

A brief history of the late expedition against Fort San Juan, so far as it relates to the diseases of the troops: together with some observations on climate, infection and contagion; and several of the endemial complaints of the West-Indies / [Thomas Dancer].

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Lieut.
A B R I E F *John. Dyne*
H I S T O R Y

O F T H E
L A T E E X P E D I T I O N

A G A I N S T
F O R T S A N J U A N,

S O F A R A S I T R E L A T E S T O
T H E D I S E A S E S O F T H E T R O O P S :
T O G E T H E R W I T H
S O M E O B S E R V A T I O N S O N C L I M A T E,
I N F E C T I O N A N D C O N T A G I O N ;

A N D S E V E R A L O F T H E
E n d e m i a l C o m p l a i n t s o f t h e *West-Indies.*

B Y T H O M A S D A N C E R, M. D.
P H Y S I C I A N T O T H E T R O O P S O N T H A T S E R V I C E.

K I N G S T O N :

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M D C C L X X X I,

THE HISTORY

OF THE
LATE EXPEDITION

AGAINST
FORT SAN JUAN

SO FAR AS IT RELATES TO
THE DISEASES OF THE TROOPS;
TOGETHER WITH
SOME OBSERVATIONS ON CLIMATE,
INFECTION AND CONTAGION;

AND A REVIEW OF THE
FATAL COMPLAINTS OF THE N. I. INDIANS.

BY THOMAS DANCER, M.D.
ATTENDING TO THE TROOPS ON THAT SERVICE.

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T O

HIS EXCELLENCY

GENERAL DALLING,

GOVERNOUR OF THE ISLAND OF JAMAICA,

CAPTAIN-GENERAL, VICE-ADMIRAL,

AND CHANCELLOR OF THE SAME,

AND THE TERRITORIES THEREON DEPENDING:

THE FOLLOWING PAGES,

On the HISTORY and DISEASES of the

LATE EXPEDITION against FORT SAN JUAN,

ARE HUMBLY INCRIBED,

B Y

HIS EXCELLENCY'S

MOST OBEDIENT AND DEVOTED SERVANT,

THE AUTHOR.

HIS EXCELLENCY

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BY

HIS EXCELLENCY

MOST GRACIOUS AND DEVOTED SUBJECT,

THE AUTHOR.

Lieut. Grant. [v] Dyne.

INTRODUCTION.

IT is not the design of the author of the following pages to write a full history of the expedition: The object and conduct of that service, with every thing respecting the military department, he is totally unqualified to judge of, and will therefore no further enter into his considerations, than as they are connected with his design; which is to explain the causes of that general sickness and mortality that prevailed among the troops; and to make a few observations on some of their diseases. The sickness or health of troops, however, depends so much on their situation and movements, that he will be obliged to take some account of these; and it is therefore proposed to give first a succinct history or journal of the campaign, and then to make some general remarks on the endemial diseases of soldiers in the West-Indies.

CORRIGENDA.

- Page 19—line 14—Read, *many of which*, instead of, *which many*, &c. Ibid.
line 10—Dele, *being*. Ibid.—line 15—For, *made*, read, *were*. Ibid.—line
19—Dele, the comma after the word *hospital*.
- Page 31—line 12—For *infected*, read *affected*.
- Page 34—line 6—For *fatid*, read *fætid*.
- Page 40—line 1—For *from*, read *by*.
- Page 44—line 6—For *was*, read *were*.
- Page 50—line 9—For *evacuations*, read *evacuants*.
- Page 51—line 7—For *for*, read *and that*.

A B R I E F

H I S T O R Y

O F T H E

L A T E E X P E D I T I O N , &c.

THE circumstances of time, command, number of troops, and their embarkation to go upon a SECRET EXPEDITION; from its having been framed in this country, but more especially from its fatal issue, and the private misfortune it has occasioned to many, in the loss of friends; are so well known, and will have so lasting an impression, that it will be here quite unnecessary to mention them. It will be sufficient, for the sake of more general information, just to observe, that in the beginning of the year 1780, a small army, consisting of about two hundred Regulars, of the 60th and 79th regiments, one hundred men of Major DALRYMPLE's Loyal Irish corps, and two hundred Jamaica Volunteers,

Volunteers, were sent by his Excellency GENERAL DALLING, under the command of Colonel JOHN POLSON, upon a secret Expedition against some part of the SPANISH territories in South America.----This little army having embarked on board several transports, we set sail from Port-Royal on the 3d of February, under convoy of the Hinchinbrooke frigate, and directed our course first for the Musquito Shore.

ALTHOUGH the autumn and winter of 1779 had been in Jamaica very sickly, and many of the troops had died; it must be observed, that those sent upon service being all selected, were at the time of our departure in general good health, and continued so during the voyage:---two men only died on the passage, both of them convalescents from long fevers; one of them, having a return of fever, with symptoms of immediate putrefaction, died in a very short time; the other, being very weakly, and not able to scuffle amongst the men upon deck, remained constantly in his birth, and, from lying always on the same side, got a mortification in the hip, which, notwithstanding the instant and free use of bark, and wine, &c. soon carried him off. This case deserves to be noted, because such accidents are very liable to happen to men in that situation, and, in the bad air of a ship's hold, will always prove very dangerous, if not incurable.

THE Penelope transport having run aground, a poor man of the Volunteers on that occasion had the misfortune to have his skull dangerously fractured; the fracture ran across both the sagittal and lambdoidal sutures; and, by means of the trepan, a number of fragments of the os occiputis were extracted, and a considerable part of the dura mater, & sinus longitudinalis, exposed.---The operation was performed under every possible circumstance of disadvantage; but, by the singular care and attention of Mr. Watson, surgeon of the corps, he recovered, and continued pretty well for some time, 'till, being seized with the flux, he afterwards died.

ON the 14th of February, we arrived at Cape Gratiàs à Dios, where the soldiers being disembarked, were encamped on a large plain, about a mile from the sea, called Wank's Savanna. The soil of this plain is very swampy, affording water at only a foot or two below the surface.---Between this savanna and the sea runs a pretty large river, called also Wank's, surrounded by Scot's grass, mangroves, and other woods, to a considerable distance, so as to generate an unwholesome air, and to seclude from the camp the salutiferous sea breezes. Our men must have inevitably become very sickly, had they remained long in this place; but besides that our stay was short, the season was then fair: the water, which contained a very strong chalybeate impregnation, might perhaps have been also of use to them,

them, by carrying off the bile, and by a tonic power in bracing up the solids. To many indeed the water gave a diarrhœa, which, notwithstanding the means made use of for restraining it, persisted while they continued to drink it.

WHILST at this place, we had a few intermittents, but our whole number in the hospital did not exceed thirty, till the arrival of Captain Dalrymple and Mr. Schomberg from Black River, with a party of men of the 79th regiment, who were almost all of them in a most deplorable condition, from old intermittents, dropfy, and flux: we had also a few other fluxes, which, upon enquiry, I found had been brought from Jamaica, and two of the number died.

ON the 10th of March, our troops being reimbarcked, we in a few days took our departure from Cape Gratiôs à Dios, and, after anchoring at several places on the Musquito Shore, to rendezvous with the Indians who were to proceed with us on the Expedition, we arrived on the 24th of March at the river San Juan; our men in general good health, and in great spirits, from the idea of being so near to the destined service.

ABOUT two hundred regulars, being disembarked from the transports, with the necessary equipment of ammunition

tion and stores, proceeded immediately up the river with the Indians in their several crafts, a particular kind of boats so called: It being then the latter end of the dry season, the river contained very little water, and was full of shoals and sandy beaches, which rendered our passage exceedingly difficult: The men were frequently obliged to quit the boats, and unite their most strenuous exertions in getting them along through a number of shallow channels, previously explored by Indians sent before for that purpose. This labour continued for several days after we left the mouth of the river, till we arrived in deeper water, when we made a quicker progress: but our men were much exposed to injury, from the sun's rays beating violently upon them for seven or eight hours every day, besides a still more intense heat reflected from the many naked shoals, covered with a whitish sand, which rendered the air sometimes intolerable. This violent insolation during the day, was followed by as dangerous an exposition to the heavy dews at night; and it was surprising that the men continued so well; for as yet we had but few, and those trifling, complaints.

I CANNOT omit the occasion of doing our Indians the justice to mention their spirited exertions and perseverance, in the arduous enterprise of rowing up the boats such a length of way against the many obstacles we met with: we were no less obstructed by currents, than by shoals;

and the rapids or falls occasioned us still greater difficulty; but the Indians have a singular address on these occasions, and I cannot help thinking that we were greatly indebted to them: for the soldiery, partly from ignorance in those matters, and partly from that indolence which was the natural effect of their situation, were frequently of very little use: The stress of this business, therefore, lay chiefly upon the former; and this accounts for their complaints coming earlier on, than those of the soldiery.---It must be observed, that the Indians are not a hardy race, especially the true unmixed ABORIGINES of the country. The Cape Indians, who have an admixture of negro blood, seem to be superior to those mentioned †, both in the powers of mind and body; they are in general taller, more muscular, and have an aspect expressive of a greater share of intelligence: However we explain it, the fact was, that they did not fall ill so soon as the others. Those Indians who could be spared from their boats, proceeded on before us, and were no less active than dexterous in procuring us plenty of game, and fish, which contributed not a little to the support of our mens' health, under that share of fatigue they sustained, and the exposition they were subject to.

ON the 9th of April, we arrived at a little island in the river, called St. Bartholomew, which was fortified by a small horse-shoe battery, mounting nine or ten swivels, and

† *Vide* in the Abbe REYNAL's History of the Indies an account of this.

and defended by a garrison of twelve or eighteen men.--- This island was possessed as a *look-out*, but being previously reconnoitered, Captain DESPARD, with a party of men, was sent through the woods to surprise them: After a few shots, they endeavoured to fly; but were prevented in their retreat by the Indians, who were posted higher up for that purpose.----On this occasion, only two men received any hurt: one was shot in the abdomen; but the ball having passed through his cartridge-box, did not penetrate the cavity:---the other had three fingers of one hand very much shattered, but soon recovered the use of them.

A MUCH more melancholy accident happened to one of the men on their march through the woods: a snake, hanging from the bough of a tree, bit him as he passed along, just under the orbit of the left eye, from which he felt such an intense pain, that he was unable to proceed; and when a messenger was sent to him a few hours afterwards, he was found dead, with all the symptoms of putrefaction; a yellowness, and swelling over his whole body; and the eye, near to which he was bitten, all dissolved.

THE snakes of this country are very numerous, and of several kinds *, most of which are esteemed highly poisonous,

* PISO reckons about twenty different species in BRAZIL; which I should suppose are most of them also inhabitants of this part of the coast.

THIS part of Natural History, though in the highest degree interesting to the human species, has not been sufficiently cultivated: We are still, in a
great

ous, but not equally so: The Indians seem to dread most a small one, called by them *tomagass*.---The most ordinary kind, called (from the manner in which it is marked) the Barber's Pole, is not so virulent as the former. The common remedy, and the only one that I could learn of, is the *antidote*, or † *calabash cocoon*, as it is called here, and I presume

great measure, unacquainted with these noxious animals; and it is an object that claims the attention of natural inquirers, to investigate more particularly the species and distinctions of these reptiles, together with the proper antidotes against their several poisons.—I shall here subjoin a sketch of the general arrangement of the serpent tribe; for which I am obliged to the Reverend Mr. ROBERTS, a gentleman completely versant in all the departments of natural knowledge.

THE celebrated LINNÆUS has arranged the serpents into six *genera*, viz.

1. CROTALUS, which is distinguished by having the scuta of the abdomen and tail terminated by a rattle: This genus contains five species, all venomous.
2. BOA, which is known by having the scuta of the abdomen and tail terminated without the rattle: It contains three species, which are all inoffensive.
3. COLUBER, of which he enumerates ninety-seven species, sixteen of them are poisonous:—This genus is known by the abdomen being covered with a scutum, and the tail with scales.
4. ANGUIS, having both the abdomen and tail covered with scales.—There are sixteen species of this genus, but none of them poisonous.
5. AMPHISBÆNA, containing only two species, both harmless:—The abdomen and tail of the animals of this genus are marked with rings.
6. CÆCILIA, containing two species, both harmless;—they are known by their being covered with wrinkles.

Note, Those serpents that are venomous are furnished with fangs, somewhat resembling the tusks of a boar:—they are moveable, and inserted in the upper jaw.

† This plant is best described by BROWN, in his Natural History of *Jamaica*, under the name of *sevillea*: the seeds or kernels of this plant are frequently used by the negroes in a spiritous infusion, which makes a strong bitter, and a large

presume the same as ULLOA calls the *babilla*, or *snake bean*. This, as well as other antidotes that have been celebrated, may be possessed of some virtues, but are not of that established efficacy to be with safety depended upon: it may, therefore, not be improper, in this place, to suggest the means to be pursued under such a misfortune.----Suppose any one so unhappy as to be wounded by any of these poisonous reptiles, the most (if not the only) effectual remedy, is, an immediate excision of the part; or, if that should not be practicable, to scarify the parts about the wound, and, by suction, or cupping glasses, if they can be procured, to extract the virus before it passes forward into the blood. ---It is to be observed, that, notwithstanding the direful effect which those poisons exhibit when they enter the system, that they have no action or influence in the mouth or stomach; and the wound may therefore be sucked with great safety by another person †.----A burning-hot iron

C

applied

a large dose proves both emetic and cathartic:—it is called by the negroes the *antidote*, as they entertain the same notion with the Indians, of its alexipharmic virtues.—There is no doubt of its being a very useful medicine, and worthy to be introduced into the officinal list, if the seeds did not lose their qualities by keeping: but how far it may be justly considered as either a general or specific antidote, it is impossible to determine, as we have no other evidences than the testimony of the Indians and negroes, who, in their opinions concerning the medicinal efficacy of plants, &c. are chiefly guided by superstition.—These seeds being of a very oily nature, the negroes frequently burn them as lights; and Mr. ROBERTS has discovered a mode of making from them a most excellent kind of candle, not inferior even to wax, or *spermaceti*.

† The MARSI and PSYLLI, two ancient nations, were possessed of this secret.—It is probably by absorption that the snake stones act, if they have any action at all.

applied to the part, may be used in the place of excision, but perhaps with a less certain effect: besides, it is seldom that such a means is at hand on such an emergency, and there is no time for delay; for if once the poison is absorbed, and has passed onward into the circulating fluids, local remedies can have no effect. The use of olive or common salad oil in the bite of the viper ||, is very universally known, and should not be omitted to be applied to the parts, after what has been recommended. Emetic and sweating medicines have also been esteemed useful, and should be employed: respecting the latter, they should be continued so as to prolong the sweat for a considerable time.

ON April the 11th, we came in sight of the castle of San Juan, and on the 13th the siege commenced, which, with so small an army, was not carried on without much fatigue and difficulty.---Added to the hard labour of throwing up batteries, and the common military duty of maintaining a number of guards and posts, the men had to transport all the ammunition and stores, by a very bad road, through the back woods, from the landing place two or three miles below the castle.

FOR some time, the animation excited by prospects of victory and success, enabled our men to resist every impression from the fatigue and labour they underwent: but at length the Seasons, or bad weather, setting in, the whole
army,

|| *Vide* MEAD on Poisons.

army, both the soldiers and the Indians, began to fall sick, especially the latter, who suffered more from their own inhumanity, and want of care towards each other, than from any other cause; as, though absolute fatalists, it is a kind of custom amongst them, never to regard or pay any attention to their sick, further than to place them under some tree or hut, and giving them water.----Such was the indolence, obstinacy, and infatuation of this people, that no representation or remonstrance that was made to them, could prevail on them to unite their endeavours for the building a house or hut for the reception and accommodation of their sick friends, who, lying under fevers and fluxes, exposed to all the inclemencies of the weather, derived little advantage from the assistance of medicine, and many of them, as might be expected, died.---The dissatisfaction and desertion of these allies, soon after the surrender of the castle, delivered me from any further trouble concerning them: and I have only to add respecting them, that I remarked nothing very peculiar in their complaints, except that they were in general more inflammatory.

THE hills which our army occupied, afforded so many favourable and secure posts, that our men were very little exposed, and met with very few accidents; two or three only were killed, and not above nine or ten wounded.---In the number of these, we had one case which was very remarkable, and I shall therefore give the history of it.---A sailor

sailor of the *Hinchinbrooke* being a little intoxicated, pursued down the hill, under the enemy's fire, a hog that he had endeavoured to kill. He received two or three shot; but one of them took a very extraordinary course, which I believe most people would think fatal. The ball entered by the groin, and traversing the pelvis, came out through the glutei muscles, near to the knob of the ischium. The spermatic cord was very much contused, and inflammation was come on before I saw him; so that, although I suspected great danger would arise from a subsequent mortification of the testicle, followed perhaps by a fatal hemorrhagy from the vessels, I could not then make use of either the knife, or the needle. As to the injury of the viscera, I could not then judge, but it did not afterwards appear, either by his stools or urine, that they had suffered any accident. The gangrene and hemorrhagy, as was apprehended, came on, and threatened great danger; but the latter being restrained by *styptics*, the only means that in that case could be employed, he took large quantities of bark and wine, along with the best nourishment that could be procured for him; and he recovered.

THE Castle having surrendered on the 24th of April, we hoped that our victory would furnish us, not only with accommodations, but with many useful supplies, that might tend, in some degree, to stop our increasing sickness; but, alas! the wretched state of the garrison, provided with nothing

thing that could lend either them or us the least comfort; and the inconvenient structure of the place, which was worse than any prison, and, as one would suppose, calculated only for the purpose of breeding infection, disappointed us in those flattering expectations. Our men, therefore, now falling down in great numbers, added to all their other misfortunes, had no proper hospital for receiving them;—the wretched houses or sheds to which we were obliged to give that name, being from their situation not only so nigh the river, but under the Castle-hill, and totally secluded from the sea-breezes;—from the dirt and filth surrounding them, consisting chiefly of semi-putrid skins, yielding a most intolerable stench;—from the insufficiency of the roofs, which many of them kept out very little rain; made them, I will not say merely an improper hospital, but a certain grave to almost all who entered them.---Add to what has been mentioned, the circumstances of a most unhealthy climate; the Seasons, or incessant rains, alternating with the most extreme heats; the want of hospital, necessities, and accommodations, and sometimes of medicines, and it will not be wondered at, either that the troops became so sickly, or that so few recovered *.

D

MANY

* THE history of all West-Indian armaments unhappily correspond too much with that we are now giving of the Expedition against Fort *San Juan*. I need not mention the fatal affair at *Bocca Chica*, so pathetically related by THOMSON, in his SEASONS.—

When o'er this world, by equinoctial rains
Flooded immense, looks out the joyless sun,
And draws the copious steam: from swampy fens,

Where

MANY of the afore-mentioned circumstances may seem, to those unacquainted with the particulars of the service, to have been remediable: The question may, in the first place, be asked, Why, as there was no building fitted for the

Where putrefaction into life ferments,
And breathes destructive myriads; or from woods,
Impenetrable shades, recesses foul,
In vapours rank and blue corruption wrapt,
Whose gloomy horrors yet no desperate foot
Has ever dar'd to pierce; then, wasteful, forth
Walks the dire Power of pestilent disease.
A thousand hideous fiends her course attend,
Sick Nature blasting, and to heartless woe,
And feeble desolation, casting down
The towering hopes and all the pride of Man.
Such as of late, at Carthagea quench'd
The British fire. You, gallant VERNON, saw
The miserable scene; you, pitying, saw
To infant-weakness sunk the warrior's arm;
Saw the deep-racking pang, the ghastly form,
The lip pale-quivering, and the beamless eye
No more with ardour bright: you heard the groans
Of agonizing ships, from shore to shore:
Heard, nightly plung'd amid the fullen waves,
The frequent corse; while on each other fix'd,
In sad presage, the blank assistants seem'd,
Silent, to ask, whom Fate would next demand?

—Nor is the mortality amongst our brave troops at the *Havannah* yet forgotten:—The affecting letter of an officer on that service, which so well describes our unhappy situation at *San Juan's*, I shall here take the liberty to quote from Doctor LIND:—"I think myself extremely happy in being among the number of the living, considering the deplorable condition we are now in:—Out of 100 men which I landed, I have only now 33 left in my company. Our regiment has lost 8 officers, and 500 men. Out of 17 battalions, we cannot muster 600 men fit for duty:—they died chiefly of *intermittent fevers and fluxes*."—

—The late dreadful mortality of the troops at *Lucia*, as well as at other parts of *America*, serve to evince the insalubrity of these climates, and the difficulty attending all military operations in this part of the world.

the purposes of an hospital, was not one erected? To this I must answer, that although the unhealthiness of these houses were represented to the Commander-in-chief, and his orders obtained for building a proper hospital, these orders could never be carried into execution; the sickness becoming so general, that there was neither artificer to work, or soldier to assist him: Necessity then compelled us to make use of places that became a source of contagion, and precipitated those who went into them out of the world.

---As to hospital accommodations, such as bedding, and the several articles of sugar, oatmeal, &c. we had them in an abundant quantity, but not at our hospital, where they were wanted: there being not a sufficient number of craft for transporting the ammunition and stores up the river; a certain quantity only of each could be put on board, which in many cases was not competent to the exigencies of the service; and the sickness increasing, rendered our future supplies from the transports still more precarious. So general was the illness at this time, and ever afterwards, that, independent of the few who were well enough to do garrison duty, we had not orderly men sufficient to assist the sick.---The deplorable situation of such a number of men labouring under such complaints, and lying in such places, without the requisite assistances, and the use of the necessary means for preserving † cleanliness, and a sweet air, can be

† Nihil tamen æque morborum phalanges in castra invehere posse crediderim, quam castrorum sordes et neglectam munditiam: Divino edicto olim Israelitis interdibantur, ne intra castra alienas fæces auderent deponere;—sed, &c.——Vide *Ramazzini de morbis artificum*. DIEUTERONOMY.

be easily judged of: The fevers and fluxes, therefore, that in the beginning were dependent on climate, &c. and affecting only individuals, became afterwards evidently contagious, and seized almost every one who came within the infection †: few of those who arrived in health (though this number was very small) escaped for many days the reigning malady.

THE weather clearing up for a short time, gave us sanguine hopes that our men would now recover, but most of them relapsed again upon the return of the rains; and at length, in the month of September, the army, so much exhausted by sickness, returned down the river, leaving only a proper garrison at the Castle. The use of a better nourishment, which the harbour afforded, particularly fish and turtle, it was hoped might be of great use to convalescents; but the contrary event happened. The inordinate appetite which attended people reduced by long sickness, being too freely indulged, was productive either of indigestion and crudities in the *primæ viæ*, or a too sudden and general impletion, which proved very injurious to them; and a better food, instead of promoting their health, served rather to hasten their exit.

THE

† Authors are not generally agreed, whether *intermittents* are properly contagious:—*Cleghorn, Lettsom, &c.* think they are infectious:—the dysentery and remittent fever, into which they are frequently changed, are unquestionably so.

THE sickness and mortality of the troops still continuing, I presume it was thought necessary to decline the further prosecution of that service; at least till a proper reinforcement should arrive, and the seasons become more favourable. The remainder of the army, therefore, embarked for Bluefields, an English settlement about twenty leagues to the northward; but the exhausted and debilitated state which most of the men were in at the time, rendered the situation and air of a ship's hold very mortal to them, and a great number of them died on their passage.

A total loss of my own health obliged me about this time to apply for leave of absence; and I have therefore nothing further to add on the subject of the campaign, but to acknowledge, not in my own name only, but in that of many, the assiduous and humane attention of our Commander-in-Chief * to every thing that could tend to the recovery of the sick, and health of the army: but all the offices of the kindest humanity, all the efforts of the best informed judgment, neither the benevolence of the heart, nor the skill of the mind, could avail against the united opposition of so many formidable enemies †.

* Colonel KEMBLE of the 1st Battalion of the 60th Regiment.

† Among these, the *climate* must be considered as the principal one. The country is overspread with wood: on the sides of the river are numberless stinking marshes; and the rains fall in torrents through the greater part of the year.—From the month of April, when the castle surrendered, till October, when the army returned down the river, and for some time after this, the rains continued, with now and then a lucid interval of a few days, to fall in prodigious quantities, and sometimes with the most dreadful thunder storms. *Carpenter's river*, or *Matina*, the nearest settlement on that part of the coast, is reckoned by the Spaniards another *Rio Morte*. The torrents of rain to which Carthagená is subject, fall, according to RESNAL, from the month of May till November.—*Vide Hist. Ind. and Waser's account of Darien.*

OBSERVATIONS

O N

Climate, Infection, and Contagion.

CHURCH OF THE

OBSERVATIONS

ON

CLIMATE, FERTILITY, AND CONVERSION.

OBSERVATIONS ON CLIMATE, &c.

CLIMATE.

THE effects of different climates in producing diseases of a different nature and tendency, has been remarked in all the ages of mankind, and treated of with great judgment, even by HIPPOCRATES, the father and founder of physic.---“ Quicunque artem medicam, inquit, integri consequi volet, hæc faciat oportet. “ Primo quidem temporum anni, rationem habeat; nulla “ enim in re similia sunt sed multum differunt; tum ipsa “ ad invicem, tum in propriis permutationibus, deinde “ etiam ventos calidos et frigidos, qui unicuique regioni “ sunt peculiares,” &c.----The observations of authors on this subject amount to this, that in cold climates, people have a greater degree of tone, or that their fibres are more tense and rigid; and that, in consequence of this, they are more subject to inflammatory complaints, or such diseases as, in their nature and cure, require a treatment, as blood-letting, and other evacuations, whose effects are, to dimi-

nish this tone or tension of the fibres; while, on the other hand, from the natural property of heat*, people in all warm climates become very much relaxed, and are subject to diseases, not of the aforementioned inflammatory kind, but to those of a putrid tendency†.---The diseases, then, of cold climates are principally, inflammatory fevers, coughs, consumption, rheumatism, pleurisy, &c.; but, in warm ones, the fevers are of the bilious, remittent kind‡, frequently becoming putrid: and these are not only the most ordinary kinds of fever, but the diseases which most ordinarily happen: For it may be observed, that although we cannot, in the West Indies, boast of equal health with those in northern climates, we can yet aver, that we are subject to fewer diseases.----Diseases of the inflammatory class, as well as of every other kind, do indeed occur in warm climates, but not so frequently, or with so much violence. Upon the whole, the catalogue of maladies in the West Indies is much less than in Europe; but then the fevers,

* Calor si nimius est, corpus effeminat, nervos emollit, stomachum solvit obnoxium morbis pestilentibus corpus efficit.—*Celsus de Medicina.*

Calor aeris vi sua relaxante corpus debilitat.—Systematis, tum sensibilitatem, tum mobilitatem auget.—Fluidorum tenuitatem et acrimoniam auget.

Diff. Med. BOWDLER.

† WILSON on the influence of climate.

‡ The remitting fever is truly one of the fixed, regular epidemics (*endemics*) of the island of Jamaica, and is more or less prevalent in the months of October, November, and December. I look upon it to be the same as that of Minorca, Sumatra, Java, and of other parts of the East and West Indies.

NASMYTH in LIND'S *Ess. &c.*

fevers, which constitute the greater part of this catalogue, are, from the effects of climate, and the difference of constitution, of a much more dangerous tendency.

WHATEVER influence *heat* * may have, either upon the solids or fluids in the human body, in altering their natural condition, we know, that it is greatly increased by the union of moisture. People, during the hottest seasons, and in the hottest climates †, often preserve a moderate share of health; but, after heavy falls of rain, they in general become sickly.---This is a fact well known by all those who have inhabited the West Indies, and other warm climates.

It is not, however, either heat or moisture, simply considered, that produce fevers ‡, but, along with these, sensible qualities

* Heat alone has certainly the effects before-mentioned: but the judicious Doctor NASMYTH, who to the many opportunities he had of determining this question, joined a very particular attention, has observed, "That the inconveniences and diseases arising from mere heat, are far less considerable than has been imagined."——Vide LIND's *Essay*, &c. p. 56.

† The temperature of the air in South Carolina and Georgia, in summer time, according to the experiments of Mr. ELLIS, much exceeds that of the human body; yet the inhabitants bear it with health and unconcern.

GOLDSMITH's *Nat. Philos.*

Some curious experiments have lately shown, that the human body is capable of sustaining a surprising degree of heat, without any considerable annoyance of the functions.——Vide *Philosoph. Transact.*

‡ *Calores sane summi sine febre. Pestis enim sub maximis caloribus extinguitur. Nec humore abundantes, illico febris est. Æstivas imbres fore ubique salubres; civitates quoque salubres juxta flumina sitæ, &c.*

Drummond de feb. ardent. &c.

qualities of the air; and, originating from them, there is another cause of disease, which, though of a latent nature, acts upon the human body with much more force and activity: This cause is, the poisonous effluvia or miasmata arising from the ground, in all woody and marshy situations, particularly in warm seasons, and in warm climates. || The endemical or prevailing diseases of people inhabiting all such soils, especially during such seasons, prove beyond a doubt the existence of these miasmata†; and it is more than probable, that all fevers of the intermittent and remittent kind, depend constantly upon such a cause.---Heat and moisture may separately have their effects upon the human body; but it is their influence, when united, that raises these noxious exhalations, which produce the fevers, and other endemial diseases of warm climates. It is heat acting upon moisture that generates these miasmata; and therefore it is in autumn, after the heavy rains which fall in that season, that such diseases most prevail. Rain alone, or inundations of water, seem not, without the assistant energy of heat, to have any effect: for, it is not till after these have passed off, and the humid surface of the ground becomes

|| In regionibus septentrionalibus, ubi frigora intensa et continua sunt, febres intermittentes nunquam incidere; contra in plagis meridionalibus, ubi calores magni sunt præcipue in æstate et autumno grassari observavit *Lancisus de noxiis Palud. effluv. lib. 1. c. 5.*—*Grieve de feb. int.*

In locis palustribus, in aquæ stagnantis vicinio, juxta lacus sordentes fossaq. febres intermittentes endemicae sunt.

† CULLEN's first lines *Pr. Phys.*

comes exposed to the sun's action, that this process, so fatal to the human species, begins*: then the infection in all such places rages; and it frequently happens, that the inhabitants are universally affected.---Many such unhealthy situations are there in this island, which being, on account of a greater degree of moisture, more fertile, are more cultivated and inhabited, but not without shewing effects that prove the truth of what has been observed†.

THE influence of these miasmata seem to be in proportion to the proximity of their source; for, according as people inhabit places that are near to, or far off from the marshes, they are more or less infected.---The same circumstance also occasions a variation in the type of fever; the nearer the patient resides to the infectious fomes, the less his fever is disposed to intermit, and is more commonly a quotidian; when living at a little greater distance, the fever is generally a tertian; and when still more remote, a quartan.---It is also worthy of remark, that the action of

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these

* PROSP. ALPINUS *de morbis Aegyptiorum*, mentions, that during the inundations of the Nile, people are very healthy; but as soon as the inundation ceases, and the muddy surface of the earth is subjected to the influence of the sun, then the epidemical diseases of that country begin.—This fact, long taken notice of, is recently confirmed, in the account Mr. ROLLO has given of the sickness of the troops at St. Lucia.

Vide LANCIUS *de nox. Palud. effluu.* SENAC *de recondit. feb. nat.* p. 35.

† Many of these places are taken notice of by LIND, in his "*Diseases of hot climates*," particularly Greenwich, which proved so unhealthy, that it was found necessary to remove the naval hospital to Port-Royal.

these effluvia seem to be confined within very narrow limits, except when transported by winds to a greater distance.--- Many curious facts prove incontestibly the truth of these observations *; and a proper regard being had to them, may be the preservation of innumerable lives.

SUCH is the operation of heat and moisture in producing febrile contagion; but there is still to be taken notice of, another species of contagion, which, for the sake of distinction, is more strictly and properly so called:---This is, the effluvia of the human body, or the odour arising from other substances that have been impregnated with it. The human body, confined long together within its own atmosphere, and not having its perspirable matter carried off from it, can, as we know from a great many instances, produce a contagion capable of affecting others, though the person himself remains in health †: but such a contagion is much more likely to arise from the body when diseased: And in this manner the plague, small-pox, and nervous and putrid fevers, are produced and propagated. ‡ To what circumstances

* LIND'S Eff. &c.---ROLLO on the diseases of the army at Lucia.---
BOWDLER Diff. de Intermitt.

† This has been evidenced in a number of cases, particularly in the well-known one of the prisoners at the Old Bailey.

‡ PRISO denies the influence of contagion in hot climates, even in the dysentery.---“*Hæc excretio, inquit ille, licet pari vehementia per omnes Indias sæviat, nunquam tamen in Brasilia morbi epidemici instar, grassatum alioque* per

stances it may be owing, whether to a greater degree of heat in volatilizing and subtilizing matters more, or to the constant breezes, which prevent any stagnation, I know not; but so it happens, that contagion operates much less in warm, than in the temperate climates. This is particularly observable in fevers, which are seldom contagious; not even the highly putrid one, called the *yellow fever* *. In the case of fluxes, however, where the contagious matter is more predominant, it acts more generally, and produces a disease fatally infectious. There is so near an affinity between the intermittent and dysentery, that they frequently interchange and alternate with each other, so as to give a suspicion of their arising from a common cause: in both cases, there is a copious secretion of bile, which, in concurrence with other causes, may sometimes determine the disease in one way, and sometimes in another; producing at one

per contagionem migrasse constat."—*Vide* PISON *de utriusq. Indiæ re medica & naturali*.—BONTIUS, who treats of the diseases of the East Indies, is of a different opinion, and has evinced, by several examples taken from a number of others, that epidemical diseases occur there, with all their proper symptoms, &c. spread by contagion.—*Vide* BONTIUS *de epidem. et contag. in Indiæ, morbis*.

* HILARY's diseases of Barbadoes.

It is very singular, that the putrid yellow fever, though never contagious in the West-Indies, is yet extremely so (according to *Lining*) in Carolina:—*Vide* *Eff. Phys. & Lit.* Nay, further, it would seem, that although the contagion does not operate in the West Indies, there is nevertheless one produced; for some wearing apparel, belonging to a patient who died of the yellow fever, being sent from Jamaica to his friends in America, they fatally infected them with the same disease.—*Vide* LIND's *Eff. &c.*

one time an intermittent, and at another a dysentery †. In whatever manner the latter disease may be produced, among individuals, it no sooner arises than a fatal contagion is generated, which universally infects those who come within the sphere of its influence, and chiefly by means of the fatid stools ||, that seem in this disorder to constitute a dangerous fomes.----By a *fomes* is meant, any thing which, by accumulating and retaining the infectious matter, renders it more active and virulent: Thus, not only the stools of the diseased, but their apparel, the bedding and furniture, with the very walls of the apartment in which they lie, are contaminated, and acquire the power of affecting others, even more than the emanations proceeding directly from the human body.

THE nature of contagion is altogether inscrutable, but the properties of it, which have been enumerated, are confirmed ‡, by a number of melancholy, and not less curious incidents.

† PRINGLE'S diseases of the army.

|| Some secretions are more apt to convey infection than others; the stools seem most commonly to communicate the taint; next to these the breath, and lastly, the effluvia of the body.—LIND'S *Ess. &c.*

ALEXANDER is of opinion, that marsh miasmata are not putrescent, but antiseptic; and he infers, therefore they are not hurtful: but the conclusion is both against reason and fact.—He is also of opinion, that the fæces never generate contagion, though he admits that they are very effectual in propagating it.

‡ Of twenty-three men who were employed in repairing some old tents that had belonged to sick people, only six survived the infection which they imbibed.—*Pringle.*

incidents. Causes that are not visible, or very obvious, are not apt to strike mankind in general with much force; and it is difficult to persuade many people of the existence or efficacy of such latent powers: But there is the most absolute demonstration to be given of what has been mentioned, and a knowledge of these circumstances will tend, in many cases, particularly in camps, towards the prevention of the most fatal disorders.

IN the preceding sheets I have shewn, that all the causes of a bad climate, infection, contagion, &c. prevailed in an eminent degree at SAN JUAN's; and that, along with these, every thing conspired to give them their full force and activity: I shall now, therefore, proceed to consider the diseases themselves, so produced, and to make some observations on the principal complaints of the West Indies.

H O F

Five or six people died in succession, who were put into the apartment of one who had died of a bad fever, notwithstanding the utmost pains being taken to purify it.—It was at last found necessary to plane the floor, and new-plaster or white-wash the room.—*Brocklesby.*

A whole nation of Indians in Nova Scotia, called *Mismachs*, were destroyed by some infected blankets which they had picked up at *Chebreto*, after the departure of the Duc d'Anville's squadron.—*LIND's Eff. Traite de maladie des gens de mer, par POISSONIERE.*

OF THE FEVERS, &c.

IT is not my present design, to attempt a full treatise on WEST INDIAN diseases:--having so little to add to what the many excellent authors on this subject have already delivered, I should esteem it an undertaking equally vain and useless: I mean, therefore, to confine myself to a few of the most important circumstances, relating to those disorders which prevailed among our troops on the late EXPEDITION:--These were chiefly, as we have before seen in the narrative of the campaign, intermittent and remittent fevers, and the dysentery or bloody-flux, the constant endemics of every part of the West-Indies, particularly of the most unhealthy parts, and during the unhealthy or rainy seasons. These complaints, though not essentially differing from those of the same kind in Europe, are nevertheless attended with some peculiarities, and require some variation in practice.

A redundant secretion of bile ever attends this class of diseases in every climate, but remarkably so in all hot ones; and has been always supposed to have a great influence upon the disorder in its progress. It is also supposed, that the bile is frequently vitiated in its quality, and being reabsorbed into the system, carries along with it a putrid ferment, that
causes

causes an immediate and total dissolution of the fluids, as in the yellow fever.

THIS preternatural secretion of bile in hot climates, which has been observed even from the time of *Hippocrates* and the commencement of physic, is with great difficulty accounted for, and I shall not attempt it*: It is sufficient that we know the fact; and I shall therefore confine my enquiries to the effects of it, and consider only what influence the quantity and state of the bile may have in producing fevers, &c. or in changing their proper nature. From the constancy of this symptom in most fevers, the ancients were of opinion that they arose from this source:--Bile was considered by them as the immediate cause of fever; and this opinion has almost universally obtained, through all succeeding ages to the present time†.

AN enquiry into the truth of this doctrine, is a subject worthy of a fuller discussion than can be here admitted of; but I shall state a few circumstances relating to it.---Bilious congestions, or bile on the stomach, is the almost universal and constant complaint of the inhabitants of hot countries, even in a state of health, or when they labour under no other disease; and all the effects that generally arise from it, when other causes do not coincide, is an impaired appetite,
a little

* See M'LURG's *Experiments on the Bile*.

Experiences chimiques sur la bile de l'homme, par Mons. CADET.

† MEAD's *Monita & Præcepta*.—SENAC de *recond. feb. nat.*

a little nausea, principally in the morning before the taking in of fresh aliment; vitiated digestion; now and then a diarrhœa; or sometimes, on the contrary, a costiveness of the bowels †. These complaints take place in proportion to the excess of bile on the stomach, and are sometimes in a considerable degree; but still they subsist without fever. --It is plain, therefore, that a redundant secretion of bile, cannot be considered as a direct and immediate cause of fever, although, by diminishing the tone of the stomach, it may dispose the body to be more forcibly acted upon by the proper febrile causes: And hence we see, that people who have recovered from a fever, are exceedingly liable to relapse, from this disordered state of the stomach.

|| It may be further observed, that bile is often not only very innocent in the stomach, but even, when absorbed and mixed with the fluids, produces none of those dire effects of which it has been accused:---jaundice is not attended with fever, nor does it seem to give any disposition towards it ||.

IF

† HIBEERDINE observes, that the bile, being a useful secretion, may, like the saliva, be sometimes increased in its quantity, without any detriment to the health.---It is not likely (he adds) that the health should depend on any precise quantity of bile, for sometimes there is none poured out for many days; and, *vice versa*, the healthiest person may, by going on board a ship, become in the space of a few minutes deluged with bile, without feeling any consequences after he goes on shore.---*Med. Transact. vol. 2.*

|| Sed si febris causa sit bilis, quandem peculiarem eamq. insolitam sibi ipsa adsciscat necesse est; nam exundat sæpissime Ano et Cato absq. ulla febris insultu; nec vero in eam magis proni sunt qui ictero laborant.

SENAC *de recond. feb. nat.*

If the bile should ever be the cause of fever, it must be owing to some foreign and acquired property, not to an excess of the natural secretion; for bile, as we have seen, is not only a fluid absolutely necessary to the functions of the stomach, but, when in its natural state, appears to be of a very innocent quality, producing no immediate bad effects though mixed with all the other fluids of the body. It is, however, supposed, that the bile is of a very putrescent nature*, and susceptible of a high degree of acrimony; which being diffused over the system, produces in certain fevers a total dissolution of the fluids.---All the writers who have treated of that species of putrid remittent, called the yellow fever, have assigned for the cause of it, a corrupted putrid bile absorbed into the system†: But, with all deference to the many excellent authors who have entertained this opinion, I must beg leave to state some difficulties attending it.

MANY alterations happen in the state of the bile, as well as in its quantity, without any considerable effect upon the health. The change of the bile which is most obvious, and which most commonly occurs, is that of acidity. In some cases it has proved so corrosive, that when vomited it has excoriated the mouth, and destroyed the enamel of the teeth; but this has happened without any other consequence

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* From the experiments of Sir JOHN PRINGLE, it would seem that this notion is in a great measure ill founded.

† HILARY on the diseases of Barbadoes.

or effect upon the general health: what has been so often affirmed, of the putrid nature of it under some fevers, is totally devoid of proof, and the opinion has probably been drawn merely from some unusual appearances in it, from an admixture of other matters *.

ANOTHER circumstance of difficulty respecting this theory, is, that as dissections have never shewn any obstruction of the gall-duct, as in the case of jaundice, how should the bile be more than usual absorbed? † It is even allowed, by those who adopt this notion, that the icterical colour of the body, or yellow suffusion under the skin, in some bad fevers, proceeds more from a putrid dissolution of the blood and exudation of the serum, than to a proper jaundice or admixture of bile with the fluids ‡.---There is no doubt but the notion of these fevers originating from the bile, took its rise from the yellow tincture of the skin; but this we see is owing to another cause: we see, that the bile is not absorbed in an uncommon quantity, nor does it appear certainly, that the bile suffers any material change from its natural state; why then should the bile be suspected on this occasion?---But, admitting every thing that has been said concerning the bile, we may still doubt whether the effect is not taken for the cause. An increased secretion of bile, and a vitiated state of it, may attend fevers, without being the

* HIEBERDINE in the Medic. Transact.

† MONRO's Diseases of the Army.

‡ LIND's Diseases of hot Climates.

the cause of them: The bile will be subject to alterations similar to those which happen in all the other fluids, and may verge towards putrefaction; but this is not observable in the incipient state of the disease; it is only in the progress of it, and when a general putrescence comes to prevail.

FROM what has been said, is it not more probable that the nature and termination of these fevers depend either on some peculiarity in the contagion, or on some particular circumstances in the system, as a high degree of phlogistic diathesis, a scorbutic tendency, &c.?---Many facts relating to the yellow fever seem to confirm this opinion, for it attacks chiefly those of a sanguine and plethoric temperament, and especially those coming newly from Europe, or a cold climate. Further, the practice of blood-letting, so much decried in the West-Indies and other hot climates, has in this case been found of the utmost utility. HILARY * employed the lancet very freely in the beginning of this fever, and repeated it even after some appearance of dissolution in the fluids: whence the necessity or propriety of this, but from the circumstances suggested? It is therefore sufficiently clear, that it is not the state of the bile, but the condition of the habit, which gives this putrid type to the fevers of hot climates.

BEFORE I dismiss this subject, I must beg leave to mention another opinion that obtains pretty generally respecting
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* See Diseases of Barbadoes.

the bile; which is, that the use of certain foods and liquors have the effect of increasing and vitiating this secretion.---The possibility of this cannot be denied, but there are no facts to ascertain it †. The disagreement of certain foods, nausea, and consequent vomiting of bile, is no proof of it, for the bile discharged might have been before present in the stomach.---Malt liquors are more especially crimated with this quality; but the disagreement of them may perhaps be rather owing to their viscosity, rendering them of difficult digestion in weak stomachs. The nausea they in such cases excite, may also beget a more plentiful effusion of bile into the stomach; but I am inclined to suppose, that when drank only in quantities proportioned to the digestive powers, they have no such effects as has been imagined, and even prove, in many instances, highly medicinal.

HAVING digressed so far, to examine into the question concerning the influence of the bile in generating fevers, or in determining their particular nature and tendency, I shall now go on to make some more particular observations on the several species of fever incident to our army.

INTER-

† It has been imagined by some physicians, that aliments differ in their effects upon the bile; some increasing its acrimony, &c.—but what they have said seems to me loose and inaccurate.—Whether there are any such substances that have peculiar properties with respect to the bile, I dare not determine.

INTERMITTENT FEVER.

OUR fevers were principally of the intermittent kind, especially upon the commencement of our sickness; and being attended with all the usual symptoms, I shall not detain my reader by the history of what is so universally understood. Not to dwell upon minutiae, or matters that are uninteresting, I shall omit every thing that experience did not lead us to pay a particular attention to.---In the first place, I have to observe, that our intermittents were chiefly of the quotidian or tertian form, especially the latter:---quartans we had no example of that I can remember. This type of an intermittent is every where less frequent than the preceding, and in the West Indies is, I believe, rarely met with, unless among children; and in their case proves very obstinate, continuing sometimes for years, in spite of every means that can be employed. The attack generally came on after some unusual degree of fatigue, or exposition to the bad weather, with all the ordinary symptoms of this kind of fever, pursuing its progress through the several stages of the cold, hot, and sweating fits: In the quotidians, which partook more of the nature of the remittent, the cold fit was not always so considerable, but in the tertians was long protracted, and very severe; so that it was sometimes with great difficulty that a patient was conducted through it*.

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* Authors are disagreed with respect to the most dangerous period of the paroxysm. It is the prevailing opinion, that the cold fit is commonly most fatal;

A JAUNDICE, or universal yellowness, now and then came on, which, though not symptomatic of any putrefcence, was generally a bad prognostic, as hardly any such cases ultimately recovered †.

Obstructions of the viscera, particularly of the spleen ‡, was the consequence of this fever, when long continued; but the frequent termination of it into a remittent or dysentery, prevented these from happening very often.

THE ordinary eruption of pustules about the lips and nostrils, or boils breaking out over the surface of the body, generally indicated a crisis or solution of the fever, though the patient was not afterwards secure from a relapse.

As I recollect no other circumstances of peculiarity in the history of our intermittents, I shall proceed to make some observations on the treatment of them.

TREATMENT

fatal; but others affirm, that patients dying with an intermittent, generally go off during the hot fit:—it was the cold fit that proved fatal with us.

See MORTON, LIND, &c.

† This was instanced in the case of a very worthy gentleman, Captain BERTRAND of the *Jamaica Volunteers*, who died soon after this appearance came on; as also in the much lamented Mr. GASCOIGNE of the LXXIXth regiment, who, after going through every stage of the epidemic, the intermittent, remittent, and dysentery, at last yielded to the common fate.

‡ The liver, according to almost all authors, is the viscus most generally affected (*vide* SENAC): but I do not remember to have seen in our hospitals any case of protuberance and hardness on the right side, or in the hepatic region: the spleen seems to be most commonly and soonest affected.

TREATMENT OF INTERMITTENTS.

IN Europe it is of great importance to distinguish between intermittents of the different seasons: The vernal are in general more easily removed, and blood-letting proves a principal means of cure*; but in the autumnal agues, this remedy is used with greater caution.

THE same caution is required in all hot climates, on account of the putrescent disposition of the fluids: but perhaps this may have been carried too far: Instead of totally relinquishing the lancet, as is the practice of some physicians†, it may be only necessary to use it more sparingly. There are few fevers in which it is not, during some periods of the disease, more or less admissible‡: but strict regard must be always had to the symptoms and constitution of the patient, as these only can determine the proper quantity of blood to be drawn: this must be always less in hot than in cold climates, though it is not easy to establish any certain proportion. The symptoms principally indicating venæsection in intermittents, especially in hot climates,

* SYDENHAM.

† The English Physicians in the West-Indies are exceedingly cautious in bleeding; while the French, Spaniards, and Portuguese practise it very freely, as in Europe.—LIND'S *Ess. &c.*

The Abbe RAYNAL says, That so rapid is the progress of nature in the hot climates, that it is frequently necessary to bleed fifteen or eighteen times in the first twenty-four hours:—He very properly subjoins, that the priest, lawyer, and physician are generally called at the same time.—*Hist. of Indies.*

‡ CLEGHORN found, that blood-letting was not only admissible, but even necessary, in the intermittents at Minorca.

climates, are local affections, as pleurisy, pains in the head, &c. which often accompany them: but even here, local bleeding may prove more beneficial. The tendency of intermittents to change into remittents of a putrid kind, or into dysentery, should inspire us with still greater timidity respecting the use of the lancet, and on this account blood-letting was very seldom used in the intermittents which the troops laboured under at SAN JUAN'S.---There are, however, some cases, in which bleeding may prevent the fever from becoming remittent, and even change it to a regular intermittent; but these depend on a phlogistic diathesis, and seldom occur in hot countries, unless among negroes. The most eligible period for using the lancet, when it is required, is during the hot fit, when all the inflammatory symptoms are most exasperated; but as this is a remedy so seldom judged necessary, let us go on to consider those which are esteemed of more importance.---Among these, *vomits*, from their general utility, and the time at which they are commonly given, in the first place claim our attention.

THE state of the *primæ viæ* in fevers, renders the use of emetics absolutely necessary for the purposes of evacuation. The bile, and other secretions, together with the alimentary contents of the stomach, under the increased heat, and other circumstances in the system depending on fever, may be changed in their nature, and rendered highly acrimonious, if not putrid, so as not only to give in the beginning
a great

a great degree of stimulus, but to make a deleterious impression on the brain and nervous system.

HOWEVER important it may be to procure a free discharge from the stomach, this is not the chief action of emetics; they are possessed of virtues that render them still more beneficial; they cause a determination to the surface of the body, and thereby remove the spasm on the small vessels; or, to speak more intelligibly to a reader unacquainted with medical science, they produce a sweat, and a solution of fever.---This effect of emetics has been long known *, though not sufficiently attended to till of late: SYDENHAM, who conceived of emetics as evacuants only, stood surprised at their good effects, even when they produced but little vomiting: Their operation in this way is, however, now sufficiently understood, and the practice of giving them in small doses †, to procure nausea only, is become universal, after having first evacuated the stomach by a free and full discharge.---The utility of this practice is so well confirmed by general experience, that, like all other established remedies, it is liable to abuse: It is sometimes perhaps carried too far, and in that case it proves extremely debilitating; besides, the antimonial preparations employed for this purpose are too irritating for some stomachs, and much mischief will accrue where they are not judiciously dosed: The clamour against excessive bleeding is outrageous, but

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hardly

* See WEPFER.

† CULLEN'S First Lines.——LETTSOME on Fevers, &c.

hardly any one thinks of the possibility of vomiting a man to death.---There is, therefore, some nicety in the administration of emetics, which we found by experience in the fevers at SAN JUAN's; for the stomachs of the patients were frequently so irritable, as not to bear them. In this case, more advantage is derived from lenient *cathartics*, given in small and repeated doses, till the desired effect is produced.

I SHALL not enter into a general disquisition concerning the use of cathartics in intermittents; but it may be proper to observe, that excessive purging, like all other evacuations, is in hot climates very debilitating; for which reason, the neutral salts, cr. tartar, tamarinds, manna, &c. have been long preferred by good practitioners, to others of a more heating and acrid quality*. I beg leave also to suggest, that, when given in small doses, they may possibly act upon the skin in a way similar to emetics; at least, the use of them in this manner is preferable to that of giving them in full doses, as they agree better with the stomach, and procure ultimately more copious evacuation, with less stimulus and agitation.

THE English HIPPOCRATES (SYDENHAM) first recommended the use of opium in intermittent fevers, a practice that has been since found, by the experience of others, and particularly

* In regionibus calidis, cathartica refrigerantia, fructus, sales neutri, &c. præscribenda quia valde irritabilis est tubus intestinalis.

BRANDRETH *de feb. intermit.*

particularly the immortal LIND, to be of the highest utility.---It has been observed, that opium given before the accession of the paroxysm, will sometimes stop it*; but the more eligible and approved method, is to give it at the end of the cold fit; and the effects produced by it are, an abatement of all the symptoms during the hot fit, a more plentiful sweat, and a more complete intermission†.---These good effects I have seen follow from the use of opium very frequently; and one would be inclined to suppose, that whatever advantages attend the practice in cold climates, much greater would follow from it in warm ones.

OMITTING the consideration of several other remedies, I shall conclude what I have to say on intermittents, by a few thoughts on

THE BARK.

So much has been written on the virtues of this medicine, and to remove every objection to the use of it, that it is scarcely possible to add any thing on the subject: I shall therefore take notice only of a few circumstances relating to its administration.---Much has been said by many excellent writers‡ against the use of the bark previous to evacuations,

* BERRYAT.---GREGORY'S Praelectiones.

† Hoc (*sc. Opium*) tempore caloris exhibitum, vim febris frangit, durationemque contrahit, capitis dolorem delirium et id genus alia praeventit.

BRANDRETH.---LIND.

‡ VAN SWIETEN, &c. &c. &c.

evacuations, or the removal of bilious congestions in the primæ viæ; but in the fevers of hot climates, there is frequently no time allowed for these: such is the force and violence of the symptoms, that if the bark is not given immediately*, the patient infallibly falls a victim to delay. In such cases, therefore, these objections must be set aside; and experience has amply evinced, that they are without foundation†. It is, notwithstanding, proper to join evacuations with the bark, when you cannot use them previous to it; and by this means the objections, if of any force, are in some degree removed.

ANOTHER difficulty attending the administration of the bark, is the irritable condition of the patient's stomach, which renders him insusceptible of a proper dose, and sometimes hinders him from taking it at all.----I shall say nothing of the well-known methods of combining it with opium, aromatics, &c. but, as these will not always succeed, the only remaining alternative is that of clysters, fomentation, &c. these are often efficacious: But, as I cannot quit my view of military hospitals, I must observe, that these modes of exhibiting it are in an army frequently impracticable. I take the liberty, therefore, to propose the method of sprinkling it plentifully over the surface of the body; if there be any moisture on the skin, a great part of it will adhere,

* CLARKE'S Diseases of long Voyages.—CLEGHORN'S Dis. of *Minorca*:

† MONRO'S Diseases of the Army.—CLEGHORN'S Diseases of *Minorca*:

It was the custom of these practitioners, to give the bark with purging salts, &c.

adhere, and a sufficient degree of absorption take place, to render it beneficial. The efficacy of the bark jacket * has been long known, and I can therefore see no objection to this practice, but the great consumption of bark it might occasion. To this it may be answered, that it is only recommended, where it cannot be more effectually employed in smaller quantities; for life is more estimable than a few pounds of bark.

EXPERIENCE has lately determined, that the efficacy of the bark in a great measure depends upon the time of giving it: it was originally given during the paroxysm, but it was soon found to be much safer and better in the intermission: still it is enquired, at what time of the apyrexia ought it to be given? The idea of its efficacy depending on its antiseptic † properties, &c. has induced most practitioners to throw it in as early as possible after the intermission commences: but, considering fever according to the CULLENIAN theory, as arising from debility, and that the bark operates as a tonic ‡, the proper time of giving it is consequently at that period when the atonia begins to take place, viz. just before the paroxysm. Fact has demonstrated this beyond a doubt ||; and it is a maxim of great

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* MORTON.

† SIR JOHN PRINGLE.

‡ CULLEN'S. Mat. Med.

|| DOCTOR HOME produces some experiments to the contrary of this; but it is probable that they were not instituted with sufficient care:—However that might be, two or three exceptions cannot invalidate a general fact.——See *Clinical Observat. and L. per.*

importance to be attended to in the administration of this useful medicine.---The patient, however, is not always able to take the bark in considerable doses; and it is therefore requisite, in order that a due quantity of it may be taken, to anticipate the return of the atonia:--In the quotidian*, it is necessary to give it almost as soon as the intermission comes on; but in the tertian, &c, there can be no occasion to nauseate and harass the patient by hourly doses of a disagreeable medicine during the whole interval, especially when we consider, that, by previously loading the stomach, we are prevented from giving it in full doses, at the time when it is capable of producing the greatest effect.

THE virtues of the bark, like those of every other medicine, are transitory; and, to perpetuate its good effects, it is necessary to continue its use, or repeat it from time to time: when this is neglected, fevers that were stopped are liable to return†, and, from the debility already occasioned by previous sickness, they often put on a bad appearance, and become more unmanageable.

I HAVE only one more circumstance to add, viz. that as bitters of every kind have, in some degree, the same powers
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* CULLEN's Materia Medica.

† It has been long a received opinion, that the moon has a great influence upon the plants and animals of our earth; and a very ingenious writer has endeavoured to confirm this opinion by a variety of observations:—He says, that at the full of the moon, fevers are more disposed to return, and that the bark should be repeated in particular at that time.

Vide WILSON on the influence of climate.

as the bark, they may be sometimes vicarious to it:---In a scarcity of bark, I found, that an infusion of camomile flowers, made in a slight decoction of the bark, answered almost as well as the bark itself. MEAD's powder † has also, on some occasions, proved more beneficial than other bitters, or than even the bark.

REMITTENT FEVER.

THIS fever, in its mode of attack, and in most circumstances, greatly resembles the intermittent; but having only an abatement of its symptoms, or no perfect apyrexia ||, it partakes more of a continued nature, and therefore has in it more danger.---The symptoms are likewise in this fever more violent; at least the patient becomes, in the progress of the disease, sooner exhausted, and the fluids tend more quickly to putrefaction. A universal yellowness sometimes comes on, constituting what is then called the yellow fever; concerning which I have before had occasion to make some remarks: and as we had few, if any, examples of that particular species of remittent, I shall not now repeat what was before mentioned. A yellow suffusion did indeed attend many of our fevers, both remittent and intermittent, but this was evidently icteritious, and not proceeding from a dissolution of the fluids: A degree of putrefaction also came on in the latter stage of the fevers, but seldom with those hæmorrhages, and other direful symptoms which accompany the remittent called the yellow fever.

AMIDST

† This consists of camomile flowers and alum.

|| Intermission.

AMIDST such a multitude of sick as we had at the castle of San Juan, in the number of which were almost all the Faculty themselves, it was impossible to be very minute in observations on particular cases. To shew an equal humanity towards all, a partial neglect towards individuals was indispensable †; and therefore, an infinity of circumstances in the practice of physic might have escaped my attention: as for example, I was never able to determine any thing precisely concerning the critical days; the existence of which in these fevers has been so often asserted and denied.

TREATMENT.] The intermittent and remittent, being so nearly allied as to their symptoms, cannot differ much in their cure: but as in the remittent there is greater danger, there is also required more vigilance and circumspection. This is particularly necessary with regard to bleeding and the use of vomits. Venæsection may be hazardous in intermittents, but is in general much more so here, from the quicker progress of the fluids towards putrefaction.---Problematical, however, as it may seem, there are certain cases which require bleeding on this very account. In plethoric patients, and where the symptoms run very high, the early and discreet use of the lancet will promise more advantage in mitigating the violent reaction or ardency of fever, than it can possibly do hurt by debilitating the patient: the putrefaction,

† Mais il arrive souvent que le nombre des malades est si grand dans une armée, & qu'ils sont dispersés en tant d'endroits différens qu'il est impossible que les médecins se portent partout & puissent donner leurs soins à chacun d'eux.

refraction, instead of being accelerated, is by this means retarded. It is only in this way that we can account for the successful effects of bleeding, even in the yellow fever *.

GREAT caution is also necessary in the exhibition of vomits; for it sometimes happens, that the stomach is so much weakened by spontaneous efforts, and becomes so irritable, that the use of them is highly dangerous.---Infusions of camomile flowers and opiates are found the best means of allaying these efforts, and to prepare the stomach for receiving gentle *laxatives*: These are to be given as soon as possible, to carry off the bilious colluvies in the first passages; but those of the most agreeable kind are to be chosen, as it is necessary to give them in repeated doses. An obstinate spasm on some part of the bowels, seems to be sometimes induced by their acrimonious contents, which lenient medicines are insufficient to remove; but, on the other hand, drastic ones would be highly improper.---In these cases, I have found a few grains of calomel combined with opium the most efficacious means of procuring the needful evacuations: Great attention is required to regulate these as soon as they come on, encouraging or restraining the stools according to circumstances and the strength of the patient: Cordials are frequently necessary, to support the *vis vitæ* while this operation is going on, and to hinder it from proceeding too far, which may produce a fatal debility. The bark likewise is to be given as early as possible, or as soon

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* *Vide* HILARY'S Diseases of Barbadoes.

as the stomach, being cleared of its irritating contents, is rendered capable of bearing it, either in substance, or in any other form.---The danger that sometimes results from delay, has been before mentioned with respect to intermittents, but here it is still greater; and if we are determined to proceed in the slow methodical way, of always vomiting, purging, &c. and then waiting for obvious remissions, the death of the patient will frequently disappoint our expectations*.---The serpentary has been found in general a very useful addition to the bark, and an excellent succedaneum where the bark could not be internally made use of. HILARY, in the putrid yellow fever, found it impossible to give the bark † in any form; and therefore, of necessity, depended on the serpentary, which he says proved no less successful.

AMONGST the other cordials necessary to support the strength of the patient, wine is the most important, and chiefly deserves our consideration‡; but the administration of

* In locis adustioribus, autumnale tempore paroxysmis sane paucis, quamplurimum periclitantur, febricitantes; hic igitur ubi primum potest, quamvis obscuriores sint remissiones, cortex adhibendus est Peruvianus.—*Brandesb.* See also CLARKE'S *Disf. long Voyages*.—PERCIVAL'S *Essays*.—*Medic. Transact.*—HUCK in PRINGLE.—CULLEN'S *First Lines*.

† PERCIVAL supposes, that this disagreement of the bark was owing to the factor which arises from an admixture of it with the bile; and as acids have the effect of neutralizing the bile, he thinks, that by a combination of these with the bark, it will be rendered less disagreeable to the stomach.

‡ In febribus malignis, vino nihil datur excellentius; in iis morbis restaurare vires; spiritus erigere; circulum sanguinis liberum reddere transpira-

of it is attended with some difficulties. The nature of the delirium must be carefully distinguished; and the dose relative to the symptoms and constitution of the patient, must also, by careful observation, be found out before we proceed in the free use of this best of all cordials. For want of such a judicious discrimination, much hurt may be sometimes done by a medicine otherwise calculated to produce the most happy effects. The pulse affords the truest indication for the continuance of it: if from being feeble and quick, it becomes fuller and slower, especially if the patient, being delirious, becomes more coherent or disposed to easy sleep, there is the fullest proof of its benign influence; but when it is given improperly, the patient, if not delirious before, frequently becomes so, or still more disturbed; and his pulse is at the same time not only more full, but much accelerated.

HAVING already too much exceeded the bounds of this subject, I have only to observe further, that respecting the choice of wines to be given in fevers, claret is the one most generally useful, having the greatest cordial effects, with the least stimulus; but when the *vis vitæ* is much depressed, and a greater stimulus required, Madeira wine will be preferable, as it contains a greater portion of ardent spirit †.

DYSENTERY.

tionem movere; expedit. et in eo versatur omnis alexipharmacorum virtus.—
Hoffm. Op. tit. v. p. 353.—Vide GILCHRIST, HUXHAM, &c.

† *Vide* NEWMAN on Wines.

DYSENTERY.

THIS disease, in certain seasons of the year, and in certain situations in the West-Indies, is commonly endemic, and, from its contagious nature, often becomes epidemical, especially in towns, camps, and hospitals, where it proves of all others the most dreadful distemper.---The stools of the diseased, which are always extremely fætid, seem to be, as has been before observed, the principal fomes and means of infection †; and by this, as well as several other circumstances, the dysentery is easily distinguished from diarrhæa.----Of the dysentery also there are several species, which in practice it is requisite to attend to: but it is the epidemic contagious dysentery that is here the subject of consideration. This is the general companion or follower of intermittent fevers, attacking people during the same season of the year, and sometimes alternating with them: Thence the opinion, that the two diseases spring from one common parent, which has been generally supposed a putrescent bile ||.----That bile is not the cause of fevers, has been already demonstrated*; but still it is not impossible, that a certain state of bile, produced by fever,

† Cette maladie infecte bientôt toute une armée: les exhalaisons pûtrides des matieres fécales infectent surtout les soldats sains lorsqu'ils se servent des mêmes latrines.-----V. SWIETEN.

|| It is reasonable to believe, that the dysentery is owing to a cause little different from that which produces bilious fevers: The ancients attributed both to an abounding and corrupted bile.-----PRINGLE *Dis. Army.*---ZIMMERMAN, p. 23.

* See page 37, &c.

ver, may have a considerable influence in bringing on this complaint. However certain that may be, it is evident that a specific contagion is afterwards generated; and is it not therefore more probable, that fever has only the effect of subjecting the patient to the influence of a new infection? It is perhaps impossible to determine this question, but there is an obvious, though inexplicable union between the two diseases.

To avoid as much as possible a beaten tract, and to keep this publication within its intended limits, I must omit the historical detail of this, as I have done of the disorders before treated of, and proceed to a few remarks on the method of cure, which will comprehend every thing essential that my experience qualifies me to take notice of.

THE treatment of the dysentery was formerly but very ill understood; and, notwithstanding a better method of cure has been of late discovered, the disease may still, in some degree, be considered as the *opprobrium medicorum*: at least, the efforts of physicians to prevent the spreading of this infection, particularly in camps and hospitals, have in a great measure been unavailing. The several means by which the progress of this disease is most effectually restrained, have been amply treated of by all the writers on camp diseases, and need not here be described, further than by observing, that they chiefly tend to the preservation of a pure air, by keeping the patients, and the apartments in

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which they lie, as clean as possible, and by expeditiously removing the infectious fæces to a proper distance.

ALL practitioners seem agreed, that vomits are the medicines first indicated in this disease: The nausea and spontaneous discharge of bilious matters from the stomach, and the febrile state of the body in the commencement of this disease, clearly point out the propriety of emetics; but I here consider them as operating in full doses, and not in small quantities, as will be presently described.

WITH respect to bleeding, it has been formerly esteemed a sort of maxim, that “*Dysenteria quâ dysenteria, venæsectionem indicat nunquam;*” but, like all other general rules, this will admit of exception, even in the contagious dysentery of hot climates, which is not unfrequently in the beginning attended with some inflammatory symptoms †.--- The pulse, heat, &c. and not the tormina or gripings, afford the truest indication for the use of this remedy; for the pain of the bowels seems generally to depend more on spasm, and an increased peristaltic motion, than on any considerable degree of inflammation.

To remove this spasm, which is the principal cause and support of the disease, no means have yet been found so universally beneficial as the use of *laxatives*. UNDER

† PRINGLE, p. 236. — CLEGHORN *Dis. Minorca*. — MONRO'S *Dis. Army*, p. 6. — LIND'S *Dis. hot Clim.* p. 249. — ZIMMERMANN, p. 179.

UNDER this head, perhaps, small doses of emetics are to be considered, though it is probable they have here, as in fever, a double action, affecting both the bowels and the skin *.—Ipecacuanha in particular has been celebrated for its antidyenteric virtues, and is unquestionably one of the best medicines; but, considered as a purgative, it is too limited in its operation, and should not be given till others of a more active though mild nature have been employed; such as, the purging salts, tamarinds, and cr. tartar, &c. Upon the repeated use of such gentle purges during the first stage of the disease, principally depends our future success †; but regard must always be had to the strength of the patient, and his capacity for bearing evacuations.

To enter into a full detail of the various other modes of practice, and medicines made use of in the cure of dysentery, would be a subject for a much larger work than the present one; and therefore, omitting the consideration of diluents, demulcents, astringents, bark, clysters, &c. all of them in their proper place remedies of great efficacy and importance, I shall conclude the cure of dysentery by a remark or two on the *diaphoretic* practice, and the use of opiates.

SOME

* See PRINGLE.

† Purgantia fere sola medicamenta sunt quæ hodie ad dysenteriam depellendam necessaria existimantur.——WARDROP *de Dys. Malig.*

Vide also ZIMMERMANN, PRINGLE, MONRO, &c. &c. who trusted the cure of dysentery chiefly to the use of evacuates.

SOME authors have denied the existence of fever in dysentery; but it would seem that they have never met with the epidemic kind: for the contrary has been almost universally observed, and SYDENHAM considered it as a fever turned inwards upon the bowels. It is from hence, I presume, and from the effects of cold air, in constringing the surface, and determining to the bowels, that the diaphoretic indication has been drawn. Experience has sufficiently demonstrated the good effects of this practice in cold climates, where the circumstances indicating it prevail in a greater degree; but in the West-Indies, I apprehend it is necessary to put some restrictions upon it.---There is no means of preserving a pure air about the patient, but by a free exposition to the breeze, which will always have the effect of counteracting the operation of sweating medicines, or endanger the bringing on of a greater degree of spasm. Forcible remedies of this sort should therefore be avoided; but, as a gentle moisture, kept up constantly upon the skin, serves greatly to diminish the impetus upon the bowels, and alleviate the tormina, the use of a flannel shirt may be of great utility, as this defends the patient from the action of the air, which is of necessity admitted for carrying off the contagious effluvia.---Many other remarks might be made on this subject, but I proceed to opiates *.

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* To the diaphoretic method of cure may perhaps be referred the practice principally followed at *St. Lucia*, which consisted in giving antimonials with opium,---*Vide ROLLO's dis. of army at St. Lucia.*

It was formerly thought, the violent pains and incessant motions, could only be mitigated by the use of opium; but experience teaches, that whatever temporary relief opiates may afford, they ultimately do harm, by increasing the very symptoms they are intended to remove †. More benefit is derived in the beginning of this disease from laxatives, diluents, and fomentations; but, notwithstanding the general complaint of the inefficacy and hurtful qualities of opium, there is no practitioner that can do without it:--it is sometimes absolutely necessary as a palliative, till other medicines arrive at their effects; and in the latter stage, after the full use of evacuations, it will prove the best means of allaying irritability ‡.

HAVING now, in as concise a manner as I have been able, pointed out some of the most essential circumstances inducing and relating to the diseases of the troops at SAN JUAN, I have only to implore the candour of my readers, to judge as favourably as they can of so imperfect a publication.

† Almost all authors are agreed, in thinking opium hurtful in the beginning of this disease.—See ZIMMERMAN, PRINGLE, MONRO, TRALLER, DEGNER; MOSELEY's *Treatise on the Dysentery of the West Indies*.

‡ WARDROP.

Lieut. Genl. Ryne

It was formerly thought, the violent action and
moderate, could only be regulated by the use of
excessive doses, that whatever temporary relief
was obtained, they ultimately do harm, by increasing the
symptoms they are intended to remove. More recently
derived in the beginning of this disease from laxatives,
laxatives and emetics, but notwithstanding the
complaints of the insensibility and partial paralysis
now, there is no practitioner that can be without it.
Sometimes absolutely necessary as a palliative, till other
diseases arise at their close, and in the latter stage, after
the full use of evacuation, it will prove the best means of
relieving irritability.

Having now, in as concise a manner as I have been
able, pointed out some of the most essential circumstances
inducing and relating to the disease of the troops at
Jamaica, I have only to implore the candour of my readers
to judge as favourably as they can of its importance, and
caution.

† Almost all authors are agreed, in thinking opium to be the
best of all drugs, — for the treatment of the disease.
Duguid & Macleod's Treatise on the Diseases of the West Indies.

† Wardlaw.