationed at the *Isla*, amounting to more than fifteen thousand men, from Cadiz : also for the inhabitants, consisting of near ten thousand people. This required a daily and constant communication between the two places. Not only the muleteers and others employed in the transport of provisions, &c. but soldiers and inhabitants were constantly passing and repassing. No cordon of troops was stationed to cut off the communication, and for a very obvious reason, because such an interruption of intercourse, at that time, would have lead to starvation of the *Isla* ; and its being of necessity allowed to continue, was attended with no bad consequences to this latter place, as to the dissemination of the principles of contagion. This is another additional proof in corroboration that the fever of Cadiz is divested of that power, as it was, notwithstanding the constant and daily intercourse, never propagated to the *Isla* in 1810, situated only eight miles distant, and enjoying the same temperature as to climate. But in the construction of the town, and other circumstances of location, there is a considerable difference.

I have said, and I believe, that Yellow Fever cannot be easily propagated in a soil which does

not in itself impart the seeds of the disease. This is exemplified in respect to the *Isla de Leon*. The town situated on that island, and bearing its name, is, as I have said, under the same degree of temperature as Cadiz, but differs in its site and construction. It is formed principally by one long and wide street: the buildings are large, and nowise crowded together, as in many parts of the above city, particularly the celebrated *Barrio de Santa Maria*: they are consequently well ventilated, and moreover, the streets are free from that filth and admixture of compound materials, seen in the district mentioned. The *Isla*, in its soil, is little more than marine sand; it is washed in three-fourths of its limits by the sea, and the bay or inner harbour of Cadiz; the river *Sti. Petri*, a mere creek of the ocean, divides it from the main land, or continent of Spain. On each side of this river are considerable marshes, which are intersected by numerous excavations of the earth, or salt pans, into which the sea-water is admitted for the purpose of evaporation and crystallization. These marshes are perfectly barren, at least little more than the *barilla*, or *salsola* order of shrub, grow thereon.

When I cast my eyes over them from the terraced roof of the house, in which I was confined at the time of my trial, I particularly noticed the barren appearance of these marshes, contrasted

with the fertile soil of Walcheren, in which I had served the preceding year: and the circumstance of the difference struck me at the time, in the relative proportion which they bore to each other, as imparting the *miasma* of disease.

In the barracks, named *San Carlos*, at the *Isla*, situated near these marshes, several soldiers were occasionally attacked with Intermittent Fever: but those falling sick bore no proportion to what occurred in Zealand, in a given number exposed to the respective marsh effluvia of each place. Had the soil of the *Isla de Leon* been as rich and fertile as that of Walcheren, with the additional exciting power of heat, I am aware every severe order of febrile action, seen in the West Indies in the autumnal season, would have been found amongst the troops at this quarter, in 1810. But the *Isla* is a soil which imparts from its surface, in exhalation, little more than saline particles, and we know that salt water simply, in evaporation, affords no principle of febrile action.

I may further illustrate the position, in regard to the earth, in particular situations, imparting the *principia* of fever, in hot climates, and that the order of it named Yellow or *Bulam*, cannot be communicated by transportation from the West Indies, even to a short distance, where the soil is unimpregnated with the seeds of the disease, in the instance of the Bermuda Isles, which are situated

in the 32d degree of north latitude, and, consequently, no great distance from the Tropical Line of Cancer. I was last year, at the time of writing this, (April) in those islands, on my passage to Canada. I remained there six weeks, and resided principally at the country house of my greatly esteemed friend, Major General Horsford. It was very hot during the day, even in that month, but I learned from General and Mrs. Horsford that, in the months of June, July, and August, the heat is most oppressive and suffocating, far more so than in Jamaica, from the absence of that regular sea breeze which daily refreshes and moderates the degrees of heat in the latter island.

Notwithstanding the intense heat, and the constant intercourse between the Bermudas and the West Indies, particularly during the late war, there was no importation of Yellow Fever, which would be a very extraordinary circumstance if the disease was so highly contagious as some late authors have represented it to be : for it is not probable, when a ship can arrive from Cuba or Jamaica in the short space of three days, that, out of the great number which must have put into Bermuda during the late war, some of them had not Yellow Fever on board. And ships arriving there from the West Indies are not required to perform quarantine. But, as I have observed,

where the soil has not the power of imparting the seeds of the disease, the fever will not spread, so we can well apply this consideration to the Bermuda Isles.

These islands appear to have little or no soil, but to consist of a porous kind of rock, through which the salt water penetrates almost generally, as nearly all the water procured by the sinking of wells is of a brackish taste. Scarcely any vegetable production grows spontaneously in Bermuda: the cedar tree seems to be nearly the only natural produce of its soil. Every thing else appears poor and barren; the lean and miserable state of the cattle bear evident proofs of the poverty of vegetation. If the Bermudas had the rich soil of various parts of Jamaica, or Walcheren, I am persuaded there would be an annual visitation of Yellow Fever; but it does not produce it, and it cannot be, at least hitherto it has not been, as I have learned, imported there.

Mr. Johnson, in his publication on the Influence of Tropical Climates on European Constitutions, a work which has but recently fallen into my hands, whose observations, drawn from actual sources and practical deductions, render it so valuable to those who may visit climates where those diseases are incidental which it treats of, has shewn the different effects of soil, in the same degree of tem-

perature, in the production of fever, as seen in the two islands of Onrust and Edam, near Batavia.

Whoever may read the account of the Endemic Fever of Batavia in his work, particularly that which prevailed in the island of Edam, and has seen the Yellow, or Concentrated Endemic Fever of the West Indies, or that which has prevailed at Cadiz and Gibraltar, will say the disease is the same; in all the prominent features the resemblance has an exact similitude, and, I have no doubt, had those who died been subjected to anatomical investigation the same appearances would have been found.

In alluding to the consideration of enquiry by dissection, I have to notice that Sir James Fellowes, in his Report of the Fever which prevailed at Cadiz in 1813, has mentioned the anatomical examination of two bodies, victims to that disease, at one of which he was present. I am rather surprised a knife should have been permitted to be soiled on such examinations in 1813, which, in 1810, created such displeasure against me, and finally lead to circumstances, which, in their sequel, removed me from the service of my country.

What will impartial readers think of the following representation?

“ The prosecutor, Sir James Fellowes, begs
“ leave to state to the court that he was induced

“ to reject the proposition,* which had been made
 “ to him by Staff Surgeon Doughty, not only on
 “ the principle of the impropriety of making such
 “ a request, in an official shape, to the head of the
 “ department, but he judged it necessary to check
 “ at once what bore on the face of it a sort of in-
 “ humanity, and a prejudicial tendency, inasmuch
 “ as it might excite in the minds of the soldiery
 “ the strongest prejudices against their medical
 “ attendants, and a belief that they were prema-
 “ turely consigned to death for the purposes of
 “ dissection and being anatomized !”

There was great inhumanity, and a prejudicial tendency, certainly, in evincing a zealous desire to find out the source and progress of morbid action. However, for that particular part of my offence, *nullam deprecor pœnam*.

It was my custom, when I proceeded to open the body of a deceased soldier, to address the orderlies, or others, who might be present to assist me, thus :—“ It is my wish, soldiers, from what I

* A request to open the body, and defer the interment of a soldier, who died of an extraordinary, and complicated order of disease, but who was not dead at the time the request was made, from which it perhaps might, and will be supposed, that I wished to cut him up alive, or hasten his dissolution for that purpose ! “ *Qui pergit ea, quæ vult, dicere, ea, quæ non vult, audiet.*”

“ am about to do, to find out, if I can, why this
 “ poor man died, and thereby, if possible, pre-
 “ vent you or others who may labour under a
 “ similar disease, from falling victims to it also.”

They always listened to me with great attention, and took particular interest in what they saw, exhibiting no signs of alarm or apprehension ; for a British soldier is a very tractable and reasonable man if an appeal is made to his understanding, as I have often witnessed on many trying occasions.

In the Second Report of the Pestilential Disorders of Andalusia, Sir James further states, at page 45, as follows :—“ Cadiz was now become a desolate
 “ and melancholy place, and by the middle of the
 “ month of September, the deaths amounted daily
 “ to 200 ; at this period the air, from its stagnant
 “ state, became so vitiated that its noxious qua-
 “ lities affected even animals ; canary-birds died
 “ with the blood issuing from their bills, and in
 “ all the neighbouring towns, which were after-
 “ wards infected, no sparrow ever appeared du-
 “ ring the Epidemic.”

In a quotation from Arejula, in the same page, is this note : “ We saw domestic animals die with
 “ some of the same symptoms as those persons
 “ who had the disease, but those which remained
 “ isolated in the country escaped.”

“ Dogs were affected by the Epidemic more
 “ than any other animals ; next the cats and

“ horses, poultry and canary birds ; and these
 “ died voiding blood from the mouth ; and the
 “ dogs and cats also had this symptom, but were
 “ more subject to the black vomit and dark eva-
 “ cuations. Three pointers and two cats that
 “ were in my house were attacked with the Epi-
 “ demic disorder, and I observed in all of these a
 “ black discharge ; the dogs survived, but the cats
 “ died. The horses which I saw die had that
 “ marble coldness of the extremities, or general
 “ convulsion, so remarkable in this disease,”

“ The Epidemic of Cadiz” say the Editors of
 the Medico-Chirurgical Journal “ in 1810, at
 “ which time Sir James, was head of the medical
 “ department there, is very cursorily passed over ;
 “ in fact, no account at all is given of it, except
 “ that it was similar to the fever in 1800, which
 “ Sir James did *not* see ! We must say that
 “ Sir James has evinced too much modesty, in
 “ keeping back the whole of his own *personal*
 “ observations, while he has been so very liberal
 “ in his quotations from our good friends the
 “ Dons.”

I think the strongest evidence of the fever of
 Cadiz, in the year 1800, having its source in a
 morbid state of the atmosphere, the consequence
 of noxious exhalations from the surface of the
 earth, on which that city has its site, in particular,
 and throughout the province of Andalusia in ge-

neral, was the effect produced in other animals besides man : and the sparrows not being seen in any place where the disease prevailed tends to corroborate it. However, if from any superior power of instinctive sagacity it could perceive arise the floating miasmata of contagion out of the habitations of those labouring under this disease, I shall be glad to leave to this discriminating bird, this *rara avis in terris*, the *discordibus medicorum sententiis*, relative to the question, whether Yellow or *Bulam* fever is, or is not, a contagious disease ?

Seriously thinking and writing I would place as much confidence in the flight of sparrows, from places visited by Yellow Fever, in the deductions which I might thence draw respecting the source and quality of the morbid cause, as on many opinions which have been published in regard to its origin and progressive diffusion, and here I shall so far rest the enquiry.

itself, was the effect produced in other animals
 besides myself, and the spontaneous idea, even in
 any place where the disease prevailed tends to
 corroborate it. However, it is not any superior
 power of instinctive sagacity it could perceive
 since the living animals of contagion and the
 the habit of those labouring under the disease
 case, I shall be glad to hear to this day, however
 kind, this was a case to which the disease was not
 known (anatomical) relative to the disease, which
 that I know of (anatomical) or is not a contagious
 kind disease, or is not a contagious disease.
 I seriously thinking and writing of myself, place
 as much confidence in the right of reasoning,
 from places visited by Yellow Fever in the day
 duration which I might have then respecting
 the source and quality of the morbid cause, as on
 many opinions which have been published in
 regard to its origin and progressive diffusion, and
 that I shall be far from the end of the matter, and
 that which nature has given me, and I shall be
 the consequence of a long and careful study of
 nature, from which I expect to gain much, and
 greater power, and to be able to do much, and
 perhaps, to be able to do much, and I shall be
 not be this regard, and I shall be able to do
 much, and I shall be able to do much, and I shall
 be able to do much, and I shall be able to do much,

RECAPITULATION.

PART III.

“ It behoves every man, who means to substitute a new doctrine to an old one, to omit no argument in favour of that which he has newly advanced.”—*Jackson on Sympathy.*

IT will be seen, from what I have stated in the two preceding parts of these memoirs, that I consider the general cause from which the fevers in the West Indies and Andalusia arise, to be generated by a particular quality of the earth; and that marine exhalations, or *marsh miasmata*, are not necessary to explain the source of Yellow Fever: but that this order of disease may be produced where no marshes are to be found.

Any surface of earth exposed to a degree of heat and drouth for three or four months, equal to that which prevails between the Tropics, may, by the concentrated accumulation of that principle in nature, from which vegetation is produced, engender a power, which, in the extrication of that principle, is capable of producing fever. I do not by this argument mean to deny that *marsh miasmata*, or any other *miasma*, from decomposition of vegetable and animal substances, will not produce fever of the same order with the above.

In inter-tropical climates, or others, where a certain degree of temperature prevails, in which fevers predominate, whatever may be the cause, the effects I infer will be nearly the same.

But I lay it down as a general principle that heat and drouth do produce in the earth the power I have supposed ; and which power varies in degree from the several circumstances of fertility, locality, and season. I repeat, in proportion to the excess of heat, continuance of drouth, and quality of the soil, whether by nature, or rendered so by the habitation of man, will be the relative virulence of the morbid principle.

In proportion to the age, sex, vigor of constitution, and time of residence within the sphere of action of the exciting cause, will be the susceptibility to its influence and consequent effects produced. Whatever may be the degree of fever hence created, whether of the Mild Remitting, or most aggravated form, named Yellow or *Bulam*, I deny that it has a power of propagating itself “ by a specific contagion,” directly applied. That is, a person labouring under Yellow or *Bulam* Fever, in its most concentrated form, will not communicate the disease to another in perfect health, who, by duty or inclination, remains for a short time, or during the progress of the disease, whether fatal or otherwise, in the same apartment with the body so affected ; more espe-

cially if the sick person is removed after his attack to an apartment beyond the sphere of action of the general cause, and the person in attendance has not been exposed to that same general cause.

I know, by long experience, that the emanations from an individual body attacked with Yellow Fever, in its most violent degree, are seldom noxious to the senses, and I believe never prejudicial to the system, neither are they for a considerable time after the body is entirely divested of the vital principle ; as I have witnessed in the examination of more than a hundred, by dissection, who had fallen victims to this disease. I have said *contagion directly applied*, because I am not prepared to say, whether a great number of persons labouring under Yellow Fever, in its violent form, and crowded into an ill ventilated apartment, or circumscribed space, as on board of ship, might not create a morbid atmosphere, of power sufficient to produce fever *sui generis*. At least the atmosphere, impregnated with a general cause, might be rendered more virulent by the accumulated effluvia arising from numerous bodies labouring under the disease. As, for instance, a person exposed to the exhalation from the earth, or any other *miasma*, which has created fever in several, but, whose susceptibility to its influence

being less, has escaped, may, by the further exposure to the accumulated effluvia of many bodies affected with the disease, have febrile action produced. This, however, I only state from supposition : I am not acquainted with any instance of it from actual observation.

“ As far as my own observations and judgment
 “ could guide me, I have been led to conclude,
 “ that the *Endemic* Fevers are *not* contagious till
 “ a certain number of patients are confined to-
 “ gether under *peculiar circumstances*, when the
 “ effluvia *may* render them so. If, for instance,
 “ a man is seized with fever, from greater predis-
 “ position, or from greater exposure to the causes
 “ enumerated than his companions, he will not
 “ communicate the disease to another, who may
 “ sleep in the same chamber, where common
 “ cleanliness is observed. But, on the other hand,
 “ if great numbers are attacked, nearly at the
 “ same time, and confined in the sick-berth of a
 “ ship, or ill ventilated apartments, in hammocks,
 “ cots, or filthy beds, it is possible that a conta-
 “ gious atmosphere may be formed, (without an
 “ attention to cleanliness and ventilation scarcely
 “ compatible, or at least hardly to be expected, in
 “ such situations) which spreads a disease, *wearing*
 “ *the livery of the prevailing Endemic*, but having
 “ a dangerous character superadded, namely, the

“ power of re-producing itself in other subjects,
 “ both independent of, and in conjunction with,
 “ the original endemial causes.”*

The following passage from Sir James Fellowes, which Mr. Johnson has recited in the Medico-Chirurgical Journal, is certainly an opinion very similar to the above ; although I differ from some parts of it, which I shall afterwards state.

“ As far as my experience goes,” says Sir James,
 “ I should be induced to believe, that human con-
 “ tagion having acquired a concentrated virulence
 “ from a combination of *peculiar circumstances,*
 “ *joined to the Epidemic tendency of the Bilious*
 “ *Remittent of the country,* gave rise to the pesti-
 “ lential disorder in Spain. It is possible that
 “ persons coming from Vera Cruz or the Havanna,
 “ and carrying with them the seeds of *disease,*
 “ *admitted to be Endemic in those places,* might,
 “ during their passage in a crowded ship, undergo
 “ such a change of constitution as to produce the
 “ disorder, with the *additional* property of gene-
 “ rating it in others highly predisposed.” P. 403.

I readily admit that a ship sailing from Vera Cruz, the Havanna, or any other place between

* Johnson on the Influence of Tropical Climates on European Constitutions, page 108.

the Tropics, may carry the seeds of the disease, or, rather, the crew exposed to the Endemic cause, may have the *miasma* remain dormant in the constitution for some time after sailing, and yet afterwards be affected generally with Yellow Fever. But I feel convinced that this order of fever would disappear before the vessel could arrive in Europe, even to any of its most southern ports, as Gibraltar and Cadiz. The course a ship is compelled to steer, in her voyage from the West Indies to Europe, always carries her into a latitude where Yellow Fever would become extinct. The fever which prevailed on board the Chichester, as related by Lieutenant Douglas, is a case in point on this consideration.

There are circumstances in that narrative which may impress the advocates of contagion with a persuasion the disease on board was of that nature. Let impartial and candid judgment, however, weigh all the circumstances connected with the destructive fever which prevailed in that ship. It must be borne in mind the whole of the persons on board had been exposed to the Endemic cause before she sailed from Port Royal ; they had, consequently, all inhaled a state of atmosphere surcharged with the morbidic *miasma* ; for at the time of her laying in the above harbour Yellow Fever was prevailing in a virulent and destructive degree to my knowledge. All being exposed,

there is no reason why all should not be attacked : this, however, from the different degrees of susceptibility to the influence of the morbid principle in the constitution it is not probable would have been the case had they been less observers of each others calamity. The alarm and fear created by witnessing the distressing scenes before them, increased, I apprehend, in a threefold degree the aptitude to be affected by a febrile cause, and to rouse into action the morbid principle imbibed into the constitution before sailing, and which, otherwise, might never have produced any deleterious effect: “ for in infection and contagion from body to body (as for example during the plague) the *miasma* may be received, but, from the strength and good disposition of the body, it is expelled and wrought out, before it has had sufficient time to form the disease.”*

Those who took every opportunity of remaining distinct from the sick, as far as the particular circumstances of a ship would admit, were equally affected with those whose duty or station required an unavoidable intercourse. (This I have further learned verbally from Mr. Douglas.)

With Mr. Johnson, however, I am ready to admit, that a morbid state of atmosphere was possibly created by the numbers attacked, and virulent

* Jackson on Sympathy, p. 101.

order of the disease on board the Chichester, which might contribute, with the previous exposure to the Endemic cause at Jamaica, to render the fever so general, fatal, and of long duration. I am, therefore, so far of the *neutral* party, and hence the sentence I have prefixed to these Memoirs, *Causa tum dubia*, &c. In admitting this, however, I wish to be distinctly understood, and I repeat that I do not believe the exhalations from an individual body, labouring under Yellow Fever, have by any means sufficient power to infect another, abstracted from every other concurring cause.

“ During the last two years that I have been
 “ in England” says Mr. Pym, “ I have had the
 “ honour of being consulted in matters relating
 “ to quarantine by the Committee of his Majesty’s
 “ Council for the Affairs of Trade, and I have
 “ invariably given it as my opinion that no
 “ danger is to be incurred from the importation
 “ of this disease into England, excepting for a
 “ short time during the summer, and even then,
 “ under a combination of circumstances ; viz. a
 “ ship arriving from Spain, or the West Indies,
 “ with the disease actually on board, or having
 “ had it on board, during a short voyage.” P. 217.

If the Parliament of England was to reverse the order of its wisdom and its liberality, in rewarding evil for good, and, by way of experiment, offer a

large premium for the introduction of Yellow Fever into any part of the United Kingdom, either from the West Indies, or any of the ports of Spain, I am well assured that all attempts would prove abortive. As well might it be expected that the sugar-cane, the coffee-tree, the pine-apple, or the orange, would grow spontaneously in the tempera-
ture and on the soil of Britain, as that Yellow Fever could be disseminated. It cannot, I repeat, be propagated in a soil which does not in itself impart the seeds of the disease.

From this statement it may be clearly seen, that I do not consider it necessary to place a ship under quarantine because she has sailed from a port where Yellow Fever prevailed at the time of her departure ; or that the disease even prevailed amongst the crew on her voyage. Every spark of that malady would be long extinct ere she reached the coast of Europe—" *Lateat scintillula forsan,*" so well considered by the Humane Society, in cases of suspended animation, would not apply to the *miasma* of Yellow Fever, on the principle of being diffused in our climate. Not a germ of that invisible agent of febrile action could remain in any malignant force on our envied shores ! But if it was possible to raise into effect a dormant *scintilla* of the disease, within the limits of the coast of the United Kingdom, the very means which are taken to obviate such a consequence,

would be those I should select to effect it. By placing a ship under quarantine you depress the mind, create fear and despondency, and consequently that diminished state of the vital energy, on which the peculiar susceptibility to the action of a febrile cause so greatly depends. Vice-Admiral Lord Hugh Seymour, a very tall, stout, handsome man, in the vigour of health and life, was attacked with Yellow Fever at Jamaica, in the sickly season of 1801, of which, to the loss of his country, and the deep regret of all who served under his command, he fell a sacrifice—I well remember the time. His body was placed first in a leaden coffin, and afterwards incased in two others of wood, which were pitched over so securely as to prevent the admission or transmission of air. In this state it was sent to England in the Pickle schooner. On the arrival of this small vessel at Portsmouth no quarantine was required: the body was immediately landed, and conveyed to the family vault for interment. If it was attempted to introduce the *supposed* contagion of Yellow Fever into England, I do not know of any more probable means of effecting it than by permitting the bodies of persons who had died of this disease, either at Jamaica, or other places where it prevails, or on the voyage from thence, to be brought home and landed for interment. This, however, I am well assured might

take place, and no bad effects ensue : the same order of fever of which they had died could not be propagated in our climate.

If those who ascribe such contagious powers to the fever named Yellow, or *Bulam*, which I suppose they will admit that on board the *Chichester* to have been, what will the consideration of it be when the treatment also is taken into review ? According to Mr. Pym's account of this disease, the loss of blood is always fatal : " it is a practice " which I must pronounce not only not beneficial, but absolutely prejudicial and inadmissible " in every stage of the *Bulam* Fever."* But, with Mr. Douglas, who is not a medical man, it was attended with complete success, three cases only out of seventy excepted. As the non-success with these three is attributed to the operations not being timely performed, so I greatly suspect in those which Mr. Pym has alluded to the same consideration would apply ; or that the quantity abstracted was not adequate to produce a change in the morbid action, or prevent the equilibrium in the circulation being destroyed in parts essential to life.

" *Bleed boldly and decisively till the head and*
 " *præcordia are relieved, or draw no blood what-*

* Observations upon the *Bulam* Fever, p. 240.

“ever.” And again, by a transposition of two celebrated lines in Mr. Pope—

“A little bleeding is a dangerous thing ;

“Bleed free—or open not the vital spring.”*

How well I can attest the justness of these remarks the former part of these Memoirs will evince.

In not one case of the fever at Cadiz in 1810 was venesection ventured on ; how far its utility, in the early stage of that disease, would have been found I can therefore only conjecture. The morbid appearances discovered on dissection, particularly the striking indications of strong vascular action in the brain, with congestions and extravasations of blood ; the same in the lungs and thoracic cavities, and the almost invariable appearance of inflammation of the villous membrane of the stomach, clearly, I think, demonstrate that a copious extraction of that fluid, at the onset of the fever, would have been a judicious practice ; and that those derangements found in the parts mentioned would have been thereby averted. Hence the great utility of inquiry by dissection, when our endeavours in the treatment of an insidious disease have proved abortive.

* Johnson on the Influence of Tropical Climates, &c. p. 45 and 128.

In the several cases to which I was called in copious alvine evacuations were procured as early as possible, and the bowels were kept open daily by purgative medicines or injections. After the first or second operation of the cathartic I recommended the calomel and James's powder every two hours. In five cases where this plan was pursued a ptyalism was procured, and a consequent removal of every unfavourable symptom. Particular affections were obviated by particular applications, as blisters to the nape of the neck and region of the stomach ; sponging the surface of the body with vinegar and water, the tepid bath, &c. But as those to whom I was only called in to offer my opinion and advice were few, I cannot speak from my own personal observation as to any general remedy. However I saw so much of the disease, as to convince me then of the propriety of early venesection, a practice I would certainly adopt, with cases under my own care, if any event should ever call me to that part of Spain again when this fever prevailed, and I was left to my own discretion in the selection of remedies for its treatment. I do not by this, however, wish it to be understood that I should make phlebotomy the sole principle of the means I might find it necessary to adopt : many cases probably would be found in which the practice of bleeding would be inadmissible. But in the young and

vigorous constitution, and where the residence within the sphere of action of the morbid cause has been of short duration, I am well assured the abstraction of a considerable quantity of blood, in the very early stage of the disease, would be attended with equal beneficial consequences to those which resulted from that practice at Up-Park Camp in 1802, or on board the *Chichester* on her passage to Halifax.

The *modus operandi* of the morbid and invisible agent of fever in general, and of this order of it in particular, is yet left in much doubt and obscurity. Notwithstanding the luminous theories of Cullen, Brown, Darwin, and Hunter, we have yet much to learn. However ably the laws of organic life in health, and morbid derangement in sickness, have been explained by the great authors enumerated; there is yet much *terra incognita* of the animal economy to be explored. And such is the difficulty of the disquisition that I fear it must ever remain so. The Author of Nature has prescribed very narrow limits to our enquiries into his systems and laws.

If I am to venture into the boundless regions of theoretical opinion, as it relates to the quality of a febrile cause, particularly that which is the subject of these Memoirs, I must say its operation on the human constitution appears to me primarily of a sedative or debilitating tendency, and in a secon-

dary sense, or in an indirect degree, powerfully stimulant.

“ We need not,” says Mr. Johnson, “ be
 “ ashamed, however unfashionable it is, to con-
 “ clude with the immortal Cullen, that the remote
 “ cause of this fever, as well as that from contagion,
 “ is a sedative. That its application or reception
 “ diminishes the sensorial energy. That the
 “ power of the heart and arteries is first weakened,
 “ the consequence of which is, an inability to pro-
 “ pel the blood to the surface ; hence the quies-
 “ cence of the capillaries, the shrinking and cold-
 “ ness of the external parts, *without the interven-*
 “ *tion of spasm.*”*

Dr. Cullen’s Pathology of Fever is summed up in one paragraph, which Dr. Jackson has made the 256th of his Treatise on Sympathy.

“ The remote causes of fever are, certain seda-
 “ tive powers applied to the nervous system,
 “ which, diminishing the energy of the brain,
 “ thereby produce a debility in the whole of the
 “ functions, and particularly in the action of the
 “ extreme vessels ; such, however, is, at the same
 “ time, the nature of the animal economy, that
 “ this debility proves an indirect stimulus to the
 “ sanguiferous system ; whence, by the interven-
 “ tion of the cold stage, and spasm connected with

* Theory of Fever, p. 94.

“ it, the action of the heart and larger arteries is
 “ increased, and continues so till it has had the
 “ effect of restoring the energy of the brain, and
 “ of extending this energy to the extreme vessels,
 “ of restoring therefore their action, and thereby
 “ especially overcoming the spasm affecting them ;
 “ upon the removal of which, the excretion of
 “ sweat, and other marks of the relaxation of ves-
 “ sels, take place.”

Dr. Cullen considered the consent between the
 stomach and surface of the body to be a consent
 between *the muscular fibres of the stomach and*
the muscular fibres in the vessels on the surface.
 Dr. Jackson supposes the consent to be between
 the *vessels* of the stomach and those of the skin,
 and not the muscular fibres: his summary of fever
 is as follows:—

“ I shall now attempt to give briefly, at one view,
 “ the doctrine and extent of the *vis medicatrix* in
 “ fever, as a summary of that part of the treatise
 “ in particular which relates to the subject of
 “ fever, agreeable to the pathology I have all
 “ along adopted. I say then that the remote
 “ causes of fever act with a sedative effect, and
 “ induce a debility of the nervous system, whereby
 “ the vital function of the heart and arteries is
 “ considerably and particularly affected:—that this
 “ debility in the circulation will most readily be
 “ felt at the extreme vessels, which terminate

“ at every part of the body, but particularly in
 “ those of the skin and *primæ viæ*, from established
 “ connection and mutual balance ; that a con-
 “ striction will be then formed, and an obstruction
 “ take place, in the secretions in general, in the
 “ exhalation of the perspirable matter, and effu-
 “ sion of the gastric and intestinal liquors ; that
 “ this constriction not only proves a general sti-
 “ mulus to the circulation, in consequence of a
 “ sympathy between the heart and vessels, but a
 “ particular one to the stomach itself, as the first
 “ of the secreting organs ; and that this stimulus,
 “ at the same time that it increases the action of
 “ the heart and arteries, excites the stomach to
 “ vomiting, both which effects are to be considered
 “ as the efforts of the *vis medicatrix naturæ*, for
 “ the salutary purpose of restoring the condition
 “ of the extreme vessels, and secretory organs in
 “ general, to their natural and healthful state,
 “ which, being fully accomplished, the *pyrexia* and
 “ vomiting abate. These operations are supposed
 “ to be brought about upon the principle of a
 “ *VIS INSITA SYMPATHIÆ.*” Par. 364.

Taking it then for granted the remote cause of
 fever produces a debility of the action of the heart
 and arteries, and a consequent diminished *momentum*
 in the sanguineous circulation, at its onset,
 by which that fluid does not enter the extreme
 ramifications of its vessels, occasioning the general

coldness and paleness over the surface of the body, in the first stage of the paroxysm ; it may be well supposed if the blood is thus excluded from the considerable minor channels of its course, in the every vibration of the heart, it must consequently increase its volume in a ratio with that exclusion, in the larger vessels, throwing thereby a greater quantity, in a shorter space of time upon the fountain of circulation, the heart ; which from thence temporary acquires that more than equal power it had lost by the sedative quality of the febrific *miasma*. It is oppressed, or rather irritated, by the unnatural pressure of blood crowding into its ventricles ; it re-acts vigorously, the great arteries, by consent, participate in the impulse thus given, and the blood is forced into the extreme ramifications, producing the hot stage, which in yellow fever is so violent in the aggravated form of the disease ; because though the blood is thrown into the minute vessels of the skin, in this form of fever their extremities remain closed ; there is consequently no perspiration, and hence no medium by which that accumulated heat can be carried off. It is well observed, if it was not from the effect of constant and great perspiration in the torrid zone, by which the increased heat is every moment passing away, European life could not be long sustained. The greater then the atony, spasm, constriction, or collapsed state of the exhalent vessels may be,

on the attack of fever, will be the subsequent heat and violent order of the disease. For I ever found, when I could produce a general perspiration, (whatever the means might be by which it was effected) I had then the fever almost under my controul. When this cannot be accomplished, however, the balance of circulation must be destroyed, the blood will flow and accumulate in some parts, and stagnate in others, where there is the least resistance of muscular power, even on the principle of hydraulics, hence that determination, extravasation, and congestion, in the brain and lungs, which I almost invariably found on dissection.

“ I have no doubt but that, in long continued
 “ fevers, where the constriction has been perma-
 “ nent, the sides of these small vessels may have
 “ coalesced together, and become imperviable to
 “ the *momentum* of the serosity ever after ; so that
 “ if the fever proves not fatal, there must be an
 “ increased determination of serosity to some other
 “ discerning organ, that life may be supported ;
 “ for I imagine it cannot long continue (or, if it
 “ does, it must be in an unhealthful state) without
 “ more or less of the insensible perspiration con-
 “ tinuing, or (as an equivalent to the loss of it)
 “ without an increased secretion in some other or-
 “ gan, or effusion internally from other serous
 “ arteries.” *Jackson's Sympathy, par. 336.*

If the power by which the heart and arteries carry on their functions to-day, be diminished to-morrow one-half, how will those functions be performed? Can the same quantity of blood which requires a given power to carry it to every extremity of the vascular system, be conveyed to the same extreme channels by a diminution of half that power? As well might we say that a coach loaded to a certain extent, and drawn by four horses, by which it arrives daily at a given distance, shall proceed with the same facility if drawn by two: no, the latter might perhaps get half way, but it must there stop and take off some of its lading, if it is to pursue its course with the same means, and arrive in the same space of time.

Considering then that the heart and arteries acquire a given power to propel the quantity of blood necessary in a healthy state of vital action to the various extremities of their minute ramifications, I take it as a *sine qua non*, if that power is by any cause, whatever it may be, diminished one-third, one-half, or otherwise, and the same quantity of blood remains to be circulated, the balance must of consequence soon be subverted. Take off then a third or more of the load, according to circumstances, and you so far diminish their labour that they will be capable of carrying the remainder till they have either become assimilated to, or expelled, the cause from which their debility

arose. On their inability to carry their accustomed burthen, on the onset of fever, arises that general sensation of debility which is so great in the disease we are speaking of. By a considerable diminution of that burthen, they are enabled to carry on the remainder by an unity of action. Hence on the abstraction of a large quantity of blood, in the early stage of Yellow Fever, in young constitutions, is derived that immediate renovation of strength which follows, and general relief in every deranged function.

The great benefit derived from cold aspersions, I am inclined to believe, is the consequence of that tone and increased energy which its immediate application to the cutaneous vessels affords; enabling them thereby to perform their functions, so as to admit the blood into the minutest of their ramifications, from which the perspirable matter flows, and which ceases, or is obstructed, from the debilitating action of the febrific cause.

It is in this order of disease only that I apply the foregoing observations, because I am aware, in the general class of fevers which prevail in our climate, that such measures would not be necessary. I believe with them the *vis medicatrix naturæ* is alone, in most cases, sufficient to accomplish a removal of the morbid cause. But, in climates where the natural stamina of man is

reduced by heat, and where the febrific cause itself is in a threefold degree more debilitating, nature requires, in almost every case, the interposition of art to aid her in her efforts, either to expel or to compromise with the enemy of her repose. And I know of no measures so potent, or immediate, in effect, as greatly diminishing the quantum of circulating fluids, by bleeding and purging.

Yellow Fever, it may be said, indicates its presence in two distinct ways ; the one direct, the other indirect. In the first the action is immediate and violent ; in the second it is slow and insidious, but not less dangerous in its progress. It attacks either like a bold invading enemy, whose intentions may be at once discovered, or like a wily foe, whose approaches are so mysterious that the citadel of life is undermined before we are prepared to meet, or know how to avert, the danger. The first of these positions was exemplified in the cases which came under my care at Up-Park Camp in 1802, the last with those of the 85th regiment, at Spanish Town and Kingston, in 1805 and 1807.

In new residents—young and vigorous constitutions—the first of these considerations will be found :—in those who are advanced beyond the meridian of life, who have been longer in the climate, or whose constitutions have been enervated

by inebriating materials, the second, and by far the most dangerous, will be the manner in which the morbid cause develops its operation.

As it was my custom always to inquire, particularly with those of the latter order, as to what might be the state of their symptoms for some time previous to their applying for medical assistance, I generally learned that for a few days, perhaps a week or more, they had not been well ; though not so far indisposed as to think it of any consequence, having occasionally slight chills, nausea and deranged appetite, drowsiness, and diminution of muscular power. As these premonitory symptoms might put us on our guard, it would be well, in climates where Yellow Fever prevails, that a man, on finding himself any way indisposed, applied at the instant for medical assistance. And it would be equally well, and I recommend it, more especially to the young and inexperienced practitioner, for whom these remarks are principally intended, to consider every case of fever, to which he may be called in the West Indies, Andalusia, or other places, where the violent form is too often seen, in a serious point of view, and adopt at once vigorous measures ; they might not perhaps be necessary, but it is better to err on the safe side.

It is impossible, in a disease like the Yellow

Fever, to give particular directions for its treatment under the several varieties and modifications in which it will ever be found to prevail ; that knowledge cannot be well obtained through any other medium than experience. No language can fully describe, or delineation pourtray, the various shades and vicissitudes of this formidable, insidious, and destructive disease.

I have often considered, and I yet think, that some arrangement is necessary, different from what I have witnessed respecting the medical charge of a newly arrived regiment in our West Indian colonies. I know it but too well, in regard to myself, and I believe the same consideration will apply to others, on their first arrival in the West Indies, that many lives I fear have been lost which might have been saved, had I or they acquired by experience what that enables us to know of the disease.

I believe the medical officers who enter into the service of the East India company, on their arrival in India, are obliged to undergo the probation of attending for one or two years their hospitals, in order to obtain, by experience, an acquaintance with the diseases incidental to that climate before they are permitted to prescribe themselves. If such an arrangement is judged necessary there, how much greater does it seem to

be required in the West Indies, where the prevailing order of disease is far more general and destructive.

A regiment of from five hundred to a thousand men embarks for the West Indies with a Surgeon and two Assistants, neither of whom, I will suppose, have ever seen the disease called Yellow Fever. The regiment arrives in the healthy part of the year, and continues free from sickness for a time:—the autumnal rains fall, the sickness begins, and proceeds on with rapid strides to destruction. The medical officers are appalled; their exertions are paralised; and they ask each other what is to be done? This I have actually known. I could say much on this consideration, but that is not my intention in these Memoirs. The present Director General of the Army Medical Department, whose extensive experience in every part of the world so well qualify him for the important station which he fills, will at once appreciate every suggestion that may have a reference to the preservation of the life and health of the soldier. His excellent arrangements, in the establishment of hospitals during the greater part of the Peninsular war, as well for the benefit of the sick and wounded soldier, as for the acquisition of medical knowledge, are too well known to admit of any eulogium from so humble an individual as myself. The peculiar influence of soil

and climate, in their relative consideration in the production of disease, must be fully known to him, as every medical officer, in charge of either a regimental or general hospital, was required to accompany his monthly return by a detailed statement of the prevailing diseases, and morbid appearances discovered on the dissection of those who died, which was first transmitted to the Deputy Inspector, or Principal Medical Officer of the district, division, or brigade, who was again directed to give a general history thereof, with the meteorological and other observations which the climate or local circumstances might indicate, in order to illustrate the nature of disease, and explain the *rationale* of the medical practice.

Since I re-entered the service, it only became once my duty, whilst in the temporary charge of a General Hospital, at *el Passages*, in Spain, to write a short statement of the foregoing nature. The following is a copy of my letter on that occasion, which I insert to further evince my opinion respecting the sedative effects of peculiar states of the atmosphere on the vascular system, and the important consideration of early attention to every deranged state of the vital functions:

General Hospital, Letters A. and B.

20th November, 1813.

SIR,

By the accompanying monthly return, it will be found that the prevailing order of disease admitted into this hospital, since the last report, has been Dysentery, Typhus, Continued, Remittent, and Intermittent Fever: cases of pneumonia and pulmonary consumption. These have severally baffled every attempt of medical application, and considerable mortality has prevailed.

When the extreme and almost hopeless stage of disease, in which they have frequently been received from the Regimental Hospitals of their respective corps, is taken into review, perhaps the number who have died of the different classes of morbid action will not be found more than could be possibly expected under such circumstances. My former experience in other climates, and what I have observed here, has fully impressed on my mind, that, in all acute diseases, the early recourse and attention to medical powers can be the only probable means of averting derangement of structure, which has been found in so great a degree in all those we have examined after death: viz. ulceration and gangrene of the intestines, in the dysenteric

“ cases ; vomica, purulent suppuration, and hy-
 “ drothorax, in those of the pulmonic class.

“ Another consideration also particularly merits
 “ attention in regard to the season, as well as the
 “ site and order of the hospital in which these
 “ observations have been made. The weather
 “ has, for some length of time, been in a state of
 “ constant humidity, alternating with severe cold.
 “ The situation of the hospital at the foot of a
 “ steep mountain, on which the rain has fallen
 “ in torrents, and the free admission of it through
 “ the roof, in different places, as likewise oozing
 “ through the walls on the middle and ground-
 “ floors, in its descent from the mountain, has
 “ rendered it extremely obnoxious to every order
 “ of disease, but more especially to pulmonic and
 “ dysenteric cases. This (I may say) morbid state
 “ of the atmosphere has equally developed its
 “ fatal influence in all the severe cases of gun-shot
 “ wounds, which have been found to partake of
 “ a very gangrenous and sloughy action ; nor
 “ have I, scarcely in one case of compound frac-
 “ ture from shot, observed the least disposi-
 “ tion to union of the bones, by a deposition of
 “ osseous agglutination. On the contrary, the
 “ discharge and irritation has been so great as to
 “ superinduce a low order of fever, which rendered
 “ amputation necessary. And here, again, I
 “ must further remark, that by far the greater

“ number of those, upon whom the operation has
 “ been performed, did not do well; the stumps
 “ partaking of the same sloughy unhealthy action
 “ as was manifested in the previous wound, although
 “ I am not prepared to say, but, in our endeavours
 “ to preserve the limb of the soldier, we have been
 “ perhaps over anxious, and thereby endangered
 “ his life by too long procrastination of the
 “ operation. This, combined with the other cir-
 “ cumstances, as above detailed, may tend to ex-
 “ plain the numerous fatal cases of amputation, to
 “ the proportion amputated, that will be found
 “ in the accompanying return.*

“ Until the weather becomes more settled and
 “ dry, that we receive cases in a more early stage
 “ of disease, and not defer amputation too long
 “ in compound fractures from balls, I shall not
 “ expect much alteration in the success of our
 “ practice.

“ I have the honour to be,

“ SIR,

“ Your very obedient humble Servant,

“ EDWARD DOUGHTY,

“ *Assistant Surgeon to the Forces, in charge of Division*

“ *General Hospital, Letters A. and B.*”

“ *Alexander Baxter, Esq. Surgeon to the Forces*

“ *and P. M. O. Passages.*”

* I have not a copy of the return by me, but I remember
 it was in the proportion of seven in ten.

In every part of the world, I am of opinion, the general source of febrile disease may be traced to climate and soil ; modified by circumstances of locality, and varying in its nature according to the peculiar habits of life, and constitutions of the inhabitants. From the apparent similitude between the symptoms of the Yellow Fever and the plague I am greatly disposed to believe this latter to be only a higher grade of the former disease : and that it arises from causes, like that fever, which may be traced to climate and local circumstances. Its annual recurrence and cessation at particular places, is greatly analagous to the periodical visitation and cessation of Yellow Fever in the West Indies. Respecting its contagious qualities I shall not hazard an opinion ; I have not seen the disease, and I will not therefore venture to agitate a question on which experience only can decide. A medical gentleman, who has recently returned from places where this disease annually prevails, intends, I believe, to offer shortly to public scrutinization, the result of his observations on the plague, when the question of contagion will probably be more particularly discussed.

If this order of fever manifested itself in any garrison or place occupied by British troops I should make a particular request to proceed there, as no consideration would be more satisfactory to

me than to minutely examine into every circumstance which relates to so formidable and long dreaded a disease, both as to its origin and symptoms, as well as the morbid appearances which dissection might discover.

I shall not at this time enter into further discussion, either as to the source from which the disease named Yellow or *Bulam* fever is generated, or the qualities which it possesses, under the several varieties or gradations of morbid derangement, in which it is so often seen. They have been amply and more ably related by others. The opinions I have formed have experience for their basis ; if they have been too hastily or lightly constructed, time and further observations will evince. One of the particular objects I have had in view in thus exhibiting them to public notice, is a wish to remove from the mind of the stranger, as far as possible, the fear of contagion, as it relates to this disease ; and which I am well convinced has little or no foundation. The influence of that fear on the physical powers of life is productive of far more prejudicial consequences than can be ever counterbalanced by over precaution and quarantine laws ; which I am aware tend to create a degree of gloom and despondency, in weak and inexperienced minds, that cannot but render the susceptibility to the action of a febrile cause so much the greater.

If it should be considered that I have erred in

publicly declaring these opinions, I trust it will be believed it is with the best intentions, on which I must console myself, as hath a Spanish author, who has written a small pamphlet on the fever of Cadiz, in 1810, and who says, “ si con publico carlo consigo que se siga algun bien á la humanidad, en ello recibiré el mayor galardón, y único que apetezco, y sino fuere así, me consolaré con que

“ *In magnis voluisse sat est.*”

F I N I S







