

Observations on the diseases which prevailed on board a part of His Majesty's Squadron on the Leeward Island Station between Nov. 1794 and April 1796 / by Leonard Gillespie.

Contributors

Gillespie, Leonard.
Royal College of Physicians of Edinburgh

Publication/Creation

London : printed by G. Auld for J. Cuthell, 1800.

Persistent URL

<https://wellcomecollection.org/works/cs25ukvh>

Provider

Royal College of Physicians Edinburgh

License and attribution

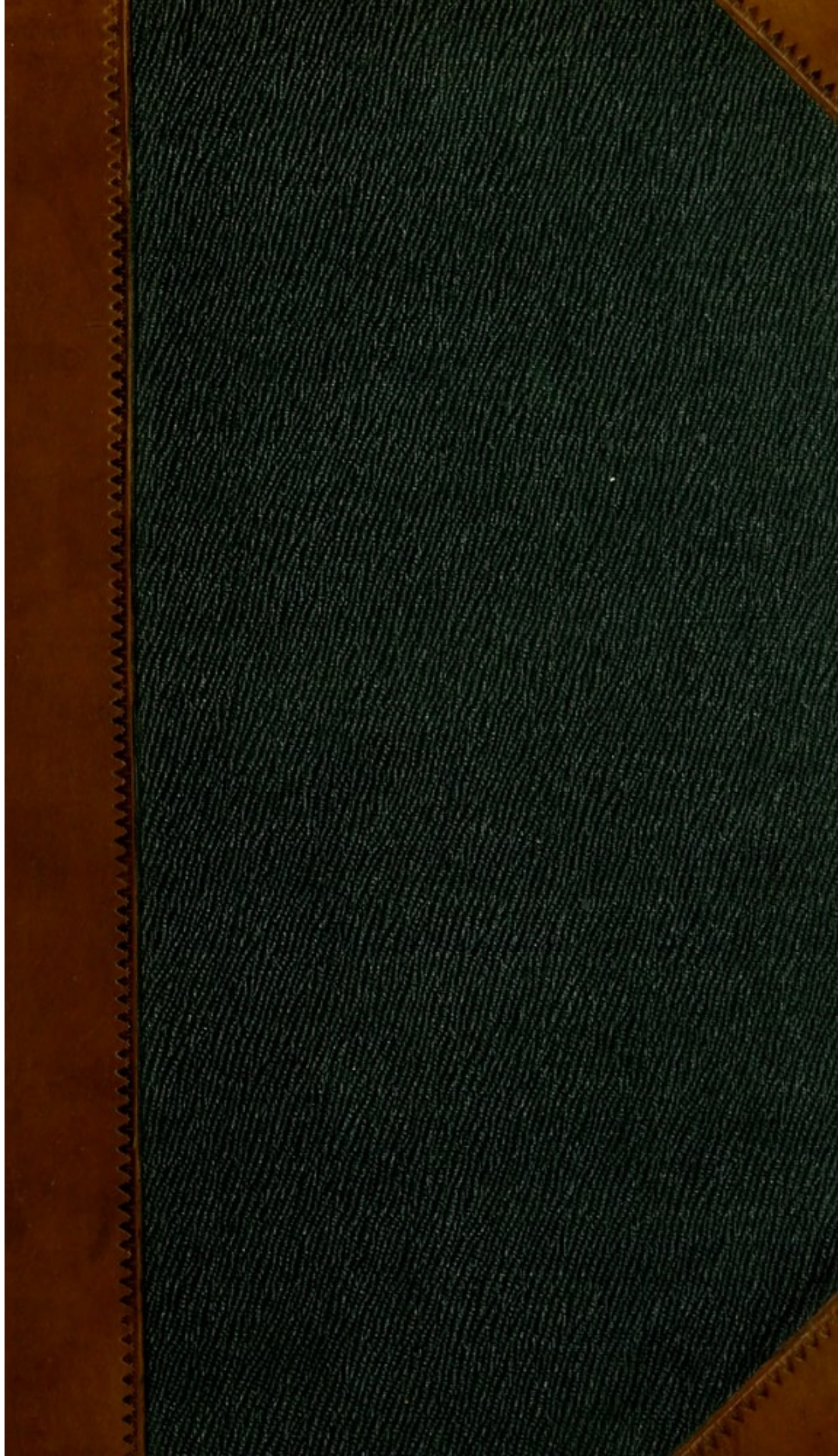
This material has been provided by This material has been provided by the Royal College of Physicians of Edinburgh. The original may be consulted at the Royal College of Physicians of Edinburgh. where the originals may be consulted.

This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.



Wellcome Collection
183 Euston Road
London NW1 2BE UK
T +44 (0)20 7611 8722
E library@wellcomecollection.org
<https://wellcomecollection.org>

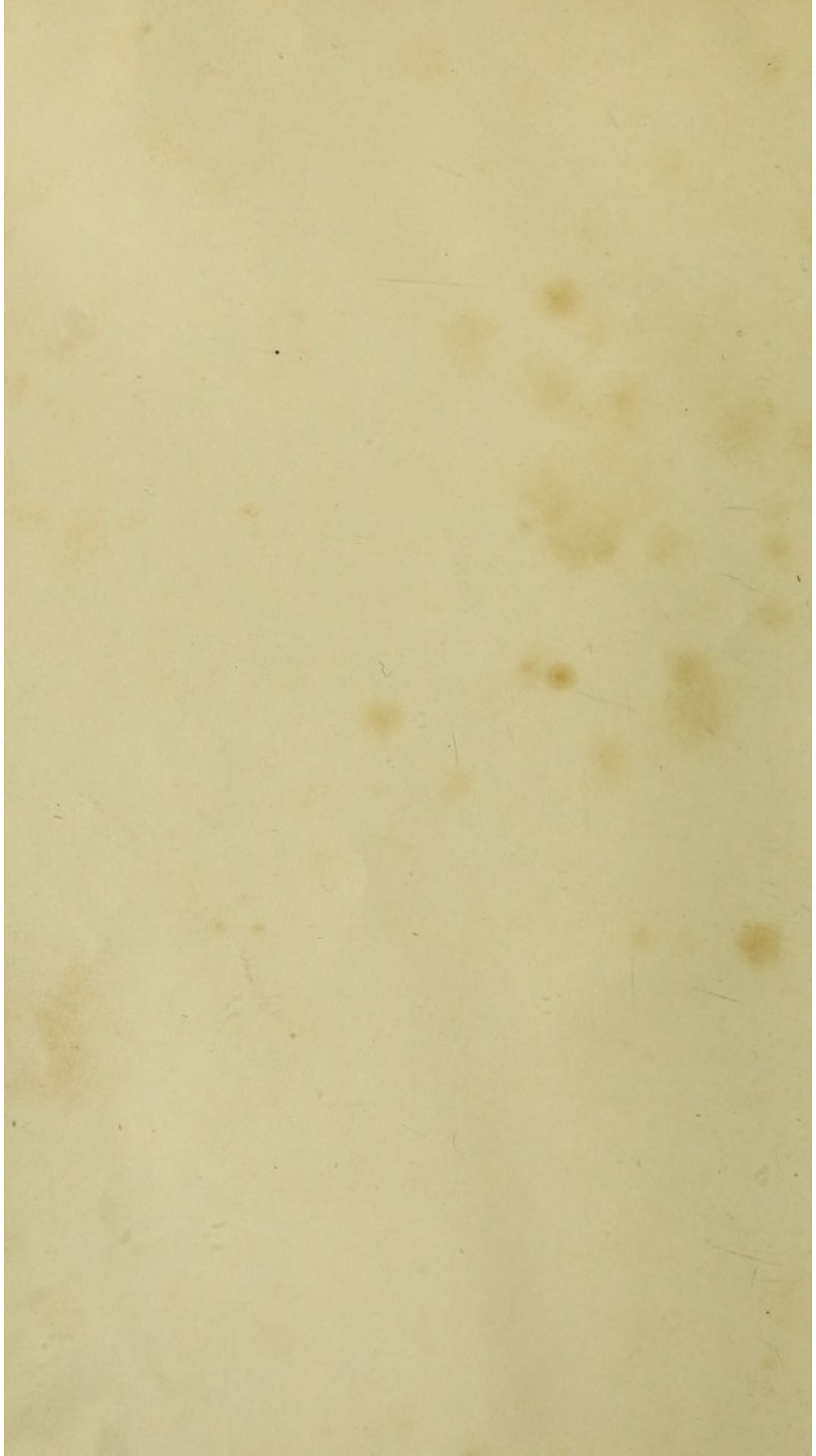


T. 5. 2.

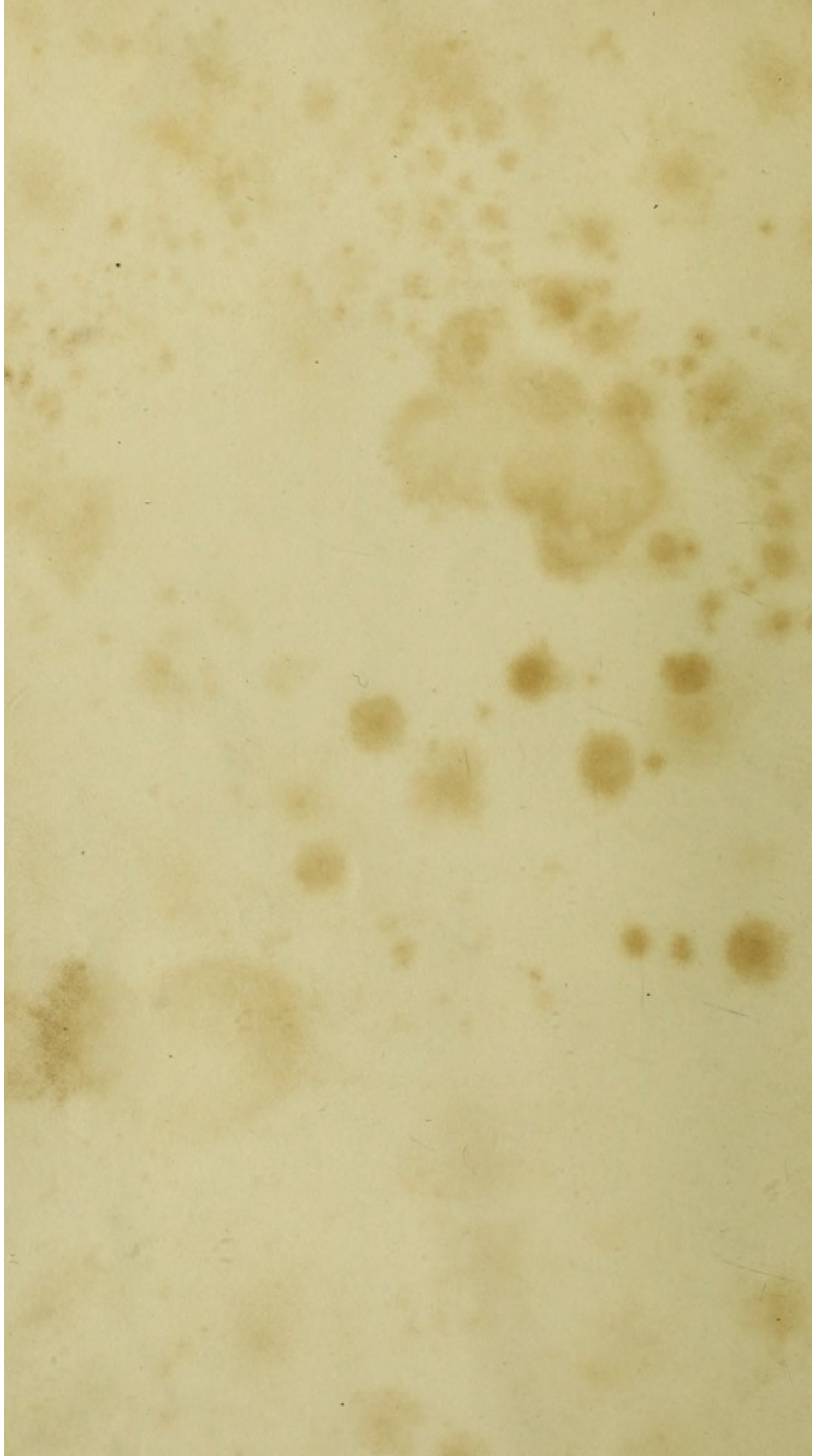


Digitized by the Internet Archive
in 2016

<https://archive.org/details/b21947193>







Cd. Frazer to L. Rees

OBSERVATIONS

ON THE

DISEASES

WHICH PREVAILED ON BOARD A PART OF

His Majesty's Squadron,

ON THE

LEEWARD ISLAND STATION,

Between Nov. 1794 and April 1796.



By LEONARD GILLESPIE, M.D.

SURGEON AND AGENT TO THE NAVAL HOSPITAL
AT FORT-ROYAL, MARTINIQUE.

LONDON:

Printed by G. Auld, Greville Street,

FOR J. CUTHELL, MIDDLE-ROW, HOLBORN.

1800.

DECEMBER

DEDICATION.

TO

THE RIGHT HONOURABLE
RICHARD EARL HOWE,

ADMIRAL OF THE FLEET, GENERAL OF MARINES,
&c. &c.

MY LORD,

AFTER a Naval Career of sixty years, which for extension of command, glorious events, and duration, is scarcely equalled in Ancient or Modern History; after having merited the grateful Thanks of your Country for your Conduct each day you commanded her Fleets, it may perhaps, at this advanced period, afford you some satisfaction to receive the Tribute of Gratitude due to you by Medical Men, who served under your

command during the last and present wars, in behalf of themselves and of British Seamen, for the humane Attention you have ever bestowed on the preservation and comfort of those brave and useful men.

Such are the motives which have induced me to dedicate to you a Work connected with that subject; to you, my Lord, the Friend of your Sovereign, the great and humane Commander, the virtuous Senator and Statesman, and the Father of British Seamen.

THE AUTHOR.

PREFACE.

A Publication on the Diseases of the West Indies, in addition to the many Essays on that subject which have lately been printed, may, to many, seem superfluous: such an undertaking certainly (at this time) demands a statement of the Reasons which have induced the Author to the measure: they are briefly as follows:—Having served a greater part of the last and present war in Naval Hospitals in the West Indies, he is often questioned by junior surgeons in his Majesty's ships on their first arrival on the station, relative to the treatment of the Diseases of the country, and the different Modes of Practice in Fevers, Dysentery, &c. To such young Practitioners, he imagines, the following pages may be useful; but the principal object of the Author in this Work, is to warn all Practitioners in hot

climates against the draftic and violent medicines and treatment, fo strongly recommended of late by men of fome eminence in the profeffion. In doing this, he wifhes not to doubt the motives or the veracity of thofe Gentlemen who have written on the Yellow Fever; his duty, however, obliges him to caution his Brethren againft fuch violent Practice, and to endeavour to fhew that neither Reason nor Experience are in favour of it.

CONTENTS

OF THE

VOLUME.

Part the First.

<i>Dedication</i>	page v
<i>Preface</i>	vii
<i>Introduction</i>	i

CHAP. I.

<i>A Topographical Account of Fort Royal, Martinique, and the Environs, including the Naval Hospital</i>	22
--	----

CHAP. II.

<i>Of the Diseases which occurred between August 1795 and April 1796, including an Account</i>	
--	--

<i>of a Malignant Epidemic Fever which affected the Crew of his Majesty's Ship Majestic</i>	page 31
SECT. I. <i>Constitution of the Air</i>	ib.
II. <i>History of the Disease</i>	37
III. <i>On the Prognosis</i>	55
IV. <i>On the Nature and Causes of the Epi- demic Fever of 1795</i>	59
V. <i>Of the Appearances on Dissection</i>	69
VI. <i>Method of Cure</i>	71

CHAP. III.

<i>Of the Diseases (exclusive of Ardent Fever) which occurred between August 1795 and April 1796, in the Naval Hospital, Martinico</i>	89
--	----

Appendix to Part I.

<i>State of Health on board his Majesty's Ship Ma- jestic</i>	106
---	-----

Part the Second.

CHAP. I.

*Of the Constitution of the Air, as observed in the
Naval Hospital, Martinique, between March
1796 and January 1797* - page 110

CHAP. II.

*The most common Diseases occurring in April.
The Small Pox communicated to some of the
Crew of a Frigate, and the Infection prevented
from spreading. Arrival of Admiral Christian's
Squadron, and an Account of the Fever which
reigned on board some of the Ships. State of
Health on board some of the Ships of the ancient
Squadron. Dysentery. Ardent Fever. Pleurisy
and Hepatitis. Scurvy. Diseases, occasioned
by the Reduction of St. Lucia, amongst the
Seamen* - - - 115

CHAP. III.

*Causes of the Re-appearance of the Ardent Fever
as an Epidemic in the Squadron. Progress of*

the Disease as spontaneously generated, or spread by Infection. Cases. Bad Effects of Calomel and other Purgatives. Success of the Practice of Blood-letting in the Disease. General Strictures on Venesection in Ardent Fever p. 129

CHAP. IV.

Removal of the Sick to the Hospital of Fort-Royal. Description of it. Further Account of the Epidemic, Yellow, or Ardent Fever. The most successful Method of Cure. Cases 137

CHAP. V.

State of Health on board of Ships stationed at the different Islands, and of the Prisoners of War in the Autumnal Months. Ardent Fever changes to Double and Single Tertian Fever in November. Description of those Fevers. Dysentery. Good Effects of Saline Lemonade in that Disease. Ulcers. Case. Bad Consequences from sending Invalids to England in the Winter. Case of Tetanus 160

Part the Third.

CHAP. I.

*Of the Constitution of the Air, and the Diseases
which occurred between Jan. 1797 and Jan.*

1798 - - - page 175

CHAP. II.

*State of the Diseases in the Hospital during the
first Months of 1798. Intermittent Fevers.
Superiority of the Yellow Peruvian Bark in
the Cure of them. Emetics and Purgatives
rarely administered with Safety. The Seeds of
the Argimone, or Thistle, used in obstinate Cases.
Aromatics often necessary. Good Effects from
the Application of Tourniquets. Ardent Fever.
The Effects of Spruce-Beer and Essence of
Spruce in that Disease. Case. Dysentery, or
Hepatic Flux. Most successful Method of Cure.
Case. Arrival of the Squadron from the Island
of Trinidad. Hepatic Flux and Hepatitis.
Devastations of Disease amongst the Seamen of*

*the Spanish Squadron at Trinidad, and the
Remains of them transported to Martinique* p. 180

CHAP. III.

*Ulcers. Effects of various Simples used as
Dressings. Medicinal Treatment. Cases of
Tetanus. Of Compound Fractures. Of the
Effects of a Venomous Puncture. Some other
Chirurgical Cases.* - - 193

CHAP. IV.

*State of the Crews of two Frigates on their
Arrival at Fort Royal from the Coast of
Africa. Cases of Attack by Ardent and Re-
mittent Fever. Healthy State of the Crews of
Ships cruising off the Islands of the Saints.
Fatality of Fevers in Martinique, Dominique,
St. Lucia, &c. Prevalence of Fevers in the
End of the Year, with fatal Symptoms. Of
Catarrhal and Rheumatic Complaints. Various
Cases described* - - - 211

Appendix to Part III.

<i>Observations on the Putrid Ulcer. Communicated in a Letter to Samuel Foart Simmons, M. D. F. R. S. by Mr. Leonard Gillespie, Surgeon of the Navy, and late Assistant Surgeon to his Majesty's Naval Hospital at St. Lucia</i>	- - -	page 222
--	-------	----------

Appendix to Part III.

Operations on the Perineal Urethra. Continued.
 as a Letter to Samuel Jones Esq.
 M.D. F.R.S. by Mr. James Gillies,
 Surgeon of the Navy, and late Assistant
 Surgeon to his Majesty's Naval Hospital at
 St. James.

INTRODUCTION.

AS the following work will be found to contain an account of a Malignant Epidemic Fever which reigned on board the *Majestic*, a ship of seventy-four guns, in 1795, it may not be thought improper to give some account of the state of health of that ship's crew, and of the Squadron on the station, for some time previous to the commencement of the Epidemic; together with a few remarks on the passage to the islands, and the precautions to be used by persons on their first voyage, and previous to having undergone what is called *the Seasoning*.

The *Majestic*, *Theseus*, and *Bellona*, sailed from Plymouth, October 13th, 1794, having their crews in perfect health, notwithstanding the terror with which both men and officers had been impressed by the accounts of epidemic sickness in the West Indies, whither they were destined. These ships arrived at Barbadoes, November 11th; and it was found that there was not a man on board of them whose state required that he should be sent to sick quarters. The *Theseus* had lost one man, who, whilst over-heated, had fallen asleep in the strong draught of air of a gun-port, and awoke affected with spasms, which carried him off in the course of a few hours.—Persons unacquainted with hot climates, often endanger their health by the imprudence just mentioned, of exposure to a current of air, after having been over-heated: the

cause not unfrequently of fevers and spasmodic diseases.

On board the *Majestic*, scarcely any serious complaint occurred during the passage; the crew of that ship had suffered in June, July, and August, proceeding from an infectious ship fever, attended with petechiæ, and of which two officers and eight or ten men died in Hasler Hospital, some of whom were affected with yellowness, the livor of the skin black, vomiting, and hæmorrhages from different parts of the body, having considerable resemblance to the epidemic fever * which reigned at the same period in the West Indies. In this fever, however, which affected the French prisoners of war in the captured ships, after the 1st of June 1794, and some of the British captors, the disease was not so acute as in the West Indian epidemic; seldom being attended with a critical or fatal termination before the tenth or fourteenth day. None of the *Majestic's* crew had been affected with that fever since the month of August.

Scurvy, so common formerly in voyages of ships of war, by having a crew of unseasoned men, we happily were exempted from. This was, doubtless, owing to our taking on board a considerable quantity of lime-juice, which with sugar was daily mixed in the spirits and water served to the seamen, and who had another moiety of their drink in wine. This allowance of lime-juice to his Majesty's ships is one of the very humane and useful regulations which the naval service owes to a commission of enlightened professional men for the superintendence of the department of health. It were much to be desired that other precautions could be practised on board ships of war and transports bound to hot climates. Every man, unseasoned

* See the report of the author in Dr. Trotter's *Medicina utica*, inserted in the Appendix.

to such climates, should be looked on as liable to encounter a serious and perhaps dangerous disease in the course of the first year; yet if he has the courage to preserve his mind from unmanly terror, and the still more difficult task of observing not only temperance, but a degree of abstinence, he may escape any severe complaint, as happens in young persons who have not commenced the use of strong liquors. They often become habituated to the climate without any risk; and it has been often observed, that persons who had been seasoned to hot climates in their youth, are in much less danger of sickness on revisiting them, even after the lapse of many years. The abuse of spirituous liquors, and the too plentiful use of animal food, are amongst the first causes of creating dangerous fevers among strangers on their arrival in the West Indies. During the passage from Europe, it would be highly adviseable to retrench the usual quantity of animal food made use of, and to drink little or no spirits.

The neglect of this precaution amongst our seamen and soldiers, on the outward passage, renders them liable to the complaint called *Esiere*, a prickly heat; or *la petite gale* of the French. This is an eruptive disease, so little regarded by many, that they pay no attention to it whatever; yet experience shews that it is accompanied with a febrile state of the body, that the repulsion of it is often attended with serious effects, and that persons much afflicted with it are generally seized with violent fevers in the sickly months. The avoiding of salted, spicy, and spirituous things in diet, and keeping the belly open by drinks of tamarinds, or cream of tartar, is generally sufficient to cure this complaint.

The cold bath is too much neglected by most Europeans voyaging to hot climates: the prickly heat, it is true, justly forbids the use of it, as being dangerous when that eruption appears, and which seems to be

invited to the surface by the neglect of the bath. The perspiration becomes so profuse on our arrival between the tropics, that Europeans, in a short space of time, become more relaxed than the natives of tropical countries; hence the organ of perspiration becomes much weakened, and easily deranged in its functions. To obviate this, the occasional use of the temperate and cold bath is highly adviseable; to which luxury, however, the intemperate and very plethoric cannot have recourse with safety.

The wearing of flannel next the skin, as tending to prevent the derangement of perspiration, above mentioned, and as acting by friction on the skin, by which that surface seems to be excited and strengthened, is highly adviseable:—we had in the *Majestic* sufficient proofs of the utility of the practice. The person who wears it should continue the use of it until after the expiration of the sickly months; and when he abandons it, should not do so absolutely, but return to the use of it whenever he feels the least feverish indisposition*.

A cause of sickness, the most powerful in our squadrons destined to southern climates, is the too great number of men which they carry out with them. The established complement of a ship of war may, it is true, often continue healthy between the tropics; but when

* The following anecdote is related, in order to shew the confidence which has been placed in this precaution of dress. An officer from our little squadron going on board the *Boyne* of 98 guns, soon after our arrival on the station, was agreeably surprised to find in health an old acquaintance, who had escaped the fatal epidemic which had reigned on board the *Boyne* in the autumnal months of 1794, and which is said to have carried off nearly two hundred men. The new-comer, after the usual salutations, asked his friend by what means he had preserved himself in such perfect health? The latter, assuring him that he had no reason to be alarmed if he followed his plan, opened his shirt-breast, and shewed his flannel waistcoat, the instrument, according to his account, of his preservation from the yellow fever.

the hold and lower part of the ship become foul, so as to impregnate the air of the vessel with mephitic vapours, when by the continuance of the ship in port those pernicious steams are not dissipated by the motion of the ship, and by the current of fresh air forced below by the sails, and particularly when calm and southerly weather concurs with the other causes before mentioned, in vitiating the internal air of the ship, it is almost impossible that a full manned vessel, according to the naval establishment, should remain healthy. Experience sufficiently demonstrates the certainty of this assertion, and also proves, that a ship of war in southern climates may be very well navigated and fought by three-fourths of the war-complement of men: and, with all due deference to the administration of the navy, I would beg leave to recommend a reduction of the complement of ships of war destined to the West Indies, in the ratio of one-third or one-fourth.

There are some improvements with regard to the diet of our seamen going to tropical climates, which might be adopted at a trifling expence, and are indeed obvious, the most of them, to every person conversant with the subject. I shall mention the principal alterations I would recommend, in a cursory manner: — Government pays a considerable sum for oatmeal, supplied in navy victualling in the West Indies; nineteen out of twenty casks of which are never used by the seamen, who seem to make it a point of honour to abandon it to the hogs. This would not be the case with barley or rice, if supplied in room of oatmeal; and these articles would form a useful ingredient in soups, &c. Fresh bread might be baked daily for the use of the sick and convalescents; and if a small addition to the pay of a man, capable of acting as a baker to a ship of war, were allowed, it would have a good effect.

Sour kroust is no longer served in the navy, as the seamen made use of it with reluctance; yet there is very little doubt, that if cabbage were pickled in vinegar, instead of being made into kroust, the seamen would with avidity use the vegetables and the vinegar in which it had been preserved.

In the French navy sorrel is furnished in considerable quantity: it is beat up into a pulp of the consistence of an electuary, a little salt added, and put up in kegs, containing about twenty pounds:—thus prepared, this antiscorbutic vegetable retains its virtues for twelve months, and perhaps for a much longer time, and forms an excellent ingredient in soups for the convalescents and scorbutics. Notwithstanding the difference of taste between the palate of a French and English seaman, the privation of vegetable food, and the strong relish which scorbutics have for vegetable accessents, would perhaps render sorrel, thus prepared, a useful and agreeable article of diet for convalescents.

Beef, mutton, or poultry, prepared in the form of dry sausages, and supplied in a small quantity for the use of the convalescents, would be useful, and might be employed to relish soups.

The bad effects arising from the use of spirits, have been already mentioned: they have been well observed by my friend Dr. Blane, by whose recommendation, whilst physician to the fleet in the West Indies last war, Teneriffe wine was supplied in the navy, and has been continued ever since. If the whole of the allowance of drink were in wine, instead of one-half of that liquor and the other half in spirits, as is the case at present, it would be a further improvement; but when necessity obliges to serve the whole of the ratio in spirits, they should be mixed with at least six or seven measures of water, and, if possible, with

lime-juice, or cream of tartar and sugar, so as to form an agreeable punch. — The abstinence from suppers, the avoiding of late hours, exposure to the night-air, and, as much as possible, to the meridian sun, the shunning of going on shore, if not totally, at least in the heat of the day, and of remaining on shore at night, and firmly endeavouring to preserve tranquillity of mind, are amongst the most essential rules to be observed by unseasoned persons from Europe, on their first arrival in the West Indies.

But to return to the proposed narrative of the state of health of the crew of the *Majestic*. Four days after that ship sailed from Barbadoes, November 16, a man was attacked with the malignant fever, which proved fatal by bloody and black stools and vomiting on the 19th. This case seems worth mentioning, because it may serve to prove that impure air, in addition to other exciting causes, is powerful in occasioning this fever. The person mentioned had been on shore at Barbadoes, had been in the habit of intoxication for some days, and resided on board in the wing of the cable-tier, a dark unaired place, immediately abreast of the pump-well, and consequently exposed to the mephitic vapours of bilge-water. In this case, as not unfrequently happens, the patient dressed himself, and walked upon deck to take the air, twelve hours before his death, thinking himself on recovery, though there was every reason to suppose that the stomach and intestines were then actually gangrenous,

This instance would seem to prove also, that the malignant fevers which reigned during the summer and autumn of 1794, in different and distant parts of the world (as in the French Channel-fleet, and in part of the British; in Barbadoes, and all the Leeward Islands, amongst the sea and land-forces on that station; at St. Domingo and Jamaica, where it

equally affected the troops and seamen, and in different cities of North America; at the Havannah, and even in the pure air of the Bermudian Islands) had its source in a very widely diffused epidemic constitution of the air, highly favouring, in conjunction with other local causes, the generation of malignant fever.

On November 21st our little squadron, commanded by Vice Admiral Caldwell, joined that of Sir John Jervis, off Guadaloupe, consisting of three ships of the line, and eight or nine frigates and sloops. This latter squadron we found pretty healthy, though weak from the loss of men; having lost, as was conjectured, during the six months only preceding this, about a fifth part of the crews, by the malignant epidemic fever, accompanied with hæmorrhages, black and bloody vomiting and stools, petechiæ, &c. The frigates and sloops had been so fatally affected by this disease before the hurricane months, that the Admiral prudently had sent several of them to Halifax, whence they had returned with the remains of their crews in good health. The epidemic proved still more fatal to the seamen on board of transport ships, than to those of King's ships; whilst its ravages amongst the land-forces were so destructive, that we found, on our arrival in the islands, the fine army of Sir Charles Grey, which left Portsmouth in the latter part of 1793, in a considerable degree annihilated,

The causes assigned for this fatal epidemic were (besides the bad constitution of the air, and an extremely hot season) the great fatigues experienced by the troops and seamen during the campaign; the intemperance which success paved the way to; and, in some instances, infection was supposed to have been the means of propagation, as happened in the Boyne.

The Majestic anchored in Fort Royal Bay, November 27, where she lay until the 8th of December;

during which period the rains fell most profusely, carried by S. E. gales. About this time many of the crew were affected with diarrhæas, slight cholera, in some tenesmus, and a few with remittent bilious fever, but without any malignant symptoms. The excessive moisture of the air; the humidity of the ship, occasioned by the rain which fell down the hatchways, together with that used in washing the decks daily; the deficiency of ventilation, from lying at anchor; the noxious effluvia and moist exhalations from the hold, which had not been entirely unstowed since the year 1790; the inactivity and intemperance of the crew, together with the ill effects of being too much crowded, and to avoid which many of the seamen slept on the damp decks, exposed to the night-air; all these causes acting upon the crew of the *Majestic*, prepared it for disease.

The ship removed to the Road of St. Pierre, December 8, where she lay until February 4, 1795. The Bay of St. Pierre forms a noble amphitheatre in the N. W. end of Martinico; the town being built on the steep declivity of a circular range of hills, which are surrounded by lofty mountains on all sides, from W. N. W. to S. W. The lower part of the town and the road are exposed to calms, from the interruption of the easterly trade-wind; hence ships obliged to lie in this road any time, being, from the steepness of the bottom, necessarily moored close to the land, are generally sickly, from the want of due ventilation and the excessive heat to which they are exposed.

From the 8th to the 21st of December the weather was fine, with fresh N. E. gales; from the 21st to the 26th it was showery and rainy at night; and from the 26th to the end of the month, clear, hot, and sultry.

The irregularities which the seamen found occasion to commit about the time of Christmas, and their ex-

posing themselves to the night-air, by lying on the damp deck, after having been heated by ardent new spirits, occasioned tenesmus, dysentery, and diarrhæa. In a few of these cases, an inflammation of the grèater intestines came on, with ardent fever, bilious vomiting, gangrene, and death. — In tenesmus, when there was not much fever, and the stools were mucous, accompanied with much straining, a dose of Ol. Recin. given in the beginning of the complaint, answered well: — evacuating freely the contents of the bowels, and used with due caution, it is perhaps one of the best purgatives in this complaint; but fever, bloody stools, severe gripes, and tenderness of the abdomen, bilious vomiting and stools, render the use of this, as well as all other purgatives, hazardous in this complaint. The same may be said with regard to emetics, which were seldom indicated in this disease. Emollient injections, demulcent drinks, the tepid bath (when the stools were passed without much blood) small and repeated doses of ipecacuanha, with the precaution of wearing a flannel-shirt next the skin, were found the most effectual means in the cure of those bowel-complaints.

Hugh Vaughan, a seaman, aged twenty-five years, of a melancholy temperament, scorbutic habit, phthical make, and despondent disposition, complained of dysentery, Dec. 25th, 1794. The symptoms were at first mild: he took Ol. Recin. and had free evacuations; small doses of ipecacuanha were administered with opiates at night; a flannel waistcoat was worn next the skin, and he used mucilaginous drinks: notwithstanding which the symptoms increased in violence; and about the 14th day of the disease, hectic fever, total loss of appetite, fœtid small bloody stools, hippocratic face, emaciation, and an evident hardness and pain felt in two or three places in the course of the colon, sufficiently demonstrated

a fatal termination. He died, January 23, at the hospital of St. Pierre.

On dissection of the abdomen, the omentum was found wasted, inflamed, and adherent, with a small collection of matter contained between it and the peritonæum in the right iliac region: the smaller intestines were much inflamed, and the illium had some gangrenous spots on it; the whole course of the colon was thickened, inflamed, and at each of its lateral flexures contracted, so as not to admit a body the size of the little finger: the rectum and bladder were gangrenous, thickened, and adherent; the liver was considerably inflamed.

The month of January, 1795, was dry, with fresh N. E. breezes, and cool temperature, until the 28th, when the weather changed to rainy, unsettled, and squally, with a rough sea; which weather continued until February the 5th: by this time the Epidemic Yellow Fever, or, as it is perhaps more properly styled, the Causus, Ardent, or Burning Fever, had fully established itself on board. We lost nine men by it out of about twenty, who had been attacked ever since the winter solstice, when it first made its appearance. In many of those cases the fatal nature of the disease declared itself from the beginning, by attacking with a rigor, vomiting of æruginous bile, which, about the fourth day, changed to a pitchy blackness, tenesmus, diarrhæa, hæmorrhage from the nose: on the second day intense thirst, ardent heat of skin, inflamed præcordia, as indicated by pain and resistance at the pit of the stomach, jaundice on or before the fourth day, and many other dangerous symptoms.

Bleeding, though apparently indicated by the strength, rapidity, and fulness of the pulse, was not attended with good effects: several men were bled, and all of them died: drinks of tamarinds, saline

mixture, orangeat, lemonade, cooling emolient glysters, having the head shaved, and embrocating it and the whole body with the juice of limes, formed the treatment which appeared to answer best.

As it is not unusual in tropical latitudes, an eclipse of the moon, on the 3d of February, seemed to influence the epidemic in an unfavourable way, and promote the spreading of it. Hitherto the other ships of the squadron, being seven of the line, employed in cruising, or anchored at the healthy islands of the Saints, where the seamen had no opportunities of committing intemperate excesses, had continued healthy, whilst the *Majestic*, retained at Martinico as flag-ship, experienced a considerable degree of sickness. The Admiral therefore ordered that ship to be kept under way, and to cruise around the west side of Martinico; on which station, and between that island and Gaudaloupe, she continued to remain until March 2. During this time the weather was dry, with cool N. E. meridian gales, but generally calm at night. The good effects of this change of air soon evinced themselves there was not an instance of ardent fever during the period mentioned; and we lost only one man, the hardest drinker in the ship, with fluxus hepaticus. Serious diarrhæas, catarrhal complaints, ophthalmia, and one case of measles, were the complaints prevalent.

The month of March was cool, with fresh breezes. About the 17th we had a fall of rain and S. E. humid weather. After victualling and watering at Martinico, the cruise was continued towards Gaudaloupe, and the Islands of the Saints. At this time we had several men attacked with ardent fever,—ten of whom we landed at the Saints,—three out of which number died. Out of about twenty-four men in all, attacked with ardent fever between the 11th and 30th of March, we lost thirteen of the number; most of them

young men, of a gross replete habit of body, who had been intemperate with regard to spirituous liquors whilst last at Martinico. The more immediate cause of their being attacked at this time was, the having been exposed to heavy rain and a cool fresh gale of wind on the night of the 17th, when the ship lost her top-masts, which rendered the exertions of the crew necessary.

The dampness of the ship, the foul air of the hold, the unaired and damp bedding of the seamen, the habit of lying exposed to the night air on the damp deck, exposure to the sun, and, in a few instances, swimming in the heat of the day, were the most evident causes of this fever; to which may be added, perhaps, the influence of the vernal equinox, new moon, and planetary conjunction.

Most of these patients died on the 4th day, or beginning of the fifth; tension, pain, and resistance of the epigastric region, porraceous or æruginous vomiting, diarrhæa and tenesmus, extreme despondence and anxiety; icterus on the third day, hæmorrhage from the nose on the second or third, were generally mortal symptoms: in those who recovered, a warm sweat, evidently critical, with cessation of vomiting and anxiety on the third or fourth day, proved salutary. In one or two instances, a critical hæmorrhage took place from the nose on the fourth day. The following case is an instance of which, where both hæmorrhage and icterus occurred, generally fatal symptoms as such, but here apparently critical, and certainly not accompanied with that dissolution of the blood and loss of tone in the solids, often accompanying those appearances.

John Hickey, aged twenty-one, a healthy man, sanguineous temperament, and moderately full habit; after intemperance and exposure to the sun on shore,

complained, March 13th, of rigor, followed by head-ach, vertigo, and debility: his face appeared flushed, and eyes inflamed, skin ardent, tongue foul, covered with white mucus; pain and resistance in the epigastric region on pressure; pulse full, firm, and frequent; said he had been unwell since the 11th. After a glyster, which procured him a stool, eight ounces of blood were taken from the arm, which was found to contain the crassamentum firm and dark coloured; he took saline draughts in act of effervescence, lemonade for drink, and had his head shaved and embrocated with lime-juice. On the 14th, rested ill,—had several small stools in the night,—skin less ardent,—severe pain of the loins, back, and limbs,—^{he} was washed all over with lime-juice, and bathed in ~~lukewarm~~ warm water, a few degrees heated above the temperature of the atmosphere,—continued the use of the saline mixture,—got some refreshing sleep after the use of the bath. On the 15th, heat less ardent,—epigastric region tender and painful,—rested ill,—pulse very frequent and irregular,—diarrhæa in the night,—respiration laborious,—a large blister was applied to the pit of the stomach and right side,—the saline mixture, as exciting or aggravating the diarrhæa, was left off,—a copious hæmorrhage of the nose took place in the night, and recurred on the 16th, with signs of improvement in respiration, pulse, and strength. On the 17th the bleeding again recurred. On this day a deep citeritious colour appeared on the skin, and the serum of the blister was highly tinged yellow;—he rested well,—the diarrhæa abated,—and all the febrile symptoms were pretty well gone on the 18th. He took plentifully of the infusion of bark, and soon recovered his strength.

This short, though fatal, epidemic, totally vanished about the 28th of March, the ship being cruizing off Guadaloupe, on which station she continued until the latter part of April. Exercise, due ventilation, the

impracticability of procuring the means of inebriation, and the precaution which so fatal a disease occasioned for a little time amongst the crew, seemed to concur in keeping the ship more healthy. It is worth remarking, that three of the persons who died in March, had been habitually employed in the hold, and slept on the orlop-deck, as did three or four more who had the disease.

The month of April was unsettled, squally wind generally in the S. E. quarter, with a good deal of rain : water-spouts were twice seen : a remarkable meteor on the 23d, and a perhelion on the 24th : the sea was very rough, and more agitated than generally happens in these latitudes. April 24th we returned to Fort Royal Bay, where we found a great mortality had taken place amongst the crews of the transports stationed there.

The month of May was unsettled, squally, with S. E. winds the most prevalent, and in which a good deal of rain fell, sometimes alternating with sultry calms. The *Majestic* not remaining longer than was absolutely necessary in port, continued healthy : eruption of boils appeared in many persons, and seemed to guarantee them from fever : slight diarrhæas and dysentery, but more commonly tenesmus, with mucous stools, were the most frequent complaints, and none of them of a dangerous nature.

June was sultry, calm, with S. E. winds predominant, and much rain ; the ship lay most of the month in the Road of St. Pierre, where the usual intemperance reproduced the ardent fever. A man, accustomed to sleep in the cable-tier and drink spirits, died on the 6th day of the disease, on the 11th of the month. At this time the malignant yellow fever was prevalent amongst the troops in Martinico, and proved very fatal. Bleeding and purgatives, with calomel, formed

the practice of a gentleman in the hospital there, now deceased, but attended with very bad success. The ships of the squadron being kept constantly at sea, were thereby preserved healthy. The *Theseus* sailed for England about this time with a convoy: that ship's crew had been remarkably healthy ever since leaving England, having lost but two men by disease: an exemption the reward of being constantly at sea, and the strict observation of good regulations in the internal discipline of the ship.

The month of July was very rainy, sultry, humid, and calm, with S. E. slight or variable breezes, sometimes heavy torrents of rain, with squalls of wind, thunder, and lightning. An eclipse of the sun on the 16th appeared to influence the state of the weather and that of diseases. All this month, and the latter part of June, the *Majestic* lay at anchor in the Road of St. Pierre, where the men were exposed to the ill effects of idleness, intemperance from the most pernicious spirits, the extreme humidity of the ship, and the want of due ventilation. About the solstice some of the crew were attacked with ardent fever, having the usual symptoms. In one, who died the 14th day of the disease, a miliary eruption, both white and red, made its appearance. This symptom sometimes happens in protracted cases of this fever, and denotes a dangerous or fatal disease.

The military hospital at St. Pierre was now filled with a great number of patients, many of whom had been transported from the evacuated island of St. Lucia, extenuated by long continued intermittent fevers, diarrhæas, dysenteries, and ulcers; in many of whom abscesses of the liver had taken place, accompanied with colliquative diarrhæa: the ulcers were foul, bloody, and gangrenous; and these diseases carried off a number of men, the victims of the unhealthy air of St. Lucia, an island which has been the grave of at

least twelve thousand soldiers during the last and present war.

Most of the wounded men from St. Lucia had the same sloughy gangrenous disposition appearing on their sores, and many of them died: this was the consequence of the unhealthy, moist, calm, and sultry state of the weather. The wounds of the negro soldiers, however, were much less exposed to this change than the whites:—left in some measure to dress their own sores, and habituated to the climate, they recovered, without danger, from very severe injuries. Of this number were two negroes, both wounded in the knee: in one the greatest part of the patella had been extracted; and after five months, from the time he had received his wound, he was cured with an anchilosed joint: the other man had received a musket-ball through the axis of the right knee, with considerable fracture of the bones;—the wounds were not dilated,—a large discharge from the external opening had taken place: and two months after the accident, an anchilosis had formed, and the patient was in a fair way of recovery. These are two instances of many, that amputation is not ever indispensably necessary in wounds of the large joints of the extremities.

Foul putrid ulcers of the legs, and in some cases ulcerations of the genitals, of the same nature, now began to appear amongst the seamen, as is generally the case after having been some months in the country; for seamen or soldiers are seldom affected in this way on their first arrival. These complaints, though tedious and troublesome, we found unattended with serious ill consequences, and much more mild and tractable than similar complaints were found to be on this station during the last war, when we lost many men by gangrenous sores. This circumstance is easily to be accounted for:—our seamen in the West Indies, last war, rarely or ever got fresh meat, and seldom

had refreshments of vegetables and fruit ; hence scurvy, putrid ulcers, and scorbutic dysentery destroyed a great number of men. During the present war every species of provision and allowance is by far superior to what it was formerly. The Americans supplied our squadron plentifully with beef, until their trade was cramped by French privateers ; and Martinico, the usual resort of ships of war, furnishes fruit and vegetables in great abundance. The application of limes, four oranges, or their juice, to foul ulcers, was found of the greatest utility in stopping a sloughy gangrenous disposition, and detarging of foul sores. This subject shall, however, be treated of more fully hereafter.

The different ships of the squadron continued tolerably healthy, though the malignant ardent fever had made its appearance in most of the newly arrived ships, and proved fatal to a few men. The regularity with which these ships cruized in the windy channel of Guadaloupe and Dominica, soon dissipated those partial epidemics, contracted generally whilst wooding or watering. It was different with two frigates captured and refitting at English Harbour, Antigua : the yellow fever proved fatal to about half their complement of men and officers, at a time when the inhabitants there were healthy.

The hurricane season commenced July 31st, with an eclipse of the sun ; the same S. E. weather continuing with calms, heavy rain, and sultry heat.

Admiral Sir John Laforey, who had succeeded to Vice Admiral Caldwell in the command, and who had hoisted his flag on board the *Majestic*, determined to moor that ship for the hurricane months on the south side of the capacious bay of Fort Royal, Martinico, in a small bay called the *Trois Illets*, or *Three Islands* : there the ship was anchored, July 31st.

The mortality which had taken place amongst surgeons of the navy, in the Leeward Island station, during the years 1794 and 1795, is worth remarking: there were more of them died in that time, than of any other description of officers proportionably. The same may be said with regard to the medical staff of the army:—this is a proof of the infectious nature of the epidemic diseases which reigned. It would appear, however, that many of these gentlemen fell victims to their implicit faith in mercurial medicines, which had been lately supposed so efficacious in epidemics of a similar nature to those which then reigned. This much is certain, that many of them, fully convinced of the power of this antidote, died after a few days illness; during which time, it may be supposed, they took that remedy in their own case. The simplifying the medical art by comprehensive systems in theory, and general nostrums in practice, as superseding the necessity of clinical labour, too readily attracts young men of the profession by its delusive promises.

I will finish this desultory Introduction by recapitulating some of the principal subjects it contains, relative to the health of ships of war destined to tropical climates; many of which observations, however, may be found to have a more general application.

1st. In ships destined for long voyages, the ballast or shingle should be examined previously; and if found to be caked by mould or filth of any sort, so as to prevent the percolation of water, or to emit foul vapours, the hold should be unstowed, the pebble (or shingle) ballast sifted and washed, and the process of precaution against disease commences from the keelson upwards.

Captain Westcott, of the *Majestic*, was so well convinced that the sickness in that ship was in a great measure occasioned by the foul and impenetrable state

of the ballast, by which the water could not pass, but remained on the surface, occasioning great humidity of the ship, that he had the hold unstowed, and restowed with clean ballast. I have seen the naval instructions of an experienced officer, with notations of similar occurrences in other ships of war.

2d. The complement of men of a ship of war destined to the West Indies, might with great propriety be diminished one-fourth or one-fifth. Next to seamen seasoned to hot climates, and soldiers of the same description, youths undebauched, with regard to spirits, form the best crew for southern latitudes: volunteers should be preferred to those who dread the country. The hardy seamen of the N.E. coast of England are observed to suffer more in the seasoning than any other description of men.

3d. The ration of salt meat should be diminished; and if wine is not supplied, the spirits should be diluted with six or seven waters.

4th. Flannel worn next the skin, is adviseable for persons going to the West Indies, until after the expiration of the autumnal months.

5th. The habitual use of the bath is one of the greatest preservatives of health in hot countries, and, as such, recommended to new comers. Persons who are weakly, or unaccustomed to cold bathing, should first use the tepid bath, and gradually diminish the temperature to that of sea-water.

6th. A ship of war is rarely affected with a sickly crew at sea, in the West Indies, and as rarely continues a fortnight in port without some of the seamen being attacked with fevers or fluxes; and, except in cases of a scorbutic disposition amongst the men, the more constantly ships are kept cruising, the better on West India stations.

7th. Besides the foul air of the hold, orlop-deck, and pump-well, being from their pernicious mephitic vapours the very general exciting cause of fevers on board of ships in hot countries, they are often converted into the most humid unhealthy abodes, by the decks being constantly water-soaked, by the daily practice of deluging them with water, from a mistaken regard to extreme cleanliness. The dryer a ship can be preserved, especially in sickly seasons, the better in regard to the health of the crew.

8th. The equinoxes and solstices, observed by Hippocrates in the temperate climate of Greece, to have an influence on the state of the air and of diseases, seem to have greater power between the tropics. Persons unseasoned to the country should be careful to avoid the occasional causes of sickness at such times. The new and full moon should also be attended to, as these causes seem to be more powerful in generating disease then, than in common. Whether this happens immediately from the power of gravitation, or other influence of the heavenly bodies on animal nature; or from this power acting on us ~~im~~mediately through the atmosphere, and the various subtle fluids it contains necessary for our existence, it is not here my business to enquire; the matter of fact is pretty generally acknowledged by persons of observation between the tropics; and there is room for the application of it in preserving the health of bodies of men.

OBSERVATIONS

ON THE DISEASES

PREVALENT ON BOARD

HIS MAJESTY'S FLEET IN THE LEEWARD ISLANDS,

&c. &c.

CHAPTER I.

*A Topographical Account of Fort Royal, Martinique,
and the Environs, including the Naval Hospital.*

THE Naval Hospital of Martinique was established in August, 1795, where the following observations were made; the topographical sketch of which will not perhaps be here deemed improper:—

Fort Royal, the seat of government of the island of Martinique, lies in lon. $60^{\circ} 16' W.$ and lat. $14^{\circ} 44' N.$ on the north side of the noble and capacious bay to which it gives name. A low peninsula, formed by a narrow creek to the eastward, and a rivulet to the westward, terminating in an abrupt ridge of rocks, forms the site of the town, which is pretty regularly built, and has a spacious square. The Fort Royal,

now Fort Edward, occupies the rocky ridge, a canal distant from which about half a mile, drawn between the creek or caranage and the rivulet, insulates the town and fort, is navigable for boats, and serves as a drain to the low grounds which skirt the town to the northward. The Naval Hospital is placed on the outer angle, formed by the union of the canal and rivulet to the north-westward of the town. The ground on which the town is built, appears to have been a reclaimed swamp; the low grounds between the town and the hills to the northward, in some places half a mile in breadth, are swampy after rains; and here, as in the town, water is to be found four feet from the surface. Fort George, formerly Fort Bourbon, stands on a ridge of mountains, a mile north of the town, and may be three hundred feet perpendicular above the surface of the sea: more lofty mountains rise behind it; and six miles N. N. W. of the town, terminate in a conical hill, stupendously high, and inaccessiblely steep, supposed to contain the crater of an extinguished volcano, from the foot of which a most salubrious hot mineral water distills itself. The bay of Fort Royal is about two miles across, opposite the town, which is placed two miles to the eastward of the north-west point of the bay. To the eastward of the town the bay contracts itself, and is skirted for two miles by a marshy wilderness, immediately to windward of the town and fort, vitiating the air of them, particularly Fort Edward, which, though elevated sixty feet on a dry rock, has been found more unhealthy than the town. The naval hospital is happily not exposed to the wind from these swamps. The bay continuing to indent itself deeply into the island, divides into two branches, two miles east of the town: that to the N. E. leads to Lamentin, a market-town; the S. E. branch forms the bay of Trois Îlets: both of these bays are spacious, and land-locked by mountains, some miles distant from the sea-shore. Between these mountains, to the eastward, an extensive plain

skirts the bay, in a north and south direction, of about six miles in length, and a mile in breadth; and having been banked off the sea, contains the most fruitful sugar plantations in the colony. Between this plain and the bay there is a mangrove swamp, of a mile in depth; but in some places it extends itself three miles, flooded by the tide, covered with an almost impenetrable thicket, and pierced with a number of embanked canals and rivulets, leading to the plantations.

The crabs, dead fish, and many other animal and vegetable substances left on the surface of the earth, and the prodigious evaporation which must take place from a track of country so extensive in this hot climate, when the water retires from it, contaminates the air with astonishing humidity and mephitic vapours:—this happens with greater effect when the rivers are low, by the continuance of dry weather, and when the tides (which never rise more than a foot) are weak. This seems to account for the generation of remittent and intermittent fevers more powerfully in dry than in wet weather, as is the case here, and has been observed by many authors. The influence of this vitiated air extends itself several miles from the source of it; and elevated situations seem more obnoxious to the effects of it than lower ones, instanced in Fort Edward and in the garrison of Pigeon Island, an elevated rock on the south side of the bay; both which situations are found to be unhealthy, the soldiers being susceptible to intermittent fevers. Unhealthy as these swamps would appear to be, the naked negroes, hard wrought and badly fed, enjoy a vigorous health in the plantations to windward of them.

The bay of Trois Islet is surrounded by high mountains to the south and west: it has the mangrove swamps and plain to the eastward, bounded by cultivated mountains, and is partly formed by the Gros

Iflet to the eastward, a lofty rocky island or ridge, about two hundred feet high at the summit, and gradually sloping to the eastward, being about a mile in circuit, and forming a small cotton plantation.

Admiral Laforey determined to erect a small temporary hospital upon this island, which, from the elevation, the dryness of the soil, and the accounts of the inhabitants, appeared to be a healthy spot, secluded from the means of desertion and intemperance, so very desirable in a naval hospital. Some frame-barracks were erected on the ridge of this island, and were occupied as an hospital, August 22d, 1795.

With regard to the soil of Martinico, the mountains appear to be composed of basalt, in regular and irregular masses, granite, and lava; evidently the effects of volcanic fire. From the decomposition of these substances acted on by the elements, and washed down the steep heights by the torrents of rain which fall, mixed with vegetable mould, the plains of this island seem to be formed. The soil of the plains is rich, and, nourished by an abundant humidity, seems to enjoy an eternal spring.

The island of Martinico, like many other of the Lesser Antilles, is formed by the assemblage of steep, rocky, and elevated mountains, with small plains at the mouths of the rivers, and more extensive ones in the bottom of the deep inlets and bays with which the island is intersected, and of which that of Fort Royal is the principal, where some thousand acres of the best land might be embanked.

The town of Fort Royal is furnished with water from a rivulet to the westward, which, descending with rapidity between the mountains, and not being arrested in its progress by any sort of reservoir, brings with it a large quantity of vegetable and earthy mat-

ter, which injures the quality of the water: hence this water does not keep well, and is supposed by the inhabitants (and it would appear that their opinion is well founded) to occasion tenesmus, dysentery, and worms. The island of Gros Islet is supplied with water by a pond; and in the dry season the hospital was furnished therewith from an adjoining river.

The seasons in Martinico are not so regular as in many other of the Carribean islands. The elevation and steepness of its surface, the forests of lofty timber which its mountains sustain, the deep indentations made in it by the sea, and the great evaporation arising from the low swampy grounds which surround its bays, may serve to explain the great prevalence of rain in this island, and particularly at Fort Royal, where the quantity that falls annually is immense.

From the winter solstice, and sometimes before, the weather is generally cool, dry, and severe, with N. E. winds and strong breezes at noon, regularly rising and falling with the sun: the nights are generally serene and cool at this time; and a copious fall of dew supports vegetation. There are generally refreshing showers about the changes of the moon, but seldom any heavy rains. Thunder and lightning are unknown; and gales of wind, from the northward and N. W. which in the islands to the northward are often strong at this season of the year, are seldom felt at Martinico, except by the very heavy surf which they occasion,—dangerous and fatal to shipping.

About the beginning of May, the sun having passed the meridian, and attracting after it the S. E. wind, charged with abundant humidity from the coast of Guinea, where the rainy season had already set in progressively to the northward, the weather changes, becomes unsettled, overcast, and heavy rains fall, continued a longer or shorter time; but generally abun-

dant until the summer solstice. This is called the little rainy season, but may be looked on as the commencement of the rainy division of the year; for although there may arrive many intervals of fine, dry, and serene weather in the succeeding months, there is generally more or less rain-falls, and that in pretty heavy showers, at every phase of the moon, until December. This change of the season is announced in May by the explosion of thunder and lightning:—a signal looked on as certain. Vegetation at this time is the most rapid and luxurious,—the winds are often strong,—the mountains enveloped in mists and rain,—the rivers and rivulets descend in torrents,—and the sea, impelled by the immense body of water it has received from the rivers of Guinea, in a state of inundation, runs to the leeward, or W. N. W. in a strong current.

After these rains in May, the weather in June and July is generally variable, with fresh breezes, altering between the N. E. and S. E. from which last quarter there is generally a heavy fall of rain every quarter of the moon. About the time the sun repasses the meridian, reckoning from the first full or change of the moon after that passage, the hurricane months commence and continue three months; in which season the weather is generally unsettled, and the trade-wind interrupted by westerly breezes, calms, or southerly gales, with heavy rains; the sea is often agitated and rough, and earthquakes are not unfrequent occurrences. After the autumnal equinox, the weather is observed to be often hotter than at any other time of the year, continuing until the middle of October; and which is the more felt, as the trade-wind is often feeble and interrupted by S. W. airs. These heats seem to be preparatory to the rains which fall in the latter end of October, November, and part of December, called the Great Rainy Season, as being much more copious, continual, and regular than those rains which fall in

May, although it is observed that they alternate in some measure in quantity; so that in a year when the first rains have been long and heavy, these which fall in the latter part of the year are unusually light, and of short duration.

The quantity of rain which falls in the course of a year in Martinico is immense; perhaps three times the number of square inches that fall in England.

The thermometer ranges between 75 and 90, seldom exceeding 92, and rarely below 80: its medium station may be taken at 85; and the variations of temperature are trifling, as indicated by this instrument, though not so to sensation.

The barometer at Fort Royal is generally stationary at 30—1; and though the rise and fall of the mercury is seldom very conspicuous, yet sufficiently so in great changes of weather; and the convexity or concavity of the top of the column indicates trifling changes: a remarkable depression of the quicksilver is said to take place previous to a hurricane.

The bay of Fort Royal, being bounded on the north and south by high mountains, more lofty than those to the eastward, serves as a funnel for the passage of the trade-wind, or east; hence calms are less frequent here than in many other neighbouring parts; and this, joined to the abundant exhalations and humidity, renders the temperature cooler than many places some degrees to the north of it. The bay of Trois Islet, however, having lofty hills to the westward of it, obstructing the current of air, is frequently destitute of a breeze, particularly in the hurricane season, when the wind becomes often irregular. In general, the N. E. or E. N. E. wind reigns the remaining months of the year: even in the hurricane months, when the weather is fine and serene, the wind varies

to the E. N. E. As to the winds from south to north by west, they are anomalous here, appear to be concomitant with storms and other convulsions of nature in distant regions, and are justly looked on by the inhabitants as accompanying or preceding a sickly season.

Fort Royal, as appears from the description I have given of it, is exposed to all the insalubrious consequences attributed by Hippocrates to cities with a southern exposure, and covered to the northward by high mountains: hence remittent and intermittent fevers are frequent here: obstructions of the liver and spleen, the consequence of them, often occur. The lower class of coloured and black people are frequently cachectic, affected with scorbutic callous ulcers of the legs, with considerable enlargement of the parts; and though they may survive such complaints a number of years, are at length generally succeeded by diarrhæa, the ordinary termination of all consumptive, hydropic, and ulcerated patients, worn down by a long continued disease, and finishing a wretched career.

Worms are very common here; and it is not uncommon for the negroes to pass great quantities of lumbrici, which are symptomatic in most epidemics. The itch is also a very common disease here, and when improperly treated, or suddenly repelled, often occasions phthisis and obstruction of the liver and mesentery.

The white inhabitants of Fort Royal, and it may be said of the whole island, do not appear to have degenerated from the European stock: they are generally active, thin, lively, temperate, and warlike: longevity amongst them, as well as amongst the negroes, is very frequent. The negroes and creoles in this island seem to be far advanced in civilization, when compared with those of some of the English islands: they in general have some sentiments of religion, and their morals seem improved thereby: they are very

expert at learning different trades,—are good fishermen,—bold and skilful seamen in their little canoes,—more readily learn the English language than the whites, and have, apparently, the merit of making themselves contented in their hard state of slavery.

Domestic medicine is very far advanced amongst those people, who are pretty well acquainted with the virtues of the efficacious simples with which the country abounds, and with the treatment of the diseases most frequent, in which they seem to be at least as successful as the European practitioners.

CHAPTER II.

Of the Diseases which occurred between August 1795, and April 1796, including an Account of a Malignant Epidemic Fever which affected the Crew of his Majesty's Ship Majestic.

THE Yellow Fever, as it is called, or Causus, having reigned as an epidemic on board the Majestic, and some other ships of the Squadron, during the four last months of the year 1795, a particular description of it follows :—

SECTION I.

THE CONSTITUTION OF THE AIR.

FROM the narrative given in the Introduction, of the state of the weather to August, it appears that the wind was in the S. E. quarter very commonly ; that the weather was in general humid, rainy, and sultry, interspersed with calms, or strong squalls of wind ; and the quantity of rain which fell during the months of the year preceding August, must have been very considerable.

The month of August was rainy throughout : sometimes the rain fell, attended by strong gales of wind from the S. E. ; but in general the weather was calm, and the nights almost always so in the Bay of Trois Islet, where the Majestic, the Veteran of 64 guns, and a

few smaller ships lay moored, on account of the hurricane season.

Two shocks of an earthquake happened in the course of a month. Though the weather was so sultry and calm during this month, there was little or no thunder and lightning: a circumstance which made the experienced inhabitants apprehensive of a hurricane, as the equinox approached.

The month of September resembled August; that is, was calm, sultry, and unsettled, with rainy nights and light S. E. breezes. On the 9th and 10th there was much thunder, lightning, and heavy equinoctial rains: this was succeeded by breezes from the N. W. for several days. Towards the middle of the month the eastern trade-wind resumed its dominion through the day; but the nights were generally calm: if not rainy, the air was charged with the greatest humidity, as appeared from the heavy dews which fell.

From the 20th to the 25th, there was much rain, thunder and lightning, with gusts of wind at times, and calm sultry nights: from the 25th to the end of the month the weather was more settled; but sultry at noon and calm at night.

October commenced with heavy rains, S. E. light and variable breezes, but sometimes accompanied with heavy squalls of wind: meteors were frequent in the night; and the morning often appeared surrounded with a circle or haze. On the 13th, the new moon was accompanied with heavy rains, thunder and lightning, with southerly wind: there were some fine days as the month advanced, and the temperature of the air began to lower considerably. This was more remarkable towards the end of the month, when the meridian breezes came from the N. E. about the full

of the moon : the whole of the month was, however, showery, unsettled, and generally calm at night.

The hurricane months having now elapsed, the *Majestic* was transported into the open part of Fort Royal Bay, where the ventilation is much more regular and strong than in the land-locked situation where she had wintered.

The month of November was showery, humid, calm, or with irregular S. E. breezes, and some heavy rains, generally in the night, which were frequently calm : meteors were apparent more than once,—a circle round the moon on the 16th, and a shock of an earthquake on the 17th. This is an occurrence which is said to be generally attended with a change of weather at such seasons, as well as in all other meteorological appearances depending on electricity. Patients labouring under acute diseases are strongly affected with inquietude, restlessness, and exacerbation of fever ; and a fatal or salutary crisis is then very likely to declare itself. This observation I have repeatedly made in the course of this season ; and I find that an unusual number of deaths happened on the 16th, 17th, and 18th of this month. The latter part of November was unsettled, rainy, with squalls of wind from the S. E. and altering sometimes, with N. W. airs in the day-time.

The beginning of December was cooled by strong meridian gales from the N. E. with occasional showers. The new moon on the 11th, was attended with a change to the predominating wind and weather of the season ; that is, S. E. variable breezes and heavy rain : the wind however veered again to the N. E. with fine weather. On the 18th, a pretty smart shock of an earthquake was felt, so as to alarm the inhabitants of Fort Royal ; and was still more severely experienced at Antigua, as well as at the islands north of Marti-

nique. The latter part of December was accompanied with strong squally gales from the N. E. with showers.

The greatest part of the year 1795 had been southerly, variable, humid, and rainy; and this constitution of the air seemed to be very general in these islands, as some of them (Antigua for example, which in general suffers much for want of water) had such an ample supply of rain this year, that the crops were abundant. The same sort of weather predominating on the coasts of Europe, with hard S. W. gales of wind, prevented the sailing of the expedition under General Abercrombie and Admiral Christian, for many months: and it is highly probable, that a similar state of the weather reigning at Jamaica, St. Domingo, New York, and Bermuda, occasioned, in conjunction with other causes, the fatal epidemics which reigned in those countries.

During these sickly autumnal months, the air at night was generally sultry, humid, and stagnant, unmoved by an air of wind, except immediately preceding a heavy fall of rain, which was a frequent occurrence; whilst flashes of lightning, and not unfrequently meteors, often afforded a temporary light. The heavens generally wore a gloomy overcast aspect; and the minds of men seemed to sympathize with them; despondency and sadness being visible on the countenances of many of our ship-mates.

The air abounded with miriads of noisome insects, destructive to every thing they met with, and very troublesome. This has been a general observation of many authors: that the pestiferous and sickly seasons are accompanied with the generation of a vast number of insects: even the sea exhibited some remarkable appearances: it was often of a glassy smoothness, especially at night, whilst the shores resounded with noise of surf, or the breaking of the sea. The surface of the

ocean abounded with a species of organized jelly, called by the seamen, Blubber: they are shaped like the crown of a hat, and are often as large; the convex surface always keeps floating on the water: these substances were very common, the sea appearing almost filled with them. The author of *Histoire Generale des Antilles*, says, that the appearances of these marine animals in great numbers on the shore, is a sure sign of a hurricane; he also describes the painful sensation which they occasion on being touched, it being so severe as sometimes to cause an inflammation; and which he attributed to the emission of a fluid. This is the general opinion, and is described as resembling the stinging of nettles.

January 1796, was well ventilated with fresh squally gales, in which the S. E. wind prevailed, often accompanied with showers; but without any very heavy rains. The temperature of the air had now much changed, and became more cool.

The month of February was cool, with strong meridian breezes, generally from N. E.; sometimes varying to S. E. with rain. This weather had a happy effect on the state of diseases, few instances of causes occurring at this time, except in a few unseasoned men, in whom the exciting cause had been powerful.

The first ten days of March were cool, with fresh N. E. gales: towards the middle of the month, the wind veered to the S. E. with some rain; about the equinox there was a calm, afterwards wind from the N. N. E. and a heavy swell: a pretty sure proof of gales to the northward. The latter part of the month was cool, dry, and in which strong N. E. breezes reigned.

I have endeavoured to be as concise as possible in the preceding account of the weather, though I by no

means call in question the utility of exact meteorological observations ; and have no doubt, that if particular cases were collected with such diaries, remarkable coincidences would be found between the periods, and critical movements of diseases and meteorological phenomena ; but the general medical utility of such diaries appears to be formed upon the Hippocratic maxim (though controverted by Sydenham) that such is the nature of reigning diseases, as the sensible qualities of the preceding weather and actual present season of the year indicate, and which, allowing for a great number of exceptions not to be well accounted for, may be admitted as a general rule ; wherefore sage antiquity and the great Hippocrates, strongly inculcate, “ that he who would practise medicine, should not only attend to the situation and nature of the place in which he practises, and the regimen of its inhabitants, but should carefully remark the reigning winds and changes of season, with the diseases arising from them, in order that we may be able to predict from the return of such constitutions of the seasons, the good and ill effects which may result therefrom with regard to health *.”

It is pretty generally allowed, that medicine cannot be taught by a system of practical, and still less by theoretical institutions ; for as nature, though simple, abounds with infinite varieties, the nature of epidemic diseases seems as various as the different seasons of the year are to the seasons of the same species which preceded them in former years ; and though Sydenham, with some reason, supposes there may be a regular order in the occurrence of epidemics, and the members of the Parisian Society of Medicine have suggested, that such order might perhaps depend upon the lunar cycle of nineteen years, observation has not yet ascertained any such regular precision of epidemics

* Fred. Hoffman, *Phys. Med.* iv.

diseases; and we are yet obliged to follow the plan of Hippocrates and Sydenham, in observing the sensible qualities of the seasons and air, and studying the nature of epidemic diseases, their symptoms, periods, and terminations, thereto adapting our method of cure; and in which the histories of former epidemics may much assist, although there may be a very considerable variation between the former and present epidemic; to distinguish and appreciate which the judgment of the practitioner and his experience are absolutely necessary.

SECTION II.

THE HISTORY OF THE DISEASE.

First stage. The patient was generally discoloured and low spirited for some days before the attack of the complaint; to which were joined loss of appetite, troubled rest, redness of the eyes, lassitude, factor of the breath, and in many extreme proclivity to the intemperate use of spirits and other strong liquors. In many, costiveness preceded the attack; but in several a diarrhæa had taken place some days previously; repletion and consequent indigestion following a weakened state of the chylopoetic organs, which there was reason to suppose might be the immediate exciting cause of the disease. If the patient was removed, on the discovery of these appearances, out of the bad air of the ship to that of the land, and precautions were used, as by administration of Peruvian bark, the wearing of a flannel waistcoat, the promoting a diaphoresis at night, and a regard to temperance, was duly observed for some days, — the patient, in many cases, avoided the dangerous attack with which he was

menaced. In general, however, the casual occurrence of any thing hurtful, as exposure to the night-air, to the rain, insolation, intemperance, and sometimes to infection, rendered active by fear, induced the cold fit or rigour of fever. In some cases only a slight shivering was observed; in others, the patient had no sensation of cold whatever; which, when it did occur, never continued long, whether strong or weak: to this succeeded an intense degree of heat, the skin being generally very ardent and dry, the pulse became frequent, quick, rapid, often full, and sometimes hard; the respiration laborious, accompanied with sobbing in some, and a high expression of anxiety on the part of the patient; the stomach was generally affected from the commencement of the fever, and often for some days thereafter with nausea, to which supervened vomiting of bile of a yellow, porraceous, æruginous, and very rarely of a brownish colour, occasioning intolerable sickness, and sometimes erosion of the œsophagus; the intestines were seldom constipated, and rarely resisted the evacuating their contents, aided by the most mild injection. In some very malignant cases, a diarrhœa, early in the disease, made its appearance, generally bilious, porraceous, thin, and often brownish; the epigastric region was always affected in violent cases, with tenderness, enlargement, resistance, heat, and often acute pain on the slightest touch of the tip of the finger, when applied to the pit of the stomach. The head-ach was generally acute, the face flushed, and the eyes inflamed, wild, and projected. The tongue was generally covered with a yellowish mucus, but soon became parched, brown, rough, and dry. The patients complained of intense thirst, not to be appeased by drink, which when taken down, was rejected with violence, by vomiting with great suffering on the part of the patient: cold water was frequently preferred to every other species of beverage, but seldom retained. The patient was generally dejected, anxious, desponding, sometimes having a pre-

sentment of dissolution from the first attack ; a great degree of lassitude, jactation, restlessness, acute pain of the back, loins, and lower extremities, were generally complained of by the patient : the urine was then red, and sometimes rendered with a sensation of heat and pain. The patient was generally sensible of a bitter nauseous taste ; his breath, perspiration, and bedding, had, in most cases, a sickly fœtid odour ; and his face and habit of body exhibited a dusky, scorbutic, and imperspirable appearance.

In a great majority of the patients affected by the epidemic, however, the symptoms were by no means so violent as have been described ; exhibiting in some the appearance of a simple ephemera, and going off in the course of twenty-four or thirty-six hours by a profuse perspiration ; whilst in others, the character of a remittent was evident, accompanied with catarrhal affections, and going off by diaphoresis and expectoration.

In such favourable cases, the heat of the skin was by no means so ardent and pungent as in others ; and the dryness of it soon gave way to a kindly moisture.

The violence of the disease, such as is above described, continued in many cases with unremitting force for forty-eight hours ; bleeding of the nose, or diarrhæa, often supervened, and rarely or ever with alleviation of the symptoms ; on the contrary, the first was in most cases the sure sign of a fatal termination ; and the latter symptom tended to sink the strength of the patient, and generally terminated in black stools, the consequence of gangrene of the intestines. In the most acute cases, the disease took a turn during the course of the third day, and terminated the first stage of the disease ; but the more ordinary duration of the first stage, was until the commencement of the fourth day, when, in some instances, a crisis took

place by sweat, eruption of effere, or small biles : in a very few by diarrhæa. When the disease did not terminate sooner than the ninth, eleventh, fourteenth, or intermediate day, the first or ardent stage of the fever did not always continue without remission, which seemed to partake of the nature of the tertian period in most cases, though in some fatal ones the exacerbations took place on the even days. There was seldom any considerable diaphoresis attending the remissions of fever, the skin only becoming somewhat cooler and humid.

The second stage commenced, in the most acute cases, about the beginning of the third day ; in the less acute on the fourth day ; and in protracted cases, on the seventh or ninth days of the disease. The intense heat of the skin now became considerably diminished ; and in some, soon became lower than in health, whilst it preserved a dryness and imperspirable feel to the practitioner ; the pulse diminished in strength, firmness, and frequency, so as sometimes not to exceed sixty pulsations in a minute, accompanied with great slowness. The little firmness of the pulse was often the only criterion by which to judge of the danger of the patient, who was often supposed by himself and the by-standers to be much better, when he was actually past recovery. The respiration now became more slow, weak, and often interrupted by sighing ; the stomach, without being affected with the acute pain on pressure, as felt by the patient at the commencement of the disease, yet generally continued to reject what was taken down. The colour of the fluids vomited, generally became deeper as the disease continued, and verged to a fatal termination : the same may be said with regard to the discharge by the anus in cases of diarrhæa, which were common, and which generally terminated fatally.

The tongue, by the dryness of it, and the being furred, was a pretty sure index that the apparent ces-

sation, or intermission of fever, was but fallacious; whereas, when nature had some respite from the violence of the disease, and the remission was a safe one, the tongue always shewed a degree of moisture and disposition to deterge near its tip. In many cases the head-ach ceased, and the patient said he had no complaint of it whatever: he very often however was assailed by an attack of syncope, or vertigo, on sitting up or getting out of bed: symptoms which not unfrequently occurred in the beginning, and generally indicative of a fatal disease. The eyes of the patient, when in a dangerous state at this period, almost certainly assumed a degree of yellowness, particularly, and in a more remarkable degree, if he had been affected with much redness of the tunica conjunctiva in the beginning of the disease. All the prognostics drawn from the yellow suffusion of the skin exactly applied to this, often slightly jaundiced the appearance of the eyes; but the skin was generally, in all fatal cases, tinged with a deep yellow on the fourth day, as was the urine and the serum of blisters. When delirium came on early in the disease, it generally continued in the second stage, and sometimes accompanied with comatose symptoms: in many, however, there was no delirium, and in some there was sufficient strength to allow the patient to walk about as if in a state of convalescence, though perhaps in the most imminent danger. Hæmorrhages frequently took place from the nose, and in some instances from the stomach, gums, and penis, and, with very few exceptions, were attended with a fatal termination. Worms (*lumbrioc*) were often passed both upwards and downwards; and when they were evacuated without life, commonly shewed a fatal disease; in general the same may be said with regard to those passed alive, though with a great number of exceptions.

Heartburn and extreme anxiety were often complained of by the sick, and generally terminated in sin-

gultus. The urine was generally highly yellow, and in some brownish, but without any deposition of sediment. On the fourth day, petechiæ appeared in some cases, with fatal termination on the sixth. Miliary eruptions appeared in some protracted cases, which terminated unfavourably. The eruption of prickly heat, or effere, was critical in some, as was the nettle-rash; but that of boils, the most common critical eruption, appeared about the seventh day.

The second stage varied in duration from one, two, three, and four days, but in general not longer than forty-eight hours; at the expiration of which time the deceitful calm which had taken place in many cases, gave way to the last and fatal stage.

In the third stage the vomiting became brown, dark, or black as coffee-grounds; the stools if, as was generally the case, a diarrhæa was present, became thin, black, foetid, and often dissolved; blood was evacuated both by vomit and stool; hæmorrhages took place from various parts of the body of thin black dissolved blood, most commonly from the nose, gums, or lungs: the patient sometimes lay prostrate, not sensible of pain, and without any degree of delirium or head-ach; the latter symptom often disappearing entirely after the second or third day; but in those whom the head had been affected strongly with delirium in the beginning of the complaint, this symptom continued: in some attended with comatose symptoms; in others, with the most horrid shrieks and cries; some continued to walk about until a few hours of their dissolution; and when asked how they found themselves? often replied they were much better. The tongue, if not fouled with blood, appeared shrivelled, black, and parched: this however was not universally the case, for in some instances, as soon as the stomach and intestines had evidently lost their tone, and a gangrenous disposition of these or-

gans had commenced, the tongue became clean, of a bright red, and a little moistened: this seemed to arrive in cases when the violence of the first stage had not been very considerable, and partook more of low malignancy, than of violent excitement; and where an effusion of fluids had taken place in the cavities, the respiration became more low, interrupted, and accompanied with sighing; singultus frequently came on, the pulse became sunk, contracted, irregular, and small, or flaccid, very frequent, and affording no resistance to the touch. The epigastric region, at the beginning of this stage, had generally lost its resistance, pain, and tenderness to the touch; to which succeeded a flaccidity and want of firmness. The pupils of the eyes were generally much dilated in part of the second and third stage; and the motion of these organs were often convulsed, irregular, and expressive of anguish. The face, in addition to a deep yellow tinge, often became livid, contracted, or convulsed; blistered parts became dry, livid, and insensible: in some few instances, gangrene of the scrotum took place; the factor of all discharges of the body became extreme; and the patient often died strongly convulsed, or comatose, with stertorous respiration.

In a great number of those affected with the epidemic, there were evident remissions and intermissions of the fever, generally observing the tertian or double tertian type; and in such cases the disease seldom terminated before the ninth, eleventh, or fourteenth day; sometimes by a perfect crisis, by sweat, eruption of boils, prickly heat, and in one case by a suppuration of a parotid, or the lymphatic glands behind the ear. A profuse purulent discharge from blistered parts, accompanied by considerable irritation, seemed in many critical.

In the most acute cases, death often took place on the fourth day, sometimes on the third; the violence

of the first stage having suddenly produced colliquative discharges by stool, vomit, and by the rupture of blood-vessels, whilst effusion and congestion of blood, in all cavities and texture of the viscera had taken place. In many also the disease had a favourable termination on the fourth day, and that generally by sweat, at least accompanied by it; for when a diarrhæa came on, without a diaphoresis, it proved in most cases an alarming and fatal symptom. In such as were affected by the disease in this violent and fatal degree, it was observable that they were young melancholic persons of gross habits, on whom the climate had made little impression with regard to complexion. In general, those who had been affected with ulcers, but which had been dried up, or who, in the early part of the year, had been affected with prickly heat, were severely attacked with this fever. Those also who had red hair, or long black hair, with a fair skin and effeminate voice, were more generally attacked by the epidemic. In general, the men who had long hair, worn tied, appeared to be more obnoxious to be attacked than their comrades; and in the former, the determination of the circulation to the head, and the symptoms thereon depending, were more obvious and severe. The young men who had never been in a hot country before were more generally affected, and bore the disease worse than the seasoned men. Those who had been intemperate with regard to spirits, who indulged much in the use of fruit of all sorts; and, at all times of the day, those who were dejected, and dreaded much the disease; those who were much exposed to the air of the pump-well, and orlop-deck, especially such as were birthed in that part of the ship; the boats crews, who were much exposed to the rain, sultry heat of the sun, and to the abuse of spirituous liquors; such men as were remarkably dirty in their persons, and whose bedding was foul, damp, and unaired; all these descriptions of persons were more generally affected with the disease than the rest of the ship's crew.

Although there was scarcely an individual in the ship who was not affected by the epidemic in some degree, and about 400 out of 600 in a dangerous degree, many had the disease in a slight manner, often accompanied by catarrhal affections of the fauces and tonsils, occasioning slight angina of the pituitary membrane of the cavities communicating with the nostrils, occasioning coryza, or of the rectum and colon giving rise to tenesmus and slimy stools: in all these benign modifications of the disease, a degree of fever was observable, with manifest exacerbations in the evening, continuing for four or five days, and going off spontaneously by diaphoresis. The form of a remittent fever of the tertian type, was that in which most of the officers were affected by the epidemic, and in few attended with any danger; continuing about four days, but in some, followed by attack of tertian fever. The disease proved fatal to a great number of men on the sixth day; and this might generally be predicted on the commencement of the fourth, from the continuance of æruginous or dark vomiting and stools,—from the unquiet and agitated state of the patient in the night preceding,—from the continuance of ardent dry skin, or the sudden cessation of the heat, without any moisture on the skin, or other favourable appearance.

The seventh day was favourable; few instances of fatal termination having occurred on it, whilst the number of patients, in whom a crisis by diaphoresis took place, or at least accompanied with moisture of the skin, was remarkable bilious stools, urine depositing a sediment; and in a few cases, yellow suffusion and hæmorrhage were the most common and critical appearances on this day, in conjunction with diaphoresis.

Many salutary and several fatal terminations of the disease occurred on the ninth day, which seemed to

be the natural period of the protracted cases of this fever; for though there were many instances of the fever being prolonged to fourteen, twenty, or even twenty-seven days, and having a fatal termination, such instances were rare, and were occasionally the translation of the disease to the lungs, causing peripneumony, or to the intestines in the form of diarrhæa. In some such protracted cases the disease had begun slightly, with pretty clear remissions, and even intermissions of the fever; but on the third, fourth, and seventh day had become more acute, and continued with the accession of malignant symptoms. If the patient survived until the ninth day, the salutary or fatal termination of the disease might generally be foreseen on that day.

The progress of the disease may be described as commencing with the new moon in the middle of July, the disposition to generate it being much promoted by two causes; 1st, The continuance of the ship in the Road of St. Pierre for some weeks, where the seamen indulged in the intemperate use of new rum, and committed other irregularities; such as sleeping on deck, exposed to the rains and night-air, to which many of them seemed impelled by a sort of desperation of mind, rendering them careless of self-preservation. Occasioned, Secondly, By being disappointed in their expectations of returning to England at this time; Sir John Laforey having succeeded to Vice-Admiral Caldwell in the command on the Leeward Island station, thought it necessary to detain the *Majestic* in the country, and ordered his flag to be hoisted on board of that ship. The seamen who had fully expected to return to England with the Vice-Admiral, and who, in general, dreaded the effects of the climate on their health, deeply felt this disappointment, which, however, might probably have been dissipated without bad effects, had their minds and bodies been occupied at sea in working the ship, and

in chasing an enemy ; but the public service demanding the presence of a ship of force during the hurricane season at Fort Royal, Martinico, and that ship being moored there in the beginning of August, the dejection of our seamen, and the fatal propensity to spirituous liquors which it reinforced, had the strongest effects in producing the epidemic ; by which we lost six men before the end of July.

The full moon, July 31st, accompanied with an eclipse and heavy rains, had a marked effect on the progress of the epidemic, which had now fully displayed its character ; nevertheless the disease did not make any rapid progress until the ship had remained some weeks in the bay of Trois Ilet, where the sultry calms which reigned in August, and continued all the hurricane months ; the vitiated state of the internal air of the ship, from dampness, foul ballast, the steam of bilge-water, and the smell of musty biscuits, with the defection and consequent intemperance of the crew, promoted the spreading of the disease with rapidity.

Though some fatal cases occurred in the beginning of August, yet in many who had the complaint, it was unattended with any imminent danger ; the fever remitting in less than forty-eight hours, with diaphoresis, followed by an eruption of prickly heat, ulceration or eruption of the lips ; and the appearance of small boils ; the exacerbations of fever in those cases generally diminished in violence, and seldom continued longer than the fifth day, the stomach retaining the back, and the bowels being easily opened by glysters.

The middle of the month brought with it extremely variable, rainy, sultry, southerly weather, coinciding with a new moon and an earthquake ; the air of the ship became more and more vitiated, and many

of those who slept below, as well as others, were attacked by the disease in its most violent and fatal form. Infection could, in many cases be traced, and appeared to operate as well through the medium of terror, as that of the effluvia emitted from the bedding and persons of the patients: of this a melancholy instance happened about this time in an armed sloop, into which a draft of about fifty men had been judiciously sent, in order to cruize, and thereby be preserved from sickness, in common with the crews of the other cruizers, who at this time were generally in good health; but the vessel having been detained much in port, the contagion having been carried on board previous to her sailing, and the officer who commanded her being destitute of medical aid, the men were attacked in succession by the disease, and three-fourths of them died. On board of some other armed vessels, in which draughts had been sent, the people continued in good health, being employed in beating about at sea.

During the month of August we lost on board the ship thirty-one men. The Alarm, a frigate of thirty-two guns, which lay at anchor with us, being exposed to many of the same causes of disease as the Majestic, with regard to provisions, foul air of the ship, dampness, exposure of the men to the rains, &c. but differing with that ship in so far as the crew of the frigate had been in the country the preceding year, and were in some measure seasoned to the climate; yet were many of them affected with the epidemic; and ten men died before the sailing of that ship from Fort Royal Bay.

The Veteran, a ship of sixty-four guns, which with a complement of about 300 instead of 500 men, having lost a number of her crew the preceding year, and the people being more careful of themselves, less crowded together, and the ship more dry and sweet

than the other ships, her crew continued little affected by the epidemic, until the latter end of August; when a removal of the ship to sea happily arrested the progress of the disease, which had begun to make its appearance amongst the seamen of that ship.

On the 22d of August, the sick of the *Majestic*, in number thirty, were removed to the temporary hospital in Gros Islet, whither those attacked with the epidemic were transported as soon as it was known they were unwell. The contagion, which had been remarked to be active on board, did not seem to be powerful in exciting the disease on shore, as there were few if any instances of persons being infected by the disease on land; and out of about twenty black and coloured people on the Islet where the hospital was situated, there was not an instance of one of them being affected by the complaint, though many of them frequented the hospital, and all of them lived to leeward; distant about three hundred paces.

This seems to prove that the atmosphere of the ship was the principal predisposing cause to the disease, and may be confined, in some measure, by the state of health amongst the inhabitants of the borders of the Bay; who were at this time only afflicted with a mild remittent or intermittent fever, and that not very common, though some rare instances of malignant fever occurred amongst the opulent.

As September advanced, the number of malignant cases increased, and appeared to be at its greatest height at the time of the equinox. The greatest mortality happened on the 22d of September, on which day five men died: the weather at this time was very variable, sultry and calm, or squally: we buried sixty-one men during the course of this month, out of about three times the number of those who were taken ill, and sent to the hospital; besides which, about an

equal number, that is sixty-one, had the complaint on board in the mild form of a remittent fever, or that of a catarrhal fever, or an ephamera.

The disease continued to rage, with a very slight remission of violence, until the middle of October. The new moon, which happened on the 12th of that month, being the period of the hurricane season, gave hopes that a change of situation, and an alteration in the air, which might be expected at this time, would effect a salutary change in the nature of the epidemic: these hopes were not frustrated, and the improvement which had been made in the internal state of the ship, by cleansing her hold completely of ballast, restowing every thing with clean gravel or shingle, and discharging a quantity of musty weavel-eaten ~~biscuits~~ ^{biscuits}, a principal cause of the malignity of the disease, joined to the change of anchorage and the temperature of the air, altogether operated a very great alteration for the better in the state of the epidemic; which by the latter end of October, had become much less fatal, the ardent heat of skin was much diminished, and more easily yielded to a moisture, the fore-runner of a remission, which rarely failed to take place in the course of thirty-six hours. The irritability of stomach, disposition to diarrhæa and hæmorrhage, were less frequent; and the bark was more readily borne on the stomach, and attended with better effects than it had hitherto been. We buried, in the course of October, at the hospital of Gros Islet, twenty-seven men out of eighty received in the month, some of whom belonged to different ships; and nine of those who died had been attacked in the course of the preceding month.

During the whole of these hurricane months, whilst the Majestic daily lost men by this malignant epidemic, two unladen ships were moored about a mile to leeward of that ship, and so situated as to be more

exposed to calms than the ships of war : these ships were but thinly manned, and their crews in all probability seasoned : as their masters were long conversant with the West India trade, they did not lose a man all the season, nor had they any dangerously attacked.

A number of transports were at this time moored in the sickly carenage of Fort Royal, where the hills intercept the breeze, and the vessels, by the closeness of their moorings, mutually intercept the wind from each other : these ships, as might be expected, suffered much in their crews by the same malignant fever I have described. The Ranger transport, which lay at anchor in the Bay all the hurricane months, at the risk of encountering one, had her crew thereby preserved, and did not lose a man.

With regard to the health of the squadron at large, the Bellona and Vanguard, two ships of seventy-four guns, with the Veteran and most of the frigates and sloops, being employed in actively cruising, their companies were preserved in good health : the same arrived to the Ganges, a ship of seventy-four guns, moored at the healthy road of the islands of the Saints; from which place, however, she had not been long returned to Fort Royal in October, when the epidemic manifested itself on board her, and first proved fatal to her commander Captain Archer, and some more officers and men lately arrived from Europe in the Scipio, a ship of sixty-four guns. This last-mentioned ship, though employed in cruising between the islands, had several of her people attacked with the epidemic, and lost some of them. Thus the disease seemed peculiarly severe on those who had lately arrived from a northern climate ; neglecting, or slightly affecting such as had been already seasoned to the climate. The ships which were moored in English Harbour, Antigua, were at this time equally sickly

with those of Martinique. Some frigates which were there refitting, lost a number of men.

The first part of November, the disease continued to attack several individuals; in some of whom the symptoms had all the malignancy of the original epidemic, and terminating fatally on the fourth or fifth day. The disease, however, was now less common, and more generally assumed the form of a remittent fever, without any dangerous appearances. About the middle of the month, heavy rains having fallen, preceded by an earthquake, much thunder and lightning, and the appearances of fiery meteors, and followed by strong gales from the north-east, the temperature of the air became considerably altered; and the occurrence of regular intermittent fevers in many persons about this time, announced that the epidemic was drawing near its termination, or at least was disposed to change into a more regular, benign, and less anomalous form than heretofore.

Forty-four were received into the hospital in November, almost all of them from the *Majestic*, out of which number, together with those who remained at the beginning of the month, fifteen died; many of whom were patients worn out by frequent relapses, or in whom the disease had been protracted by the bowels or breast being attacked.

The tenesmus and dysentery now attacked several people, but in a very slight degree; easily yielding to ipecacuanha in small doses, mucilaginous drink given plentifully, and injections of the same nature.

In December, the malignancy of the disease shewed itself less frequent; forty were received into the hospital, and nine died; five of which number only had the disease in the exact acute form. At this time all the ships of the squadron had their crews in a good

state of health, except the frigate La Pique, which had been captured, and carried into English Harbour in Antigua to be refitted, where almost a complete set of officers and a number of seamen had died in the course of the year. In the beginning of November that frigate arrived at Martinico, and the remains of her crew had acquired a good state of health, though they had the fallow complexion which men generally have when confined in impure air. November the 12th she sailed for Barbadoes, having received a ~~draught~~ ^{x draught} of seventy-five men from the Ganges, from being embarrassed with a convoy; and, from unsettled southerly weather, the passage was long: two hundred French negroes were taken out of a vessel, which was in danger of foundering, and were kept on board the Pique until her arrival at Barbadoes. They were confined some time in the hold: such a mixture of men, strangers to each other, has been often found to occasion sickness in ships*, and, together with other causes, fatally operated here, before the arrival of the ship at Barbadoes. A malignant yellow fever had made its appearance, and continued to rage with destructive violence amongst the crew of the Pique, and which is supposed to have proved fatal to 150 men. Out of the Ganges ~~draught~~ ^{x draught}, twenty-eight alone are said to have survived the epidemic: the negroes it is probable were saved by being disembarked immediately on the arrival of the Pique at Barbadoes. This is a melancholy instance of the generation of a fatal epidemic on board of a ship, at a time when the inhabitants of Barbadoes and the crews of the other ships in company, remained free from any such disease.

Captain Milne joined the Pique in this state, and as soon as possible put to sea, beating up to windward for a fortnight; in which time the epidemic disappeared. Ulcers of the lower extremities were now very

* See Dr. Blane on Diseases of Seamen.

common amongst the seamen of the ships of the squadron at Martinico, as well as a large moist species of psores, frequent in the West Indies, in humid constitutions, often of a copper-colour, and principally affecting the hips and elbows, called by the negroes *Craw-craws*; and which, though often supposed to depend on a venereal infection, is in reality a species of scorbutic itch, endemial in many islands of the West Indies, and curable by the means usually employed in Europe for the cure of the itch: it is observable, however, that the retropulsion of it by external applications, without a due observation of rules of diet, and the internal use of antiscorbutics and diaphoretics, as guaiacum sarsaparilla, crude antimony, sharp-pointed dock-root, &c. is often attended with dangerous consequences, as fever, dysentery, phthisis.

In January, 1796, the disease had entirely disappeared from amongst the Majesty's crew, many of whom, however, continued obnoxious to severe attacks of remittent and intermittent fevers. The *Sheerness*, a ship of forty-four guns, having arrived from the coast of Africa at Martinico, some of her people, on board of a prize from France, and some of the prisoners had the causer; of which three died early in the month: after which, and during the remainder of January, February, and March, no cases of ardent fever occurred, though many of those attacked with remittent and intermittent fevers, had many dangerous symptoms approaching to causer, which proved fatal to some few of them in February.

Intermittent fevers, generally benign, but in some accompanied with anomalous symptoms, were very common these months. Ulcers were the most common complaints in the hospital at this time, some of which were gangrenous and very obstinate. The *Vanguard*, in the latter part of February, landed about twenty men affected with scorbutic and gangrenous

ulcers. Many of the convalescents of the Majestic were also affected with ulcers of the legs, itch, and tenesmus.

During the three last months of 1795, and the three first of 1796, whilst the garrisons of St. Pierre and Fort Royal were still more fatally preyed on by the malignant epidemic, I have described as affecting the seamen. The prisoners of war, crowded, half naked, into badly aired transports, and amounting to from two to four hundred, remained free from any fatal epidemic; the itch and slight catarrhal affections of the breast and bowels were the principal complaints with which they were affected: this exemption may be attributed to their being in general people of colour. Negroes or Europeans well seasoned to the climate, to the sparseness of their diet, and to the infection of the itch having spread amongst the whole of them, which cutaneous disease, it would appear, renders those affected by it (as well as those having issues or ulcers) less obnoxious to febrile infection, even to that of the plague, and to fevers from measles.

SECTION III.

ON THE PROGNOSIS.

IF the prognosis in any disease be of consequence, the importance of it in an acute epidemic, such as I have described, in which the most dangerous symptoms often occurred in the course of forty-eight hours, must be peculiarly so.

1. With regard to the pulse, an irregular intermittent, or very slow unfrequent pulse (as sometimes

occurred) about the fourth day, when the pulsations in some individuals did not exceed sixty in a minute ; and when there was no succeeding critical evacuation, particularly by the skin, was generally followed by a fatal event.

2. The flaccidity, softness, or want of resistance of the pulse to the finger, was generally a fatal sign, and often helped to detect the imminent danger of the patient in the second stage of the disease, when he seemed to himself, and to by-standers, free from fever, pain, and only affected by weakness, whilst a gangrenous disposition of the alimentary canal had already occurred.

3. Hæmorrhage, particularly from the nose on the first day of the disease, even when the other symptoms promised well, was very generally followed by death. Critical epistaxis about the seventh day, happened in a few instances.

4. The disease being translated to the lungs, occasioning an acute peripneumony, was almost always fatal, generally in less than eleven days ; but in some cases the event was protracted to more than twenty.

5. The disease attacking with a rigour, announced danger proportionate to the violence and duration of it.

6. A syncope was attended by a disease generally fatal. A vertigo also shewed imminent danger.

7. Acute head-ach, with flushed face, eyes red and protruded, promised ill, and, if suddenly disappearing, without other salutary symptoms accompanying, shewed a dangerous disease.

8. Anxiety, jactation, the desire of getting up out of bed, and going out of doors, were very threatening appearances.

9. Icterus, or jaundice, occurring before the seventh day, was almost always a fatal symptom, even when casually perceived on the tunica albuginea, on the patient's rolling his eyes, or when the skin under the ears was in the least tinged. A very few cases occurred of a salutary crisis in this way, accompanied with diaphoresis on the first and fourth day of the disease; several on the seventh and succeeding days.

10. Petechiæ in very acute cases, and miliary eruptions in protracted ones, in no instance appeared to be critical, and were generally followed by a fatal termination. It was different with regard to effere, or prickly heat, a critical and salutary eruption of it, with diaphoresis, and followed by the appearance of boils and eruption of the lips, on or before the seventh day, promised a speedy recovery in many instances.

11. Erysipelas was critical in a few instances. A parotis was in one case critical. Gangrene of the scrotum proved a mortal symptom in a few cases.

12. Extreme ardour of skin and dryness, continuing without remission for sixty hours, in most cases terminated fatally.

13. Diaphoresis appeared to be the most general and natural termination of the disease, and accompanied by diminished ardour of the skin, and other salutary appearances, often denoted a happy termination. Symptomatic sweats in the first days of the disease happened in few instances.

14. A crisis by urine, depositing a laudable sediment, sometimes happened; and one well marked in-

stance occurred of crisis, by a larger flow of black urine.

15. The tongue speedily becoming dry, discoloured, and shrivelled, marked great danger, especially on the second day.

16. The danger indicated by vomiting was generally in proportion to the continuance of that symptom; and the colour of the matter thrown up, brown æruginous porraceous bile, particularly if thrown up at the commencement of the disease, shewed a great degree of danger: the emission of pure yellow bile was much less dangerous.

17. The vomiting of black matter was always followed by death, however flattering other appearances might seem.

18. A diarrhæa was almost always symptomatic; and when appearing early in the disease, denoted great danger, which was heightened by the appearance of liquid, green, porraceous, brown fœtid ejections. Black dissolved bloody stools invariably proved a mortal symptom.

19. The emission of worms was a dangerous symptom though in a less degree, when they were emitted alive than when dead. Few persons to whom this occurred recovered.

20. A tumor, pain, resistance, ardent heat, and extreme tenderness to the touch at the epigastric region, and scorbicutum cordis, was attended by a disease of the utmost danger.

21. Singultus cardialgia and eructation, were mostly followed by death.

22. Fætor of the person, of the patient's bedding, and of the discharges of the body approaching to a cadaverous smell, often discernible, in a small degree, from the commencement of the disease, was a very dangerous symptom; and the absence of it in some threatening cases was followed by a favourable termination, little expected.

23. Yellow serum contained in blisters, sometimes gave the first information of jaundice, and was a bad symptom: when blisters did not rise, there was great danger, the sudden drying and lividity of blistered parts was a mortal appearance.

24. The demission of the fever without some evident crisis, whether by sweat, urine, stools, expectoration, prickly heat, boils, large discharge from blistered parts, or ulcers, was not stable, the patient generally having a relapse, sometimes more fever than the first attack.

SECTION IV.

ON THE NATURE AND CAUSES OF THE EPIDEMIC FEVER OF 1795.

THE name of caufus, ardent, or burning fever, seems by far more applicable to this disease than any other, as it expresses one of the most distinguishing characteristics of it;—an intensely hot skin, sensible to the touch of every person. It is true, however, that this symptom, as well as the yellowness which often occurs, and lividity of the skin (observable more rarely) the bilious discharges which often take place from the body, the malignancy and tendency to pu-

trescency in this disease, which has been named heretofore from each of those symptoms, are not invariable in their appearance in the course of the disease. And in several cases which occurred in this epidemic, one or more of the symptoms mentioned were wanting, although the ardour of the skin was by far the most constant attendant of the disease.

These objections against naming a disease from a leading symptom, have been well felt by nosologists: hence the arrangement of fevers, according to the type and period of them respectively into continued remittent and intermittent, has been by many authors preferred. In this point of view, the fever I have described may be called a remittent fever, or tertiana continua, as there were always remissions in cases terminating well; as these remissions were more evident and frequent at the commencement and decline of the epidemic; as the exacerbations, though often erratic and quotidian, in general were more violent on the odd days, and the remissions more obvious on the even ones; as the disease, in a great many persons formerly subject to tertians, assumed the intermittent form; as it often terminated in a regular, simple, or double tertian; and as the epidemic insensibly changed into the form of a tertian fever. It is worth remarking that *causus*, distinguished by ardent skin, parched tongue, and insatiable thirst, is apparently described by Hippocrates, as a genus including several species, to which, as well as to this epidemic, his prognostics seem to be admirably adapted.

The antecedent causes to this epidemic may be thus enumerated:—

1. The epidemic constitution of the air, favourable to the production of malignant fever, shewing itself in various parts of the world. In Europe and America, in the year 1794, occasioned perhaps by the fre-

quent calms, reign of southerly winds, sultry summer, heavy rains, variable temperature, and by the atmosphere being charged with much electric fluid, evinced by the frequent earthquakes between the tropics, and by tremendous storms on the northern coasts of Europe and America, preceded or followed by dreadful volcanic eruptions.

2. The influence of marshmiasmata on persons not accustomed to their action.

3. Humidity of the ship, and exposure to the heavy rains.

4. The corruption of the internal air of the ship by so many persons being birthed in a small space at a time, and in a situation in which due ventilation, from the frequency of calms, could with difficulty be procured; to this was added the noxious mephitic exhalation from the hold, and especially from the pump-well and bilge-water*.

* This is the name given to the water which remains long in the well, and between the timbers of the ship, not extracted by the pump. This water, becoming heated and impregnated by the timber of the vessel, by the iron-work, and by various impurities which occasionally drain from the hold, undergoes the process of putrid fermentation, and emits a vapour of the most noxious nature. This gas blackening silver and eroding metals, is particularly felt at such times as southerly winds reign, when the quantity of oxygene appears to be diminished in our atmosphere. Many instances occur of persons being suffocated by it, on going imprudently into the pump-well. It seems to be one of the most general causes of epidemic sickness on board of ships, acting, as it would appear, not only on the vital principle, by the destruction of a proportion of the oxygene of the atmosphere, but on the nervous system and stomach; which organ generally gives the first warning of incipient fever from this cause, by nausea and vomiting. This seems to be the cause, in conjunction with others, why vessels from the West India islands, having a speedy passage to America, laden with sugar, molasses, rum, &c. are often sickly on their arrival, and communicate a dreadful alarm; for the drainings of sugar and molasses are very powerful in exciting the offensive vapour of bilge-water; and the seamen employed in

5. Dejection of mind, the want of sufficient employment, or labour, for the seamen, the abuse of spirituous liquors of the worst quality, and the imprudent consumption of fruit; as sweet oranges, guavas, bananas, &c. These seemed to act by hurting the digestion of the food, relaxing the stomach, and by the generation of a chyle too thin and rapid.

6. The too abundant usage of animal-food appears to have been one cause of the epidemic, as every man in health had a pound of fresh beef every day; which, having been imported from North America, or the coast of Terra Firma, after a passage of some weeks, was very reasonably suspected of not being wholesome. Biscuit damaged by keeping, and the humidity of the ship, but which was the best that could be procured, was justly looked on as a principal cause of the disease amongst the seamen: the officers who did not use it, had the complaint in a much milder degree than the sailors.

7. Infection may be enumerated as a cause of the spreading of the disease on board of ship, although it did not appear to be remarkably infectious on shore.

The more immediate or proximate cause of this disease, in its most violent degree, would appear to be the supervening of an acute malignant inflammation of the stomach, liver, intestines, or of the head or breast, to the primary accession of fever, somewhat in the same manner as in intermittent fevers, accom-

panying these ships, are fully exposed to the bad effects of it. So very common is this cause of epidemic fever on board of ships (that is, foul vapours from the hold and bilge-water) that in most instances of the sort this cause may be detected, and due attention should be paid to the obviating such noxious exhalations; which, though they may frequently exist, without evident very ill consequences, yet are doubtless, in conjunction with other causes, of very noxious influence.

panied with malignant symptoms (the *Comitutatæ* of Torti and others) depending on something peculiar to the individual: thus, in persons accustomed to the climate, temperate with regard to spirituous liquors and animal-food, and using a proper regimen, the disease merely assumed the form of a remittent fever, sometimes joined with catarrhal affections, but more often with bilious excretions, terminating by diaphoresis; and in which the use of the bark was attended by the best effects, after the first stage of the disease. Very different from this was the disease in persons neither seasoned to the climate by a former residence in hot countries, or by an abstemious regimen; and in whom the humours were vitiated, the digestion depraved, perspiration obstructed from humidity and filth, the viscera disposed to inflammation from the abuse of spirituous liquors, and in whom terror added a powerful force to all these predisposing causes to a violent and fatal disease. In most fatal cases the symptoms fully pointed out an inflammation of one or other of the viscera, and sometimes of all the three cavities; the heat, acute pain, tension, enlargement and foreness to the touch of the epigastric region, together with incessant vomiting, unquenchable thirst, and burning heat of skin, shewed that the stomach was inflamed. The smaller intestines and liver were often affected in the same way, proven by tension, pain of the right hypogastric, and umbilical regions. The dry cough, oppression at breast, sometimes pain of the side, laborious respirations, anxiety, and hoarseness of voice, often proved that the lungs were inflamed; and the flushed face, red and protruded eyes, fierce delirium, and succeeding coma, evinced an inflammation of the membranes of the brain, and of that organ itself.

This inflammatory disposition of the viscera, supervening to ardent fever, has been supposed by Ga-

len * and others, to be of an erysipelatous nature, and to be generally the cause of such fevers. As it occurred in this epidemie (and as it generally occurs in ardent fever in hot climates) it proved of a very malignant nature, speedily ending in a gangrenous disposition of the parts, with effusion of dissolved blood into the gall-ducts, stomach, intestines, thorax, or bronchæ. It is obvious therefore, that ardent fever, when accompanied by such malignant and rapid inflammations of parts so essential to life, must be attended with the most imminent danger. Dr. Blane, in his Diseases of Seamen, justly asserts this fatality of ardent fever in the year 1782, in the fleet in the West Indies. Hollerius †, one of the most Hippocratic physicians of the sixteenth century, after enumerating the unfavourable symptoms which often present themselves in ardent fever, recommends his reader not to undertake the cure of the patient, but to predict a fatal termination; and the dreadful ravages occasioned by it in the West Indies, during the present war, sufficiently prove the dangers attending a disease so formidable: indeed, many cases seem marked from the commencement with mortal appearances.

If this reasoning on the nature and causes of ardent fever be just;—if a malignant inflammation, too often in the first accession of that disease, fixes itself on a weakened organ, whether lungs, stomach, intestines, liver, or brain, and then seldom leaves it possible for art to do much,—what opinion are we to form of the

* “Erysipelatis autem accidentia his fere similia sunt et insuper febres quoque cum vehementissima siti laborantes cruciat; eas enim febris quascunq; id est, ardentes, antiquæ vocabant, magna ex parte advenire videmus jecoris aut ventriculi flammeis dispositionibus, atque in pulmonis inflammatione erysipelatis particeps ardentes febres excitantur; quemadmodum ubi in universa quoque corpore biliosi humores ad immoderatum ~~et~~ vorem perveniunt. Verum hæcquæ aut jecoris, aut ventriculi occasione eveniunt, omnium sunt vehementissimæ.”—Galen de loc. Affect. cap. ii.

† Holler. lib. ii. de Morb. Intern.

+ fer.

violent practices which have been recommended in this disease, and which, unfortunately for British soldiers and seamen, have been but too much followed? these are the administrations of calomel, and other drastic purgatives, so much used during the present war. If there be any steady, rational, though not infallible principles in medicine, it may justly be assumed as one; that purgative medicines are inadmissible in fever attended with inflammation of the viscera, particularly of the stomach, intestines, or liver. Hippocrates expressly prohibits the administering of purgatives, even in slight tumours, with inflammation at the commencement: he almost entirely interdicts their use in the beginning of acute diseases; and he has been followed by the majority of those physicians who, taking him and nature for a guide, have shewn themselves her ministers, not her dictators*.

With regard to the publications on the subject of calomel in ardent fever, the authors are very discordant in their conclusions. It is supposed by some, contrary to direct experience, that calomel, an irritating saline preparation of mercury, capable of inflaming and excoriating the stomach and intestines; of ex-

* The practice of giving calomel, joined with tartar emetic, in ardent fever, is not very modern. One of those *fixes* in medicine, an adept of the cacalogical school (a French physician who pretended he could arrest fevers by strong evacuations, in ~~dispute~~ *of Hippocrates*, reason and experience) who deem all diseases to arise from bile, and to be cured by the evacuating of it speedily. An old navy surgeon, in fine, in former wars, made use of a preparation of these potent medicines in fevers and dysenteries in the West Indies*: what was his success is not known, but he did not acquire any accession of fame from the practice. Whenever a seaman complained to him of fever, &c. he handed him some of his boluses, which the Doctor sometimes added would go through the patient like thunder-bolts, and clear all before them. The seamen gave the surgeon the appellation of Doctor Thunder-Bolt, which he preserved to the time of his death, and the practice, that of the thunder-bolt cure, now known by that of the calomel plan.

citing them to profuse secretions, and causing, by its action on the salivary glands, the fever of salivation; in some cases accompanied by phrenitis, angina, and a general swelling of the teguments of the head. It is supposed that this acts as an antiphlogistic in fever: an opinion contradicted by every principle of therapeutics. It has been asserted by some of the advocates for this plan, that whenever salivation could be brought on, the patient recovered: this may in general be true, although a great many instances are known to have occurred, in which death ensued: although salivation had been excited in ardent fever, some of which happened from the effects of the medicine; but in the ordinary cases of ardent fever, and in the ordinary operation of calomel on the salivary glands, a patient to whom this medicine is administered in ardent fever, will be either dead, past recovery, or out of danger, before the time in which a salivation is generally excited: but allowing that the irritation of mercury on the salivary glands, in the second stage of ardent fever; the evacuation produced thereby, and the foetid ulceration of the gums and fauces, may be useful in the same way as blisters, or (as is the fashion to say) by causing a new action in the system;—yet this does not prove that salivation is the cure of the fever, because it takes place in a case terminating favourably, any more than the free discharge and suppuration of a blister in a similar case, proves the cure of the fever solely by the blister. It appears to be more just to suppose that salivation, when it arises in favourable cases, is coincident with, and a sign of recovery, rather than the cause of it. Supposing the patient to have escaped the dangers of this formidable medicine, whether acting by promoting the dissolution of the blood, and the erosion of the capillary vessels, so common effects of mercury, and so fatal symptoms in ardent fever, or by determining violently the force of the circulation to the head, another effect of mercury,

dangerous in every febrile disease; or finally by exciting a gangrenous ulceration of the fauces and gums, a third effect of mercury.

Practitioners of veracity, however, have asserted that numbers of persons have recovered to whom, whilst in the ardent fever, large doses of calomel had been administered. This in some cases may have taken place whilst reason and experience sufficiently prove the danger of such practice (which may be classed with what the vulgar term kill or cure) in a disease where the mildest saline medicine is often hurtful. This boasted success may be more naturally accounted for in another way. When ardent fevers reign epidemically, it is often only unseasoned persons from cold climates which they attack, whilst the natives, or seasoned people, are at the same time affected by slight remittent, or even one day's fever in such cases; which have certainly, at least by young practitioners, been confounded with ardent fever, the administration of calomel may have been more safe, or rather less dangerous than in the last-mentioned complaint; and the patient may have recovered, and the case set down as an instance of yellow fever cured by calomel.

The reflections this subject have given rise to, have been suggested from seeing and hearing, for the last three years, the dangerous effects of the practice reprobated. From being a witness to the danger arising from the abuse of calomel amongst persons not of the profession (for at this time there is scarcely a young officer, or the master of a transport, or trading ship, coming to the West Indies, who is not supplied plentifully with calomel in pills and powder) several fatal instances of the misapplication of which, in such hands, have occurred to my observation within the last two months*. From the obloquy and distrustful

* June 1798.

imputations thrown out by persons of good sense and experience in the West Indies on the medical profession at large, and our own school in particular, on this account: and finally, from considering that when this practice has acquired such ascendancy, that practitioners seem to pride themselves in administering some hundred grains of mercurius dulcis in acute disease, in the course of twenty-four hours, which is actually the case, some animadversion on a practice so dangerous is highly necessary. To the naval and military commissioners, charged with watching over the health and preservation of our seamen and soldiers, these considerations are more particularly addressed, as being experienced practitioners who may think it their duty, as it is in their power to prescribe in their different departments, a practice contrary to every principle of medicine, more worthy of the adepts of Van Helmont, and such chemical visionaries, than of the present day; and which has too long been in the hands of young and inexperienced naval and military surgeons in the West Indies.

The dissolution of the vital fluid, which took place speedily in this disease, and which proved generally a fatal symptom, was remarkable. The term putrefaction has been given to this appearance, and objected to by whatever name it may be distinguished. However, it seems to be the effect of the decomposition and dissolution of the concrescible part of the blood, perhaps occasioned by the parched inflamed state of the bronchæ, by which the absorption of oxygene, or vital air, is prevented: hence the blood acquires a dark colour; becomes thin, not coagulable; entering into the capillary vessels; tinging the skin yellow or black; passing into the biliary ducts; eroding the vessels of the nose, gums, urethra, lungs, fauces, stomach, and intestines; where it mixes

with alimentary matters, becomes still more corrosive, and acquires all the properties of the atrubilis of the antients.

SECTION V.

OF THE APPEARANCES ON DISSECTION.

NOTWITHSTANDING Morgagni, who has laboured so diligently in the dissection of morbid bodies, judged that it was not safe to inspect the cadaver of a person deceased of an infectious and malignant disease, I have never known any bad consequences result from opening the bodies of those who died in the malignant ardent fever, when proper precautions are used; and though it is true that few inspections of this sort took place in the epidemic now treated of, yet some did occur, and were found to be nearly the same as have fallen under my inspection within the last three or four years; and such cases have been pretty numerous.

The habit of body was generally a little emaciated; in very acute cases tinged of a deep yellow colour; marbled with livid appearances about the neck, breast, and abdomen; the mouth full of black putrid gore, the fætor exhaled very considerably, and the body sometimes retaining a considerable degree of heat for hours after death; the fat and celular membrane appeared of a deep yellow; in the abdomen the omentum was generally found adherent, inflamed in some degree, of a deep yellow colour, and seldom much wasted; the stomach always appeared inflamed, its vessels distended, with black dissolved blood; the villous coat of it eroded, sometimes more deeply ul-

cerated, and not unfrequently gangrenous or mortified about its fundus: in all cases containing a thin black foetid fluid, often as dark as pitch. The smaller intestines generally exhibited similar appearances to the stomach; and rarely were they found, in all their course, free from gangrene: the surface of the eroded villous coat frequently covered with a portion of black dissolved crassamentum, effused from the mouths of the open capillary vessels. The greater intestines, though always inflamed in some measure, generally had suffered less than the smaller ones, unless in case of the patient having been early affected with tenesmus, and afterwards bloody stools; when the greater intestines were generally found gangrenous, or even sphacelated after death, or at least eroded, and lined with black and foetid gore, worms were frequently found in the intestines. The liver was found almost constantly enlarged, inflamed, livid on the concave surface of it, distended with a black thin dissolved blood; the gall bladder turgid with a black fluid, resembling that found in the stomach and intestines; and which appeared to be, in the room of bile, dissolved black blood, effused through the substance of the liver, and thence by the biliary ducts into the intestines.

The mesenteric vessels were charged with black blood, and obstructions of the glands frequently found. In the breast a very considerable degree of inflammation was generally found on both sides of that cavity. In one case, the whole of the lung of the right side firmly adhered to the pleura; the whole of the lungs, but more especially the posterior part of them, distended with blood, rendering that organ as heavy as the liver, of a livid colour, and in some parts gangrenous, or nearly approaching thereto: even the heart itself, in the instance mentioned, and in many others which I have seen, appeared to be considerably inflamed with slight effusion of lymph on its surface,

and the blood-vessels of turgid with black dissolved blood. The right auricle has been often found to contain polypous concretions, as well as the ventricles of the heart.

The appearances of inflammation and distentions of the vessels of the head, with their black blood, has been generally found; slight effusion of lymph on the surface of the brain often occurred, and the ventricles frequently contained some yellow serum.

These appearances, which are pretty similar to what have been observed by others who have treated of the ardent fever in Europe and America *, sufficiently evince the danger of administering emetics, purgatives, and mercurials, in a disease in which dissection has invariably proved that the stomach is principally affected, the blood is often dissolved, putrefaction far advanced in it, and the plastic power of it apparently destroyed in some cases for days before the fatal event; a decomposition of that fluid taking place, rendering it unfit for the support of life.

SECTION VI.

OF THE METHOD OF CURE.

IN the first stage of bleeding, which often is attended with good effects in ardent fever of the West Indies, and which appeared to be indicated from the violent inflammatory symptoms, was practised in the

* Sic Lancisi Guidellus in Bianchi Hist. hepat. p. 3.—Tissot in Hist. Epidem. Lausan, 1755.—Desportes Maladies de St. Doming. tom. 1.—Mozeley on the Endemial Cause Leauteaud *écrit de la Médecine* p. 29.

beginning of the epidemic in several very robust young men, but with very bad success, diminishing the strength of the pulse, but very much encreasing the frequency of it, without perceptibly lowering the excessive heat or urgency of the symptoms. The effect of this evacuation, in diminishing the strength of the patient, and accelerating the second stage of the disease, was remarkable: the blood taken away was loose in its texture,—the crassamentum dark coloured,—the serum tawny, and in considerable quantity. Not one of those bled recovered, although they were the most robust among five hundred men; the bilious vomiting appeared to be aggravated thereby, and a diarrhæa coming on, speedily sunk the strength of the patient.

When it is considered that the persons attacked by this fever had been twelve months in the country, and consequently were not exactly in the predicament of persons just arrived; that most of them were of a scorbutic habit of body, had long been operated on by the depressing passions and bad air, had used an unwholesome regimen, and that bilious discharges of the greatest degree of exaltation and tenuity always took place, there can arise no surprise that bleeding did not prove serviceable in this epidemic. It is needless to say, that vomiting was never excited; the symptoms sufficiently indicating the danger from emetics, had not experience demonstrated the fatal effects of them in ardent fevers, and even in some constitutions of remittent and intermittent fevers in these climates.

The proclivity to diarrhæa, the facility with which that symptom was brought on, and the generality with which it occurred as a dangerous symptom, and never, or rarely, as a critical and salutary evacuation, brought on with great exhaustion of the patient, prevented the administration of drastic purgatives; even lenitives required much caution in the exhibition, after the

disease had passed the third or fourth day. Glysters were had recourse to with more safety, and were injected two or three times a day, taking care to choose such times when the violence of the fever seemed somewhat remitted; for in the violence of the accession, which generally took place in the heat of the day, glysters often fatigued the patient, without procuring evacuation, until somewhat of a remission came on. These glysters were not always of a purgative quality, for it was rarely necessary to repeat such more than once; but they were composed of emollients, refrigerants, and antiseptics, intended to cool the body, and obviate the tendency to putrescency. A small quantity of castor oil, or the cassia fistularis, boiled in an emollient decoction with brown sugar, was the opening glysters generally used. As a refrigerant and antiseptic, lime-juice was sometimes used, mixed with the cool injections; and I think was of use.

As the head was generally affected with acute pain, and a tendency to delirium, it was found of much importance to have the hair taken off, and the part shaved. Whenever this was submitted to, very good effects were observable, as well immediately by cooling the part, as by giving occasion to the application of refrigerants. Unluckily, the men, who wore their hair long and thick, were those not only who were more obnoxious to the disease, perhaps from this acting as one cause of increased determination of the blood to the head, but were so much attached to this ornament, that many of them could not be prevailed on to let the hair be taken off. This vain obstinacy was generally observed to accompany a dangerous or fatal disease.

The patient was bathed repeatedly in the day with fresh lime-juice; the head, hands, and feet in particular, were very often rubbed with a fresh lime: slices of limes were placed on the forehead; the breast

and epigastric region were frequently bathed with the same; and a piece of linen wetted with lime-juice was recommended to be applied to the genitals, and kept constantly wet.

This practice has nothing new in it; the Arabian physicians recommended similar refrigerant applications in ardent fever, which, from the climate they practised in, they must have been better acquainted with than the Greeks or Europeans. The external use of vinegar has been serviceable in the plague and other malignant diseases; and the practice now recommended is very generally used in the island of Martinico, and it is probable in most of the islands, by the native and negro inhabitants.

It is for modern chemists to explain the method of operating of the acid of limes, externally employed in ardent fever. Whether the blood be destitute of a due proportion of oxygene, by the greater necessity of consumption thereof in fever, or by the bronchæ not absorbing it, from excessive dryness, and that vital fluid is thus supplied from the citric acid applied externally; or whether the lime-juice acts simply by its refrigerant qualities, I shall not pretend to determine. It seems, however, probable that the ardent heat, tendency to dissolution of the blood, and disposition to putrescency, all of which occur so remarkably in such fevers, are obviated by the absorption of the vegetable acid, when applied externally; as when it is applied to putrid, gangrenous, and bloody ulcers, it has the most remarkable good effects in correcting the fœtor of them, restoring the local coagulability of the blood, and disposing to circumscribe the ulceration, and the casting off the sphacelated parts.

However lime-juice, thus applied, may act, it is certain that it was attended with the best effects, and was justly looked on as one of the most efficacious

means of relief by the patient, alluaging the intense heat, alleviating in some measure the head-ach, and calming the restlessness and jactation which were generally present. It was found necessary occasionally to wash the hands and feet with a sponge and some cold water, in order to clear the skin of the mucilaginous part of the lime-juice remaining on it (which was found to have very soon lost its acidity) and to cool the patient still more. When the ardent heat of skin began to diminish, which generally happened in three days, this practice of applying lime-juice was omitted; and when at any time the skin shewed a disposition to relax, and there was any appearance of perspiration, attended with alleviation of pain, restlessness, vomiting, &c. and not one of those violent symptomatic sweats, aggravating the sufferings of the patient, which sometimes, though rarely occurred, in the former case the application of refrigerants was omitted.

There are various applications used by the natives here to diminish intense head ach in fever; the application of limes in slices to the forehead, or the smooth fleshy leaf of the cactus, raquette, or prickly pear (without spines) cut lengthways, and applied to the head, were found very beneficial; as they were when applied to the wrists and ancles.

The most essential indications in this fever were certainly to appease an extreme degree of thirst, to stop the violent strainings to vomit, ~~and~~ to correct the acrimonious bile, the other corrupted fluids contained in the alimentary canal, and to dilute the circulating mass at large: this was the more difficult, as in violent cases the peristaltic motion was in general inverted; and if that did not take place, or was remedied, the lacteals often, as it were, seemed to have entirely lost their power of absorption, the fluids taken in, passing off by stool.

Various cooling beverages were essayed in order to answer this indication; as orangeat, made of Seville-orange juice and brown sugar, or fresh molasses, where laxatives were necessary, was found to be one of the most useful. Lemonade, tamarind beverage, an infusion of the leaves and tops of the tamarind-tree, a ptisan formed of the cooling milky pulp of the four sop*, solution of cream of tartar, barley water, and an infusion of lettuce, sorrel, and purslain, which last is much esteemed by the inhabitants of Martinico, as refrigerant and calming in fevers. It was alone from trying these beverages that it could be determined when one of them agreed with the stomach, and was relished by the patient. The acid drinks often disagreed with the stomach; and when a diarrhæa supervened, it was found necessary to leave them off on that account, as they constantly aggravated the complaint. It was found highly necessary to pay every attention to the cravings of the patient, especially with regard to drink: cold water was very often preferred to every sort of beverage. In some cases it agreed well with the stomach, being retained when other fluids were rejected, and disposing to diaphoresis; in general, however, the use of cold water tended to excite diarrhæa, an inconvenience which did not follow the use of toast and water, or the ptisan above mentioned.

The symptom most dangerous and most difficult to be overcome, was nausea and vomiting: when it appeared purely æruginous early in the disease, the patient very rarely recovered.

Saline draughts, in the act of effervescence, sometimes succeeded; but far more often failed in stopping this symptom. Magnesia given with tamarind-drink, æther in cold water, and acid of vitriol in

* A species of the anona.

water, were sometimes effectual in appeasing the vomiting; but were often, as well as every other acid and saline medicine, totally contraindicated from the excoriation and inflammation of the œsophagus and stomach, occasioned by the constant straining and vomiting of acrimonious bile.

When the head was not much affected, opium given in the quantity of one-third, or half a grain, and repeated every four or six hours, sometimes was of service in appeasing the great irritation of the stomach, whilst a solution of opium and camphor in spirits was applied to the epigastric region, with advantage in some cases *.

When the violence of the fever had in the least subsided, and especially when there appeared the disposition to diaphoresis, bathing the patient in water of the same temperature, a very little warmer than the atmosphere, in which a quantity of lime-juice was put, whilst the patient was well bathed with the juice, and kept in the bath as long as his strength would permit; afterwards having a flannel waistcoat put on, and being put to bed, was found in many cases to be attended with the best effects, and particularly serviceable in allaying the nausea and vomiting.

The patient generally found great relief whilst in the bath, even though the violence of the complaint returned soon after, and where the stomach was not actually inflamed (in which case the bath would appear to be improper) and nature had any tendency to throw off the disease by a determination to the surface, the true crisis of the disease: this practice was attend-

* The juice of menth v. given in the quantity of a spoonful every hour; a little green wormwood in white wine; a quantity of green wormwood bruised and applied to the stomach; brisk spruce-beer and colombo-root, have succeeded against this symptom.

ed with the most salutary effects. A colliquative diarrhæa, a tendency to hæmorrhage, and dissolution of the blood, and an evidently formed malignant inflammation, whether of the breast, liver, stomach, or intestines, too often prevented the usage of this efficacious species of bath. When the patient complained of a chilliness on going into the water, or afterwards, the bath was found to be prejudicial; ~~and~~ the patient was speedily put to bed, and the bath was not repeated. On the contrary, when it was succeeded by a warm moisture on the skin, and the stomach retained what was taken down, this disposition was promoted by the use of a blanket, and of warm drinks, as warm lemonade, tea, warm tamarind drink, with spirit of nitre, or an infusion of a plant called Country Tea *, which taken warm with orange-juice, acts as a powerful diaphoretic ; and thus the safety of the patient was in some cases insured.

With regard to the practice recommended by Dr. Jackson and others, of bathing in cold salt-water, and sluicing the patient with the same, it was not tried, at least in the first stage of the disease ; the nausea and vomiting, and symptoms of visceral inflammation, precluded the use of it : there is reason to suppose, however, that the practice is often very judicious, when the circumstances above mentioned, or the constipation of the pores of the skin, being a cause of the fever, do not contraindicate the use of it.

The application of blisters to the back, sides, and epigastric region, in order to allay the disposition to vomiting, was often had recourse to in the beginning of the disease ; and they sometimes obviated that disposition ; in general, however, they excited too great

* Capra Lin. Thee du Pays de la Martinique, cats-tongue of some of the English islands.

a degree of irritation, acute pain, and dyfury, when the fever was yet ardent.

It was early at the commencement of the second stage, when the heat began to diminish, that blisters were found of the greatest utility in allaying the nausea and vomiting. Here, as is justly observed by Dr. Moseley, it is found of great consequence to watch diligently the diminution of heat and rapidity of the circulation, lest the delay of a few hours may make the administration of this, or any other remedy, useless. Besides the use of blisters in allaying the nausea and vomiting, they were found of the greatest benefit in comatose affections of inflammatory dispositions of the thoracic and abdominal viscera, and in obstinate head-ach; whereas, when there was a phrenetic and outrageous delirium, they were not of service. As the progress, from an extreme degree of excitement to its opposite, was often very sudden, and as nothing seemed so efficacious in stimulating as blisters, they were applied successively to the back ribs, epigastric region, and extremities.

The effect of blisters, applied in this stage of the disease, was generally to support the strength of the circulation, now flagging, to cause a revulsion from the viscera, and to determine towards the surface, which they often did by a profuse discharge of serum and matter, which, with a considerable degree of inflammation, often continued for several days, apparently with the effect of being a crisis of the disease. There are some persons in whom blisters occasion the most violent sufferings and irritation; and some such instances occurred in this epidemic, but they were rare; and the removal of the blisters was attended with alleviation of the patient's sufferings.

Dyfury often occurred, but was remedied by the usual applications of camphorated oil, and the use of

demulcents. The principal objections made against blisters in malignant fevers, by Baglivi and others, are on the supposition of the crasis of the blood being strongly disposed to dissolution by their use, and the danger of gangrene of the parts to which they had been applied. With regard to the first question, it did not appear by any means in this epidemic that blisters of cantharides had any effect in producing hæmorrhages from any part of the body: and with regard to the second, a gangrene of blistered parts, it never occurred here of any consequence. Allowing then, that blisters may often prove hurtful in ardent fever in the first or inflammatory stage when very violent, and that there are some constitutions in which they cannot be borne, yet it must be acknowledged, that they form the most efficacious means of cure in this formidable disease, insomuch that every thing besides which can be done for the patient in the second stage of this fever, compared with the effect of blisters, would appear to be of little consequence.

Independent of the use of blisters as stimulants, as evacnants (in which way their operation in fevers of this climate is far from being inconsiderable) and as causing a powerful revulsion from the inflamed viscera to the surface, or occasioning a new action much more safe and efficacious than that produced by mercury on the mouth and fauces, they serve for an index of the danger or safety of the patient; as when they do not rise, or if after casting off the cuticle they become dry and livid, there is little hope of the recovery of the patient: whereas the plentiful suppuration of blisters often prevents relapses, as happened in several instances in the epidemic now treated of.

In this stage of the fever, the Peruvian bark was often had recourse to, seldom in substance, for in general, the stomach and intestines could not retain it in that form but in infusion, given in as large quantities

as the stomach would bear. In general, this medicine was serviceable, and has scarcely ever done any harm, the stomach rejecting it when it might have been hurtful. It was in the beginning, and still more at the latter end of the epidemic, when the remissions were pretty evident, with dispositions to diaphoresis, the stomach retentive, the epigastric region soft, and the tongue somewhat moist, that a strong infusion of bark was attended with the best effects. When it happily passed by the pores of the skin, as was sometimes the case, it ensured the safety of the patient; and the thirst remaining, with some degree of fever, served to induce the patient to drink the more freely of the infusion.

This method of administering that excellent febrifuge, as it is the original one by which it became known to Europeans, so it seems to be the form alone eligible where there yet remains any considerable degree of fever, which, when it operates by perspiration, diuresis, or stool, it tends immediately to diminish; whereas, given in substance, when the skin is yet parched and the tongue dry, it either constipates the patient, or excites a weakening diarrhæa, tends to encrease the fever, and seems to be indigestible whether it acts in the one way or the other. Vitriolic æther, a small quantity of oil of peppermint, or of the acid of vitriol, were occasionally added to the infusion of bark when the stomach rejected the simple infusion, and sometimes with good effects.

Many malignant cases, however, occurred in the commencement and latter part of the epidemic, but still more frequent about the acme of it, the equinox, when the bark was ineffectual in the second, and in every stage of the disease in common with every other remedy; nor is this to be wondered at, since the medical art is so limited in its powers: were they more extensive, by what operations of nature and of art is it possible to arrest the progress of a malignant

inflammation of the viscera, with marks of incipient gangrene and a dissolution of the vital fluid *, which often, in Europe, insidiously kills the patient in twenty-four hours; and the marks of which gangrenous disposition once ascertained, renders all remedies futile. It is, indeed, true that we read of cases in which there occurred symptoms of gangrene, and even sphacelous of the alimentary canal in this disease, which were cured by evacuations: such cases are so extraordinary, that they should be looked on as things next to miracles, and not as circumstances in the ordinary course of nature, and as giving confirmation to a certain mode of practice. Unfortunately for the young, credulous, and inexperienced, accounts of extraordinary recoveries from yellow fever, after atrabiliary vomiting and stools, too often make a strong impression on their minds, and they implicitly adopt that practice which appears to them so efficacious.

Stimulants were often necessary and useful in this stage of the disease, in such cases as appeared to be destitute of visceral inflammation, yet where the nausea and vomiting frequently recurred. Wine, however, was very seldom borne, and was oftener rejected the whole course of the disease, whilst those who indulged in the use of it too early, suffered severely. Those who drank wine in the first stage of the disease, contrary to advice, in general died; and the administration of it required the utmost caution.

An infusion of snake-root, with a little wine, sometimes agreed with the stomach, and was serviceable as a diaphoretic; to which was often added other saline mixture, or Sp. Nit. D. according to the state of the stomach and the degree of fever remaining. Camphor, whether alone or formed with nitre, could very seldom be borne on the stomach; nor were its effects remarkable.

* See Morgani de Causis et Ledibus Morb.

A simple infusion of dry or green ginger, sweetened, was often retained on the stomach when no other beverage could be borne, and was followed by the best effects, coinciding with the operation of blisters, and tending, with nourishing fluids, to re-establish the tone of the stomach, and raise the pulse. The distilled water of the flowers of the Seville orange, given in the quantity of ʒiſs every two hours, was tried in excessive nausea and vomiting, and sometimes succeeded in allaying that distressing symptom: an infusion of the leaves of the Seville orange-tree sometimes answered the same intention, and sometimes succeeded. The columbo-root was sometimes administered to obviate the nausea, vomiting, and diarrhæa, and seemed to be of use when it could be borne on the stomach; but it too often happened that it was rejected.

In a few protracted cases, in which there were no symptom of visceral inflammation or diarrhæa, but when the dryness and heat of the skin continued, the washing the patient with lime-juice, throwing cold water on him, afterwards putting on him a flannel-waistcoat, covering him with a blanket, and giving him to drink some warm lemonade, tea, &c. had the good effect of promoting a diaphoresis, and a more full remission of the fever: this seemed more fully indicated in such cases as were attended with hæmorrhage, in addition to the state above mentioned.

The tepid lime-juice bath was, however, more indicated in all stages of the disease, and more often used than the cold bath. The moisture of the skin, and a moderately full and soft pulse, pointed out the propriety of the temperate bath at this time, which often relieved the patient for the present, and in a permanent manner, by promoting a diaphoresis, allaying heat, and disposing to sleep, with a remission of fever.

As the bath could not always be procured when signs of a diaphoresis made its appearance, the application of warm lime-juice and a solution of common salt to the surface of the body, whilst the wrists and ankles were bound with a bit of flannel wetted in the liquor, was found a very useful supplement to the bath, and, aided by the use of warm drink, helped to excite a diaphoresis and a good remission of the fever. It sometimes, though rarely, happened that purging was indicated on the fourth or following days by fulness of the hypogastric region. Borborigmi, thick yellow urine, weight and pain of loins and knees in such cases, when a sufficiently clear remission of the fever occurred, when the ardent heat of the skin was diminished, and yielded to a degree of laxity; when the stomach had become retentive in some measure, and when there seemed to be sufficient safety in the situation of the patient, and steadiness in the progress of his disease, to allow of postponing the administration of the bark,—in such circumstances a laxative was administered, generally composed of an infusion of cassia fistularis, with tamarinds, cream of tartar, orange-juice, or soluble tartar, made agreeable with syrup or sugar.

This rarely failed to procure plentiful stools, which, as has been already remarked, were with ease induced, during the whole constitution, by the most simple means, insomuch that even the administration of emollient glysters required some caution, as the exciting of diarrhæa was attended with the worst effects in the ardent stage of the fever, generally terminating in a colliquative flux and death.

When the indications for purging occurred, and glysters did not procure sufficient evacuation, if the patient, with remission of fever, was extremely weak, and his stomach irritable, it was thought by far more safe to postpone for some days the administration of a

laxative; in the mean time supporting him by such food as he could bear, and giving him plentifully of the infusion or decoction of bark. Generally, when the patient had free stools, it was thought advisable to commence the plentiful use of the bark, as the most efficacious means of obviating a new accession of fever, to which the debility, occasioned by the evacuation, might have given rise. In some cases, where there were symptoms and evidence of worms in the intestines, and the patient was sufficiently free from fever, a dose of castor-oil was administered with advantage.

With regard to the checking of diarrhæa, so often symptomatic and colliquative in the disease, it too often happened that every thing failed: columbo-root, and half-grain doses of opium sometimes checked it, assisted by rice-water, bread-tea, light starch-gruel, &c.

As the disease in protracted cases had often in its progress remissions, and sometimes intermissions for days, followed by ardent fever, with daily exacerbations, it was found necessary occasionally to vary the method of cure according to the symptoms, always holding in view to moderate, and if possible shorten the violence of the accessions, by direct refrigerants internally and externally. If the skin was dry and ardent, by diaphoretic tepid drinks, application of hot lime-juice and salt, the pediluvium, or tepid bath; when a moist hot skin, and full supple pulse shewed a disposition to sweat, by evacuating the bowels in the commencement or decline of the accession by glysters; and when a good remission or intermission occurred, no time was lost in endeavouring to render it permanent by the plentiful administration of bark; to which the tepid bath was often joined with efficacy.

It has before been remarked, that in this epidemic it was often of the greatest consequence to

watch with diligence the presence of a remission or intermission. These were generally first discernible early in the morning by break of day, when the patient after acute sufferings, ardent heat, and jactation in the beginning of the night, had happily been visited by some moisture of the skin, with refreshing repose towards morning, and these by the remission of fever. This remark holds general in some measure with regard to all fevers in this climate, and renders it indispensably necessary to a practitioner, the visiting patients in acute diseases at a very early hour. When a remission was so discovered, the patient was supplied with as much infusion of bark as his stomach would bear before the heat of the day came on, whilst the decoction was sometimes injected by the anus.

The diet in this fever was, in a great measure, pointed out by nature; the appetite of the patient sufficiently indicating what was hurtful or serviceable. In general, there was not the smallest desire for any sort of nourishment during the violence of the fever, and very little for many days afterwards: animal-food and soups prepared from it, were particularly nauseated during the continuance of the fever. Such light food as the patient had been accustomed to whilst in health, as tea, light chocolate, water-gruel, boiled rice, panada, &c. were generally most relished when the patient began to recover. When there were evident, or even obscure remissions in the course of the fever, it was found highly necessary to support the strength of the patient by light food and a small quantity of white wine well diluted; but it was found very necessary to be abstemious in every respect, particularly with regard to wine. Several who indulged too freely, with regard to wine and animal-food, severely felt the effects of their intemperance; of which number was the only officer who died, after three relapses.

174

In the very irritable state of the stomach, however, when there was the greatest difficulty in retaining any thing, it was found beneficial and necessary to indulge, in a moderate degree, the cravings of the appetite; sometimes a few spoonfuls of milk were retained, when other things could not: the same happened with regard to porter, spruce beer, and portable soup.

The desire for acidulent drinks and fruit was generally very predominant; and when the stomach was not too weak, the indulgence in them was beneficial. The fruit called Sour Sop, or Curasol, was generally allowed and wished for in preference to all others, as containing a cooling demulcent, detergent, and opening pulp, of the most salutary nature, and providentially one of the most common in these islands. Sweet oranges, which are extremely abundant in Martinique, were mostly prohibited, as there was great reason to suppose the intemperate use of them was one cause of the disease in some subjects, as they, in common with all sweets, dispose to the generation of bile; and as the immoderate use of them is looked upon, and perhaps with justice, as a powerful predisposing cause to fevers during the sickly seasons in the islands.

In a great many cases, it happened that every thing acidulent as well as saline, was vastly prejudicial, by irritating the stomach and occasioning nausea and cardialgia: mild farinaceous drinks were here alone administered.

Sea-bathing was attended with the best effects in re-establishing the health of those who had laboured under the disease, and was very effectual also as a preventative; it being observable that those who frequently used the bath remained free from the epidemic, or at least had it in a very slight degree, compared to others.

The habitual use of flannel worn next the skin; the very temperate use of animal food and wine; the abstinence from supper; a moderate use of capficum, or Cayenne pepper, in diet; avoiding the night-air and late hours; the preventing costiveness by diet; the pil-ruffi, or the cassia fistularis; the occasionally chewing of Peruvian bark, snake-root, orange, or shaddock-peel, especially when exposed to infection; the use of a little bark in powder, on changes of weather coinciding with the phazes of the moon; and finally, activity of the body and tranquillity of mind, were experienced to be the best preventatives against this dangerous malady.

CHAPTER III.

Of the Diseases (exclusive of Ardent Fever) which occurred between August 1795 and April 1796, in the Naval Hospital, Martinico.

THE most remarkable of these diseases were intermittent fevers, tertians, or double tertians, and irregular intermittents. A great number of those who had been affected by the epidemic in September, October, or November, and who had not had evacuations accompanying the crisis proportionate to the violence of the disease, particularly by the skin and the eruption of boils, were re-attacked by fever, which intermitted, and generally took the tertian type. Another description of persons had attacks of intermittent, *viz.* those who, after having been weakened by the ardent fever, had used an improper regimen, soon became replete, cacochmic, and relapsed into intermittents. Lastly, In some, attacked with ardent fever, the disease, with pretty evident remissions from the beginning, became more clearly remittent towards the decline of the disorder; then took on the form of a double tertian, and at length simple tertian; which, in many instances, recurred with a few paroxysms once or twice in the course of a lunation, most generally about the full or change of the moon.

It was highly necessary to observe the same cautions relative to purgatives in these intermittents, as in the

epidemic fever; for when given to a patient, free for some days from fever, they generally brought on an attack; and when given to a patient to whom regular accessions happened, the disease became more violent, and the paroxysms protracted. Soluble tartar, sal. rup. ellienfis, or other neutral salt, given in decoction or infusion of bark, were found sufficiently strong laxatives when indicated, and operated with safety. Aloetics sometimes answered the same purpose without debilitating the stomach: emetics, here as in the epidemic, were contraindicated by the great tendency to irritability of stomach which attended these tertians.

Due attention was required, with regard to the state of perspiration in these intermittents, as it frequently happened that the evacuation by the skin was not sufficient to carry off the degree of fever excited: in such cases the use of the tepid or warm bath, towards the end of the paroxysm, and the internal use of diaphoretics had good effects, by taking off the remains of the fever. The application of flannel bandages wetted in hot lime-juice, and salt to the wrists, ancles, and neck, were substituted, with advantage in some cases, to the bath,

The diaphoretic regimen, used before the attack of the cold fit, as recommended by Lenac and Lind; but without the administration of opium, recommended by the latter, was in some cases effectual in stopping the accessions. A strong draught of volatile concrete alkali given in effervescence with lime-juice or vinegar sometime before the attack of the fit, putting the patient between blankets, and repeated warm draughts of lemonade, tamarind beverage, or country tea, administered so as to excite a plentiful sweat, oftentimes arrested the paroxysms.

In many obstinate cases advantage was reaped from administering the infusion of bark in large draughts

as soon as the sweat commenced, which was evidently promoted in quantity and duration by the medicine; and by thus taking advantage of the patient's thirst, a quantity of the febrifuge was administered, sufficient to shew its good effects on the patient on the succeeding accession, whilst the stomach was fortified, and the diaphoresis promoted.

In obstinate cases, flannel worn next the skin, change of air to an elevated situation, the occasional use of sea-bathing, the use of capsicum, ginger, serpentaria, salammoniac, and blisters, joined with the bark, or given alone, whilst the use of the bark was left off for some time, and repeated in full doses about the lunar point, when it was observed the patient was most generally attacked, seldom failed to effect a cure. Arsenic, recommended by some, was never tried; as the chylopoetic viscera of our European patients in these climates, are generally by far too irritable for a remedy of that corrosive nature; which, though it may often put a stop to paroxysms of intermittents, has been found to leave the foundation of more dangerous diseases.

Obstructions of the liver and spleen happened in some instances; but seldom were attended with serious or obstinate effects. Neutral salts, chalybeats, sea-bathing, change of air, aloetic and gum-pills, and exercise, with repeated application of blisters, generally effected a cure of these complaints; to which, in several, the suffering an attack or two of intermittent fever, followed by diaphoresis, urine with luteritious sediment, and bilious stools, contributed not a little. The following case, though perhaps much more common than is supposed, is worth relating in this place:—

John Ellis, seaman, aged twenty-seven, but with the aspect of a man of fifty, from the abuse of spiritu-

epidemic fever; for when given to a patient, free for some days from fever, they generally brought on an attack; and when given to a patient to whom regular accessions happened, the disease became more violent, and the paroxysms protracted. Soluble tartar, sal. rup. ellienfis, or other neutral salt, given in decoction or infusion of bark, were found sufficiently strong laxatives when indicated, and operated with safety. Aloetics sometimes answered the same purpose without debilitating the stomach: emetics, here as in the epidemic, were contraindicated by the great tendency to irritability of stomach which attended these tertians.

Due attention was required, with regard to the state of perspiration in these intermittents, as it frequently happened that the evacuation by the skin was not sufficient to carry off the degree of fever excited: in such cases the use of the tepid or warm bath, towards the end of the paroxysm, and the internal use of diaphoretics had good effects, by taking off the remains of the fever. The application of flannel bandages wetted in hot lime-juice, and salt to the wrists, ancles, and neck, were substituted, with advantage in some cases, to the bath.

The diaphoretic regimen, used before the attack of the cold fit, as recommended by Lenac and Lind; but without the administration of opium, recommended by the latter, was in some cases effectual in stopping the accessions. A strong draught of volatile concrete alkali given in effervescence with lime-juice or vinegar sometime before the attack of the fit, putting the patient between blankets, and repeated warm draughts of lemonade, tamarind beverage, or country tea, administered so as to excite a plentiful sweat, oftentimes arrested the paroxysms.

In many obstinate cases advantage was reaped from administering the infusion of bark in large draughts

as soon as the sweat commenced, which was evidently promoted in quantity and duration by the medicine; and by thus taking advantage of the patient's thirst, a quantity of the febrifuge was administered, sufficient to shew its good effects on the patient on the succeeding accession, whilst the stomach was fortified, and the diaphoresis promoted.

In obstinate cases, flannel worn next the skin, change of air to an elevated situation, the occasional use of sea-bathing, the use of capsicum, ginger, serpentaria, salammoniac, and blisters, joined with the bark, or given alone, whilst the use of the bark was left off for some time, and repeated in full doses about the lunar point, when it was observed the patient was most generally attacked, seldom failed to effect a cure. Arsenic, recommended by some, was never tried; as the chylopoetic viscera of our European patients in these climates, are generally by far too irritable for a remedy of that corrosive nature; which, though it may often put a stop to paroxysms of intermittents, has been found to leave the foundation of more dangerous diseases.

Obstructions of the liver and spleen happened in some instances; but seldom were attended with serious or obstinate effects. Neutral salts, chalybeats, sea-bathing, change of air, aloetic and gum-pills, and exercise, with repeated application of blisters, generally effected a cure of these complaints; to which, in several, the suffering an attack or two of intermittent fever, followed by diaphoresis, urine with luteritrous sediment, and bilious stools, contributed not a little. The following case, though perhaps much more common than is supposed, is worth relating in this place:—

John Ellis, seaman, aged twenty-seven, but with the aspect of a man of fifty, from the abuse of spiritu-

ous liquors, of a melancholy temperament and phthical make, was received in the hospital, March 6th, 1796, from his Majesty's ship Sheerness, on arriving from Africa. He had been ill upwards of a fortnight in acute hepatitis, which had been followed by a tumor of the gibbous part of the right lobe of the liver, and which tumor all the medical men who examined, agreed in supposing to contain a fluctuating fluid: he was emaciated, had a dry cough, difficult respiration, was costive, had night sweats, and his pulse at ninety and quick. An emolient cataplasm was applied, his belly was opened by an injection, and he took pectorals on account of the cough. The tumor, however, instead of becoming enlarged, and pointing outward, as was expected, gradually diminished, the poultice was discontinued in ten days, and on the 29th of the month the swelling was much diminished, the fluctuation had vanished, the febrile symptoms gone, a degree of appetite, strength, and flesh, recovered by the patient; costiveness still affected him, which was obviated by *castia fistularis*: he had a milk diet, and as he recovered strength progressively, he was ordered no other medicine than an infusion of quaffy-wood. This recovery seems to have been by diuresis, and is one of those instances to be met with in naval hospitals, in which the change from the foul and confined sick-birth to that of an airy ward, the satisfaction which the patient feels on breathing the air of the land after a long voyage, and the use of food which he had in vain longed for on board, sometimes effect unexpected cures.

A considerable number of fluxes, of different species, were received in the hospital in the three first months of 1796, a few of which were truly dysenteric, with gangrenous ulcerations of the greater intestines: this is a melancholy and hopeless species of the disease, which annually, in war time, proves fatal to numbers of seamen and soldiers in the West India islands, the

most general course of which is well known to be new rum: foul putrid water is also a very powerful cause in producing of dysentery. With regard to the treatment of this disease, there is the greatest reason to suppose that much harm is done in the beginning of the complaint by the patient not observing the strictest abstinence from wine and spirits, too often neglected in the army and navy, as well as animal food. The indiscriminate use of emetics and purgatives in this disease, is also attended with bad effects: they have been so much recommended by some good practitioners (and without doubt they may have been commonly indicated in some epidemics) that they are now used almost generally in this disorder; whereas, since inflammation and its consequences is the principal thing to be guarded against in the disease, and the greater intestines become affected in time with gangrenous ulcerations, it is obvious that emetic and purgative medicines require the greatest caution in their exhibition, especially when there is a considerable degree of fever. Saline and metallic purgatives, so freely recommended by some practitioners in this disease, are very often attended with the worst effects; even castor-oil, though it often operates freely, producing large bilious stools, and is in some cases attended with good effects, is however too drastic when there is fever, an irritable stomach, or the stools bloody. If astringents have been formerly much abused in this disease, they are at present nearly proscribed by many late authors on this disorder; yet it is certain that they are often strongly indicated, that they are pretty generally and successfully used by the natives of hot climates in dysentery, and that nature has furnished vegetable antidyenterics of this class, very abundantly in these climates.

In the dysenteries which occurred during the period above mentioned, the principal part of the cure was found to depend on the use of emolient and mucila-

ginous glysters, composed of decoctions of the leaves of the cactus, or prickly pear, tops of mallows, com-melina, or l'herbe grasse of the French, with gumara-bic, or starch jelly, or starch glysters alone. Demul-cent and mucilaginous drinks were plentifully admi-nistered, particularly gruel prepared from the starch-powder, of a species of arum-root, much used in Bar-badoes, and some of the other islands, and which may be used by dysenteric patients with advantage, either in the way of drink, jelly, or pudding.

Ipecacuanha, in small and repeated doses, given when there was any disposition to diaphoresis, was often attended with good effects, and was aided by the use of a flannel waistcoat worn next the skin; by the warm, or rather tepid bath, and by the occasional use of opium, joined with ipecacuanha at night, carefully avoiding, however, the habitual use of opium, which occasions in this complaint the greatest degree of debility and loss of appetite.

When there was no disposition to diaphoresis, and the patient, though free from fever, had frequent stools, and was much debilitated, sea-bathing had the best effects, and was the means of recovery to some patients reduced to great debility.

Light subastringent infusions of the young fruit and tops of the guava tree, of the bark of the cussa-tree, of the shells of pomegranates, of the bark of the porier, or white wood, or white cedar, or a solution of G. Kino, or Terra Japonica, were often administered with advantage, when the disease had passed the first stage, and there was not any great degree of fever present.

In this stage, which was often kept up by a great degree of relaxation and debility, the cold bath in the sea was attended with the most beneficial effects,

used in the morning : the tenesmus, so distressing to the patient, was generally much relieved by bathing in the ocean. It would appear that in the efforts occasioned by the tenesmus to go to stool, when in the bath, some of the sea-water is taken in by the anus, which proves serviceable by detarging the ulcerated parts in the rectum.

Bitters, as quassy, were here of use ; and joined to chalybeats, had the effect of re-establishing the appetite and digestive faculties.

The Peruvian bark, whether administered in decoction or infusion, seldom agreed with the patient, generally occasioning griping stools ; the extract was found to answer better than any other preparation.

Many of the patients who had ardent fever, without evident and material crisis, were attacked with this complaint ; all of whom, if I recollect aright, did well ; whereas those who in fever were attacked by diarrhæa, generally died, verifying a most just observation of Hippocrates.

In such patients as had previously been attacked by intermittent fever, to which tenesmus and dysentery supervened, these two diseases often alternated for sometime ; and an attack of fever was always followed by an alleviation of the flux, and *vice versa*. A metastasis of the disease, by swelling of the legs, was in most cases a very favourable appearance ; but the contrary in those who had been much extenuated, who had colliquative stools, total loss of appetite, and hectic fever.

Metastasis, on propagation of the disease to the breast, was often observed to take place ; and when occurring in phthical habits, as was not unfrequently the case, was attended with expectoration of purulent

matter, hectic fever, marasmus, and total loss of appetite, generally proving fatal in a short time: this is an occurrence which very often happens, that a purulent state of the lungs succeeds to long continued tenesmus or dysentery, rendering those complaints more dangerous in phthical habits than in others, and who become the more obnoxious to this purulent state of the lungs, if they had been much exhausted by strong emetics and purgatives, particularly calomel, in the beginning of the disease.

It happened, however, in some instances, that a metastasis to the breast, occasioning cough and free expectoration, was salutary: this occurred in such patients as had not the accompanying symptoms above mentioned, and in whom the viscera yet remained sound, the flux diminished, whilst the strength and appetite daily increased.

With regard to the chirurgical diseases which occurred during this constitution, they were principally scorbutic or phagedenic ulcers, occurring in ships companies which had been kept much at sea, and consequently, not supplied with vegetable refreshments and fruits. From the Vanguard, in particular, were landed a considerable number of men, in the beginning of 1796, afflicted with phagedenic, gangrenous, or cutaneous ulcers, occurring in scorbutic men addicted to the abuse of spirituous liquors, and using a gross diet. This sort of ulcers were found at this time, as is generally the case, to be more frequent in the dry, cool, first quarter of the year, than at any other time: and the same may be said with regard to the itch and herpetic complaints, which are so very common in these islands, and which, after the vernal equinox, are less common.

The frequency of such spreading ulcers on board of particular ships, has been remarked during the last

and present war, in many instances; so that ulcers are in some measure the epidemic of a ship at times. This is difficult to be accounted for, though it would seem to depend on something local and particular to a ship.

Some of the seamen thus afflicted, have assigned as a cause for the frequency of spreading ulcers, particularly of the lower extremities on board of their respective ships, the effect of the foul vapour of bilge-water on their sores, and to the having wetted any slight sore they might have had on their feet or legs with the bilge-water whilst pumping out the ship.

It seems probable that such ulcerations are infectious, whether by the medium of the air, or by cloths or bandages: hence the propriety of resinous fumigation when a number of such sores are to be dressed, and of a strict regard to the cleanness of all bandages applied.

About thirty cases of putrid ulcers occurred in the period mentioned, many of which were very deep, spreading, foetid, bloody, and gangrenous, accompanied in a few with caries of the bones.

The treatment here was pretty much the same as had been practised in the naval hospital at St. Lucia*, last war, and proved equally successful. When the ulcer was covered with a bloody, mortified slough, or any part of it assumed a sloughy, spreading aspect, with a bloody foetid discharge, the sore was first washed with a decoction of the vulnerary plants of the country, and orange-juice, limes sliced thin, or roasted, and the pulp formed into a poultice, were then applied to the part; which was occasionally wetted with the acid, sometimes diluted. The effect of this

* See Appendix.

application : indeed, such ulcers in gross and relaxed habits, in this country, who have no command over their appetites, are difficult and dangerous of cure. Still it is a great point gained, after having witnessed in the naval hospitals of America and the West Indies, during the late war, the many lives lost, and limbs amputated, in consequence of similar complaints, to be able to ensure in the present instances, the prevention of such serious ill consequences, if not a speedy recovery. When the sores were deterged, there was generally no occasion for the continuance of vegetable acid, or cassada root ; what was most essentially necessary, was to repress the luxuriant granulations, which sprang up rapidly, and were liable from their sponginess, to recede into a gangrenous disposition : this was effected by a solution of blue vitriol of mel. oris in red wine, or by the powder of burnt alum ; the sores were dressed as seldom as possible, on account of the relaxation attending the use of warm water in such cases. The bark was exhibited immediately after the inflammatory stage, and continued at intervals until the cure was completed ; the diet of the patient was as drying as circumstances and the habits and appetite would admit : all hot substances, fruit, and milk, were found to keep up the discharge, and prolong the cure.

Out of about thirty patients affected with ulcers, most of which were sloughy and gangrenous, and several with caries, amputation was only had recourse to in one instance, in which the ulceration had incroached upon more than two thirds the circumference of the leg ; both bones of which were affected with caries, and the patient was sinking under a profuse discharge. All the others were either discharged, cured, or sent to England as invalids.

Amongst the surgical cases which occurred, the following may be thought worth reciting ; and, toge-

ther with many others, may serve to prove that the dread which Europeans have of the ill consequences from such injuries in hot climates, are not universally well founded: on the contrary, in a good habit of body, a temperate patient, and a healthy situation, season, and constitution of the air, an external injury, if properly treated, is likely to occasion less pain and confinement in a hot climate than in a cold one.

Richard Williams, aged 25 years, of a melancholic temperament and healthy constitution, belonging to his Majesty's ship *Majestic*, received the blow of a heavy grating, which fell from the upper deck, and struck the internal part of the left ankle, when placed on the edge of the coming of the lower deck hatchway, December 17th, 1795. The lower extremity of the tibia, much bruised, was forced through a transverse lacerated wound of the integuments, extending from the tendon of the *tibialis antu* to that of *achillis*, whilst a fracture of the fibula was formed three fingers breadth from the extremity, with a contused wound.

After the fracture was reduced, the internal wound was closed, and retained so by three stitches, sticking-plaster, and the rolled bandage, as being more favourable to an union by the first intention. The evening of the same day he was sent to the hospital, where he rested well, with the aid of an opiate. On the 18th, as there was a good deal of swelling, the bandage was cut off, and an eighteen tailed one, wetted with red wine, was substituted: the lateral position continued; the splints which had been placed on the limb whilst the patient was transported on shore, were taken off, as tending to aggravate the inflammation, tension, &c. the upper part of the limb and foot were frequently embrocated with lime-juice and a little camphorated spirit. On the 19th the patient did not suffer much, the dressings were removed, a considerable discharge

of bloody foetid sanies had occurred, some part of the wound was discoloured, and the lips of it suffering tension, the stitches were cut, the part washed with a decoction of vulnerary plants, dressed with ungt. arcæi and balsam copai^x~~ni~~, covered with a poultice of cassiada wetted in red wine, in order to stop if possible incipient gangrene. As he had some fever and was costive, he had emollient glysters injected, took saline mixture, drank lemonade, and took an opiate every night. On the 21st it was found necessary to place the limb on the posterior surface of it, horizontally, instead of the lateral position, on account of an incipient gangrene which had attacked the integumentis, situated over the fractured fibula, which were found to be discoloured, and to contain effused serum; this was evacuated, the limb fomented with vulnerary decoction, camphorated spirit, and lime-juice; the wound which was discoloured, and gangrenous, together with that on the outside of the limb, were dressed with the storax-ointment: a very useful application in gangrene; cassiada poultice placed over, after the bandage was applied, the limb was raised by several pillows, so as to allow flexion to the knee-joint, the toes placed in a line with the knee and trunk, and preserved in that situation by means of thick compresses and junks, made of straw, called by the French authors *fanons*. On the 25th the same dressings had been continued, the gangrenous parts had begun to cast off deep sloughs, the discharge was in considerable quantity and foetid; he had taken decoction or infusion of bark for three days; the spirits of the patient were good, and he rested well. On the 28th the discharge was considerable,—the gangrenous integuments daily casting off, left the extremity of the tibia bare,—the poultice, as too relaxing, was left off,—the patient, who, during the inflammatory stage, had observed a rigorous antiphlogistic diet, now took some wine and animal food,—the bark was continued in considerable quantity, and opiates only occasion-

ally administered. On the 31st the sores were in a deterging state, the discharge was laudable, the extremity of the fibula loose and ready to cast off, the bare and carious or detached bones were dressed with powder of myrrh, with tinct. myrrh comp. the ulcers washed with red wine, with vulnerary herbs, and dressed but once a day. January 4th, the limb doing well, he complained of a stiffness of jaws and want of strength in the muscles of the jaw, and which, coinciding with diminished discharge of the wounds and pallid countenance, gave supposition of insipient trismus; he had a flannel shirt put on, camphorated volatile linament applied to the jaws, neck, and spine; flannel was rolled round the head and jaws; he took a dose of balsam of Peru, with an opiate and some warm ginger-tea, which threw him into a plentiful sweat; and on the 6th, by continuance of these means, and the plentiful exhibition of bark, this alarming symptom had entirely disappeared, perhaps occasioned by two fragments of bone which were extracted. On the 12th perforations were made into the epiphysis of the tibia, which was found to be carious throughout; a fragment of bone was extracted from the internal part of the tendo achillis, supposed to be a part of the fibula. January 18th, three-fourths of the diameter of the end of the tibia was extracted, the sores began to contract and discharge less copiously, paste-board splints were put on. February 6th, discharge laudable,—sores contracting daily,—a small abscess had formed over the tibia, and discharged itself,—fragments of bone occasionally extracted, the limb acquiring strength, was taken out of the *fannons*. March 31st, nothing very remarkable had happened; another small abscess had formed on the inner angle, — the sores had inflamed and become sloughy for some days, as not unfrequently happens; but this disposition soon stopped, and the sores became deterged, discharging freely; poultice of orange-pulp was applied successfully in this sloughy state,

and afterwards drying and spiritous dressings. April 25th, when he was discharged to return to England in his respective ship, an anchilosis had apparently been formed between the bones of the leg and the astragalus; the dimensions of the part encreased, but without any reason to suppose that caries or abscess was concealed; the sores on each side contracted and disposed to heal.

Case 2nd. John May, seaman, aged twenty-five, belonging to his Majesty's armed sloop Frederick, March 22d 1796, whilst hauling at a gun-tackle, received a musket-ball through the upper and internal part of the arm, near to the insertion of the pectoral muscle, issuing close to the axilla. Having escaped the large vessels, from the extended position of the arm, the ball then pierced the thorax, anterior to the axilla, traversed that cavity, and passed out a hand's breadth from the spine, about the eighth rib: he lost a good deal of blood from his wounds, and spit some: he was received into the hospital on the 24th, was dressed with digestive the parts surrounding the wounds, embrocated with camphorated-oil, he had cooling emollient glysters, was freely bled, and put upon the strictest regimen, with an injunction not to move himself, or speak as little as possible. On the 31st a good suppuration had established itself,—the patient respired pretty freely, and had little or no fever or cough; he had spit a small quantity of blood on the 30th: the greatest part of his suffering was from the wound of the arm, and down the course of the biceps, which continued painful, and a little swelled. April 5th, his sores were all deterged and granulating,—had a feverish attack, with pain of the wounded side, and dry cough, for which he was twice freely bled on the 5th and 6th. The blood was at first considerably fizy; he took a laxative infusion of cassia with nitre, had cooling glysters injected, and took an oily linctus for his cough. On the 7th the febrile symptoms, cough

and pain of the side had considerably diminished, and a purulent expectoration had taken place; he took a pectoral and vulnerary infusion of the country plants, was put upon a milk diet, and took balsamics on account of the expectoration, which, however, was never in any considerable quantity. He continued without accident; his wounds healed, but the arm was still affected with pain and a degree of paralysis, notwithstanding the use of camphorated volatile linament, &c. He was discharged, April 5th, to return to England in his Majesty's ship Majestic, and arrived in a good state of health.

APPENDIX,

NUMBER I.

*State of Health on board of his Majesty's Ship Majestic,
July 20th, 1794.*

THE ship's company of the Majestic was tolerably healthy from the time of the fleet's sailing hence, the 27th of April ult. until ten days after the action of the 1st of June; never having more than from twenty to thirty-five in the sick-list, and not more than two or three in their hammocks at one time. A catarrhal complaint in some, accompanied with fever for three or four days, whose type was remittent, and whose character was benign, was the reigning epidemic: in some the parotid glands were affected; in others the fauces, with slight inflammation. In the scorbutic, or those whose breast was weak, a troublesome cough and expectoration remained for several weeks.

On the memorable 1st of June we had not a man from quarters on account of sickness;—having received upwards of two hundred prisoners from the Sans Pareil, a French prize, most of whom were highly scorbutic, and who it is probable brought with them the latent contagion of a fever which had reigned on board that ship several weeks, supposed by

the officers to be caused, First, By the company of the Sans Pareil being in great part unseasoned to the sea. Secondly, Uncleanliness. Thirdly, The vapour of bilge-water; the cocks for watering the well in French ships of war being now suppressed. Fourthly, Humidity of the ship; she being newly constructed, and no means used to obviate the ill consequences of humidity below by means of fires, wind-fails, &c. Fifthly, The intemperature of the air; they having during a two months cruize, experienced very unsettled, humid, cloudy, and foggy weather.

The prisoners confined in the hold in calm sultry weather, were very soon attacked with fever, in considerable numbers; the type of which, though very irregular, approached nearest to that of a quotidian remittent. The origin, the subjects it attacked, the extreme debility, despondency, lassitude, foetid breath, dejected countenance, and eruption of petechiæ, or marbled appearance of the skin, soon convinced us that the fever was of a malignant nature. From its origin it may with Sauvages and other nosologists be termed *febris nautica*; with Huxham, *febris putrida maligna petechialis*; and with other authors, who have regarded it as a disease, *hui generis morbus petechialis*, which is the vulgar idea of the disease, termed by the people the Purple Fever.

Such of the prisoners as were attacked with fever, were sent on board the Sans Pareil as soon as possible, where they died in great numbers. Notwithstanding this and other precautions on board of the Majestic, the disease began to make its appearance amongst our ship's company, about the 10th of June, and spread with rapidity until about the 25th, since which the number of those attacked have gradually diminished: the last taken ill was on the 19th instant.

With regard to the treatment of the disease, I can only speak of such cases as, treated early in the complaint, were apparently arrested in their progress, or which being of a mild nature, were not sent to the hospital, but prescribed for on board. Bleeding was not indicated in any cases I have seen. An emetic of ipecacuanha, or infusion of chamomille flowers, was very often indicated, and seemed to have a good effect. In several a gentle emetic, seconded by an opiate of ~~th~~^x iaca, and followed up for some days by the bark, seemed to put a stop to the violence of the disease. Antimonials were not used by me; and in such cases as I saw in the hospital, they seemed not to have a salutary effect, debilitating the stomach and whole system, and often exciting a weakening diarrhæa. When the fever was with little or no remission, keeping the belly open by emollient injections and decoction of tamarinds, &c. as common drink; the use of neutral saline draughts, of nitre combined with camphor, and of acidulated drinks, seemed to me to be principally indicated by the nature of the complaint, and to answer best. Where the breast was not affected, bark, when it did not constipate, answered well; in some cases attended with considerable fever, checking the symptoms of debility and putrescency. Opium, except when given as a diaphoretic in the beginning, as above mentioned, seemed to be attended with bad effects, occasioning delirium, or encreasing coma, extreme debility, and constipation. Blisters in many cases, when the fever was not high, were attended with very good effects. Wine, where the head and breast were much affected, as might be expected, aggravated these symptoms: in the low state, however, its use with blisters had excellent effects. The 9th and to the 14th day, proved fatal to several. The most general crisis was that by sweat: in some, where the breast had been much affected, a copious expectoration seemed critical, occurring about the 11th to the 17th day: the petechial or marbled eruption vanished gradually.

The approach of the solstice and carnicle seemed to have considerable influence on the spreading of the complaint. Notwithstanding the precautions used, many were attacked with it, having sent sixty-eight persons to the hospital. At present its violence seems diminished, as we have only sent three to the hospital within the last four days.

To Doctor Trotter,

Physician to his Majesty's Fleet.

Majestic, Spithead, July 20, 1794.

PART II.

CHAPTER I.

Of the Constitution of the Air, as observed in the Naval Hospital, Martinique, between March 1796, and January 1797.

THE month of April was refreshed by strong S. E. winds, with frequent squalls and showers, till the middle of the month, when there was a pretty heavy fall of rain ; the remainder of the month was serene, with fresh meridian breezes, and cool temperature.

May was dry, with N. E. breezes and bright scorching sun. On the 12th a halo was observed ; and on the 13th, at 2 P. M. a pretty strong shock of an earthquake was felt at Fort Royal, attended with a considerable agitation and swelling of the sea, which on the 14th was followed by some heavy rains. The remainder of the month was dry, with fresh gales ; the horizon was mostly hazy, and the sea rough.

June commenced with a cessation of the strong cool N. E. gales, which had reigned, and to which succeeded light variable airs from the S. E. with sultry temperature, humid air, and light showers, with

rain at night. This weather continued until the 9th, when heavy rains fell, as well as on the following days, accompanied with thunder and lightning; which, together with the preceding earthquake, seemed to announce the commencement of the rainy division of the year. The remainder of the month was unsettled, squally, with heavy showers at times, but not of long continuance. Ardent fever, which for several months had very rarely occurred, began to make its appearance in the road of Fort Royal and garrison, about the period of the solstice.

July was in general dry, with only some showers at night; fresh breezes generally reigned throughout the day. On the 26th some heavy rains fell; the succeeding days were excessively sultry and unfanned by the trade-wind, which gave way to light variable S. W. airs. The horizon which had been hazy all the month, was now clear, as well as the tops of the mountains.

There had been no thunder or lightning during the month; and the rains, antecedent to and during July, had been relatively so trifling, as to injure vegetation very materially; insomuch, that the crops of country provisions, cassada, plantains, yams, Indian corn, &c. having failed very considerably, and these articles being at a very high price, the poor negroes, especially those faithful slaves who had abandoned Gaudaloupe, and taken refuge with their owners in Martinique, suffered much from famine and disease: many are said to have perished from dysentery and the want of food. This want of rain,—the phenomena of thunder and lightning being absent,—and the calm and sultry days, with westerly airs, which closed the month, and an exposure to which was sufficient to occasion ardent fever, even to a person seasoned to a tropical sun, were justly looked on by the

experienced inhabitants as ominous of a hurricane, or at least of a sickly season.

The weather changed early in August to rainy, and continued so until the middle of the month; during which period there were two or three very heavy and constantly rainy days, with thunder and lightning. To this weather succeeded an excessively sultry, calm, and serene state of air until the 27th, coinciding with the full moon of the 18th, and a vertical sun, now on the meridian, during which time ardent fever reigned with fatal malignancy amongst the seamen of the transport vessels lying in the carenage. On the 27th a heavy fall of rain took place, and was followed by rain on the four last days of the month, with thunder and lightning, accompanied with calms, or unsalutary S.W. light breezes.

The first days of September were calm, sultry, and dry, with light and variable breezes from southward, coinciding with the new moon on the 1st. It was observable at this time, as during the whole constitution, that a few calm, sultry, southerly days, without rain, true breeze or thunder, whilst the sun, nearly vertical, shone with intense heat, and the nights perfectly calm and sultry, the atmosphere in some measure stagnant, exhibiting frequent meteors, and abounding with swarms of noisome insects, were constantly followed by a new accession of malignant fevers, and fatal terminations. A change of weather, with rain, fresh gales, and thunder, was as constantly followed by a diminution of the number of deaths, and of patients attacked.

To what causes assign these effects so frequently observed? To the accumulation of the fluid of heat—of the electric fluid—of water in the state of vapour—of inflammable and fixed gas in the atmosphere—to the diminished elasticity of the atmospheric air—to the

privation of a due proportion of oxygene or vital air—the manifest consequence of southerly winds and calms—or to all these causes acting in conjunction?

Some rain fell about the 7th of September, but was succeeded by calm sultry southerly weather, without thunder or rain, which continued until after the equinox.

The new moon on October 1st, was attended with a salutary change of weather to heavy rains and strong gusts of wind, with rainy nights; which state continued until the middle of the month: this had the good effect of abating the violence of the reigning epidemic, which seemed to have arrived at its acme about the time of the autumnal equinox.

The full moon on the 16th was preceded and followed by many calm sultry days, with breezes from the westward; which state of air added strength to the epidemic, which it had been hoped was on the decline.

The moon's last quarter on the 23d, was preceded by refreshing rains, with thunder and lightning; but the trade-wind did not reign the remainder of the month, being supplanted by the unwholesome S. W. breezes or calms. The quantity of rain which fell the two last quarters of the moon was considerable, and there was a good deal of thunder and lightning during the same period. The ancient inhabitants remarked, that a season so variable with regard to the privation of the trade-wind and the frequency of the S. W. breezes or calms, had not been known in the memory of man. During the prevalence of the westerly breezes, the sea was much agitated; and the surf on the shore was very high and dangerous to small vessels.

The first few days of November and the last of October coinciding with the new moon on the 30th, were clear, sultry, and slightly fanned by S. E. breezes: on the 8th the weather changed to rainy, with fresh squalls of wind: about the full moon on the 15th, heavy rains fell for several days, with the effect of cooling the air and effectually checking the epidemic yellow or ardent fever; the remainder of the month was well ventilated by strong and cool meridian breezes from the N. E. until the 29th, when the new moon was accompanied by heavy rains from the S. E. preceded for several days by a remarkable clearness of the air on the summit of the mountains, an appearance always denoting some impending change in the atmosphere. On the 21st, at 3 A. M. the shock of an earthquake was felt at Fort Royal. December commenced with some rains; on the 2d followed by strong squally gales from the N. E. interspersed with cool refreshing showers: the regular order of nature, with regard to the trade which had been so long deranged, seemed now to have re-established itself about the beginning of this month, with the salutary effect of completely checking the reigning epidemic, which now gave way to intermittent fevers of the tertian and double tertian type. The cool N. E. winds with showers reigned until the end of the year.

CHAPTER II.

The most common Diseases occurring in April. The Small Pox communicated to some of the Crew of a Frigate, and the Infection prevented from spreading. Arrival of Admiral Christian's Squadron, and Account of the Fever which reigned on board some of the Ships. State of Health on board some of the Ships of the ancient Squadron. Dysentery. Ardent Fever. Pleurisy and Hepatitis. Scurvy. Diseases, occasioned by the Reduction of St. Lucia, amongst the Seamen.

IN the beginning of April 1796, the Naval Hospital contained about sixty patients, many of whom were affected with old cutaneous ulcers of the legs, some with psores of a scorbutic nature; some slight erysipelatous inflammations also occurred, and catarrhal affections, all of a benign nature. Diseases of a similar description alone affected the prisoners of war, in number about five hundred, confined on board of prison-ships. Intermittent fevers, which had reigned ever since November 1795, had now disappeared; and the caustus, or ardent fever, very rarely occurred even in those the most strongly disposed towards it: not an instance of it happened in the ships of war during this and the succeeding month.

The Beaulieu frigate having captured a ship from Guadaloupe in the middle of this month, a negro-prisoner, taken out of the prize, was found to have been infected with the small pox, which he communicated to two seamen on board the frigate. As soon as this was discovered, precautions were taken to separate the infected persons from the rest of the crew; and they were sent to the hospital on entering the bay. April 20th, there were many persons on board the frigate who had not had the disease, as there were on the Gros Islet, yet the infection was happily prevented from spreading further, by placing the infected in a tent remote from the hospital, with whom they were not suffered to have any communication. Two of the number had a bad confluent species, which proved fatal to one on the 30th day, from a suppuration of the lungs, expectoration being suppressed by the coming on of a colliquative diarrhæa. This circumstance is mentioned as an instance of the prevention of infection even on board of a full manned ship of war.

In the course of this month of April, the scattered ships of Admiral Christian's fleet, which for nearly six months had been buffeted by winds and weather the most adverse in attempting the voyage to the islands, successively arrived at Barbadoes. Many of these ships, crowded with troops who had been long embarked, were sickly; of this number was the Abergavenny, a large East Indiaman converted into a ship of war, with a complement of 350 men. This ship having a large proportion of her people affected with fever, was ordered to land them at the naval hospital at Martinique, which was effected between the 28th of April and 4th of May, to the number of ninety men; and between the last mentioned date and the 31st of May, thirty-one in addition, making the total number received 120.

The history of this epidemic, as far as could be ascertained, is as follows:—A regiment of dragoons had been embarked on board of the *Abergavenny* early in the preceding autumn, destined for the expedition to the islands, whither her course had been directed, when, about the latitude of Cape Finisterre, she was dismasted in a heavy gale of wind, and put back to refit. On a second attempt the ship arrived at Barbadoes, after a very stormy passage, in which she laboured very much: the ports and hatchways were often obliged to be kept close, the bedding of the seamen and soldiers was obliged to be kept below, and the whole of the ship was extremely wet and filthy: a necessary consequence of the bad weather and the crowded state of the vessel: add to these causes of disease, that amongst the stores which had been embarked for the use of the troops, was a quantity of potatoes, which during the bad weather having been wetted, and becoming heated in the hold, soon became putrid, and emitted an intolerable stench whenever the same was opened, infecting the bilgewater, putrid drainings, and the air of the ship with unwholesome vapours.

In such circumstances it was not to be wondered at if fevers should occur. The epidemic disease began at first in the form of a simple catarrhal fever, apparently excited by exposure to bad weather; and though it evidently became more acute and infectious as the ship approached the tropic, and on her arrival at Barbadoes, it still maintained the character of catarrhal fever. At Barbadoes the regiment, which had lost several men, was taken out of the ship. Of the proper crew of the *Abergavenny*, many of whom had been affected with the disease, three only had died on anchoring at Martinique; and though the climate evidently added force to the epidemic, out of 1084 who were landed at Martinique, twelve only died, two of whom were consumptive; the others were re-embarked in

perfect health in the beginning of June on board the Abergavenny; which ship had been previously well purified by having her hold cleared, smoked, ventilated, and her apartments between the decks white-washed.

The patients in this fever were most of them in the advanced stage of the disease when disembarked; their persons and bedding were filthy, and their breath foetid; the fever was truly of the tertian remittent type, the exacerbations generally not continuing more than twelve hours, and giving way to a moisture of the skin or a plentiful sweat; the head was much affected with pain, delirium, or coma; most of those who died were affected with coma or stupor, often outrageous delirium; the breast was also generally affected with cough, oppression, and pleuritic stitches; flying pains in many affected the limbs with lassitude; the stomach was little affected with irritability, vomiting being a rare occurrence; the tongue was mostly foul, and covered with mucus, rarely parched; the ardor of the skin was not comparable in intensity or continuance with what occurred in the yellow fever, from which it was well distinguished by the three symptoms last mentioned; the belly was generally constipated in the beginning.

This disease generally went off by a viscid expectoration, a diaphoresis, or loose stools; sometimes by two or all of these discharges, rarely before the eleventh day, or continued longer than the twentieth; in some cases the disease terminated in tenesmus, with mucous stools and dysentery; in others by a fatal suppuration of the lungs, or effusion into the breast. This ship-fever was somewhat remarkable in bearing blood-letting well; and it was universally practised and often repeated on board previous to the arrival of the ship at Barbadoes: the blood drawn off was generally said to be fizy; even after the arrival of the

ship at Martinique, cases occurred which required venesection, and it was found beneficial: emollient and laxative injections were highly useful and necessary on account of the disposition to costiveness, as were lenient potions of cassia fistularis with manna, cream of tartar, or orange-juice. Antimonial powder in small doses of three grains, and frequently repeated, was found to dispose efficaciously to expectoration and diaphoresis, which were promoted by ptisans of the pectoral herbs of the country.

When the head was much affected, nitre and camphor united were administered with advantage. In all such cases the head was shaved, if the patient could be prevailed on to submit thereto, afterwards frequently embrocated with fresh lime-juice, and covered with leaves. Here, as in such cases wherein the breast was much affected, it was often necessary to apply blisters, but the too early application of them was not advantageous; on the other hand, they had the most pointedly good effects when applied in the latter stage of the disease: when the degree of fever had considerably diminished, a large discharge was attended with much benefit to the patient. Most of those who died had experienced frequent relapses, having been ill from time to time for upwards of a month. There is some reason to suppose that the free use of the lancet had disposed to occasion relapses, though there is little doubt but that the practice had in general been attended with the most beneficial effects.

The disease being disposed to remit and intermit in most cases as they occurred at Martinique, the bark in infusion was generally indicated, and found to prove beneficial towards the end of the fever.

Indulgence in spirituous liquors and wine, occasioned relapses; which in some instances proved fatal. No instance of infection occurred on shore, though

on board every officer and man were successively attacked in a more or less degree: when the complaint was only incipient on board, manifested by digestion, discolouration, and loss of appetite, the change of air from that of the ship to the shore was attended with the effect of arresting the disease in its commencement. The cold bath contributed very much to restore such persons to good health: the same may be said with regard to the convalescents from the more severe degrees of this fever, who found much benefit from the daily use of sea-bathing.

In May, the long continued drought, and the bad quality of the water used from necessity in the hospital, co-operating with the disposition of the disease, occasioned many of the convalescents from this fever, as well as other patients in the hospital, to be attacked with tenesmus, with slimy stools.

This complaint as it then occurred, was generally of a slight nature, partaking of a remittent or intermittent type, and generally yielding to ipecaco: in small doses, demulcents internally and by glyster, subastringents, bitters, flannels worn next the skin, and above all, when the disposition to diaphoresis was not remarkable, to the use of the cold or slightly tepid bath. In a few instances, in men much addicted to spirituous liquors, this complaint was followed by a fatal dysentery and gangrene of the great intestines.

During the months of May and June, about 150 patients were received from the different ships of the squadron, now augmented to ten ships of the line, and lately employed in the reduction of St. Lucia.

Two of these ships lately arrived, the Alfred and Thunderer, had imported a slight epidemic, of the same nature with that of the Abergavenny; but by no means so general or severe as in that crowded

transport. The Alfred, in her passage to Barbadoes, had captured a corvette: the scorbutic prisoners from which carried with them, or generated in the Alfred an infectious ship-fever.

This disease was purely of the catarrhal remittent type, of a mild nature, notwithstanding the very suspicious mode of its generation, usually going off by sweat, expectoration, and in some instances changing into tenesmus and dysentery without danger; yet, in some despondent impressed landmen, degenerating into the low malignant stage of ship-fever, attended with a fatal termination after their debarkation at Gros Islet.

The French prisoners who were taken by the Alfred, had many of them the disease; and most of them were afterwards affected with truly scorbutic symptoms; as spongy gums, maculæ, contraction of the gastrocnemii muscles. They speedily recovered in port, from the plentiful use of vegetables and fruit.

The Thunderer of 74 guns had also captured a corvette; and the mixture, or the crowding of the prisoners with this ship's crew, gave rise to a fever of a similar nature to that on board the Alfred, accompanied with scorbutic symptoms. The persons affected with it soon recovered after having been landed. The other large ships of the Squadron had a few people affected in a similar manner, but without assuming that infectious and general appearance which it carried on board the Abergavenny, and the still more fatal and malignant form in which it reigned on board of several large transport ships of the same fleet, on the voyage to Barbadoes, from which many men were there landed in the second or third stages of ship-fever, which had proved fatal to numbers of the soldiers on the passage.

The exemption of the ships of war in a great measure from this fever, may be attributed to the advantages which these vessels have over crowded transports in every respect, together with the antiscorbutic stores with which they had been supplied, but more particularly wine and lime-juice; the benefits resulting from the supplying such articles to the navy during the course of the present war, and the number of lives which have thereby been preserved from the fatal devastations of the scurvy, dysentery, and malignant fevers on board his Majesty's ships, are incalculable.

The crews of the ships which had been long in the country were in general healthy in May and June, fevers being very rare amongst them; dysentery and foul ulcers were the only serious complaints known in these ships. The Bellona's crew was a good deal affected with dysentery, and sent a number of men to the hospital in June: that ship, from an accidental circumstance and the advantages which were taken of it by Captain Wilson her commander, for the good of his crew, had happily escaped the fatal epidemic yellow fever of 1795; for, having been sent in August to see a convoy as far north as Bermuda, this ship and a part of the fleet separated from the main body in a dark and stormy night, and continuing her course, rejoined the main division near the western islands: the Bellona was then dismissed, and, on her passage towards Barbadoes, put into one of the Cape de Verd islands, where her crew got such refreshments, profited in health so much from the voyage, and avoided the sickly season of the islands so effectually, that it remained long very healthy. From the Ganges several dysenteries were also received; and many phagædenic ulcers in three or four of the patients thus affected, with foul gangrenous and carious ulcers, who had been reduced very low before they had been sent on shore, the epidemic dysentery affecting them, a

metastasis of the sanies, discharged from the ulcers, took place on the bowels, and proved fatal by a gangrene of the rectum and colon. In some patients who had had ulcers of the legs in a state of desiccation, the dysentery was attended with violent symptoms; and in some few intemperate persons proved fatal. The following case is an instance of this sort.

Samuel Hogg, marine, aged 25 years, was received from the Ganges, May 7th 1796, for cure of an ulcer in the leg, of a trifling nature, but which was accompanied by a scorbutic habit of body. By the use of the ordinary dressings and regimen, the ulcer in the course of ten days was nearly cicatrized; when, finding occasion to indulge in the abuse of newly distilled spirits, he was attacked, May 19th, with slimy stools, considerable tenesmus, and fever of a low hidden nature: he had considerable thirst and frequent stools; emollient and starch glysters, demulcent drinks, and grain-doses of ipecacuanha were administered him, repeated three or four times in the day, and joined at night with an opiate. On the 27th the ipecacuanha excited such a degree of nausea and vomiting, that it was found necessary to leave it off; a blister was applied to the hypogastric region, and the columbo-root given, which appeased the vomiting; the stools however, notwithstanding repeated glysters, continued frequent, mucous, not bloody but charged with highly tinged bile; whilst a total loss of appetite, great emaciation, much internal heat, and the frequent recurrence of nausea, promised a fatal termination. On the 6th of June absence of pain, foetor and dark colored stools, Hippocratic countenance, great debility, sunk voice, and frequent small pulse, pointed out a gangrenous state of the intestines to have taken place:—he died on the 12th.

Upon dissection, the cœcum, colon, and rectum were found to be gangrenous, some portions of

them completely sphacelated; the cavity of the intestinal canal covered with a foetid putrid sanies, the coats of them thickened, tender, and the villous one eroded; the illeum was considerably inflamed; the jejunum empty and contracted; the liver inflamed, livid on its surface, and adherent to the transverse portion of the colon; the mesenteric glands were obstructed and inundated. This last occurrence frequently happens in patients diseased of flux, as it is proved by dissection, and perhaps fluxus cætiacus is generally occasioned by these obstructions; nor is this surprising, when it is considered that ardent spirits, salted animal food, and water impregnated with inflammable air (hydrocarbonate) are the most general causes of fluxes, and which, in passing from the intestines into the mass of fluids in the form of chyle, may readily be supposed to act immediately on the mesenteric glands, by their acrimony producing inflammation and its consequences.

During this dysenteric constitution of the air, the only instance of the yellow fever occurring as an epidemic on board of a ship of war, was in the sloop Favourite, stationed at Grenada, about eight months out from England. In the beginning of May, the commander having put some men on board a prize which had been sickly, they were successively attacked with yellow fever, which infected most of the crew, or at least a large proportion of it, and proved fatal to an officer and ten men. Bleeding was found to be prejudicial in this epidemic; emetics pernicious; the bark (perhaps administered in substance before remission) hurtful; refrigerants, neutral salts, and laxatives are said to have been most successfully exhibited. By landing all those affected with the fever, and smoking and ventilating the ship, most happily, an entire stop was now put to this short though comparatively most fatal epidemic.

During these three months of April, May, and June, some pleuritic and hepatic cases occurred, but of a slight nature, and seldom required bleeding; the fever which accompanied such cases was of a remittent or intermittent quotidian or double tertian type, and seldom lasted longer than seven days: emollient glysters, oily linctuses (when the cough was troublesome) pectoral decoctions, small doses of antimonials, and blisters, were effectual in remedying these affections; they however generally terminated in the reigning epidemic, tenesmus, or dysentery, but without ill consequences.

Some scorbutic cases were received from the ships lately arrived from England; the patients having their gums spongy and bloody, the legs swelled, discoloured, and contracted. As they were well supplied with vegetables and fruit, especially limes and oranges, they very soon recovered. The bathing their contracted muscles of the thighs and legs with lime-juice, and afterwards covering them in the sand of the sea-beach, so as to occasion a degree of perspiration in the parts, was attended with good effects: sea-bathing was here found also very serviceable. Before their entire convalescence, such scorbutics rarely failed to be attacked by dysentery or tenesmus, with mucous stools; which, though it often reduced them to an emaciated state, rarely if in any case proved fatal.

This termination of scurvy in dysentery or mucous stools with tenesmus, is very common in some constitutions of the air; and, as it is justly observed by Hippocrates,* when of short continuance, is salutary; but when of long duration, generally proves fatal. Dysentery generally attacked the convalescents from scurvy in our American and West Indian squadrons, during the war of 1778, and at different times com-

* Con. Prænot. p. 466.

mitted great devastation : it was particularly on board of large ships at sea, having a number of men in the scurvy, that dysentery when it reigned made dreadful ravages. Happily, the instances of this sort during the present war are rare, and affecting but a few individuals on board of ships of war.

The change of diet, particularly the free use of fresh beef and soup prepared from it, seems principally to dispose to dysentery in scorbutics : hence, when that disease made its appearance, it was necessary to make an alteration in the diet of the scorbutic convalescents with regard to animal food, and to withhold it entirely from the dysenterics.

In June some patients were received from the ships which had sent men to assist the military in the reduction of St. Lucia, of which number a few were affected with fever which readily remitted or intermitted from the first or second day, required bleeding in some instances, took the tertian type, was unattended by highly coloured evacuation or ardent heat, and after the exhibition of neutral saline draughts, laxatives, or oily glysters, readily yielded to the bark.

The following chirurgical patient was among the number received from St. Lucia :—

Francis Mernor, seaman, aged 25 years, belonging to the Beaulieu frigate, received a musket-ball at the anterior and superior part of the right shoulder, which, from the direction, appeared to have passed anterior to the head of the humerus, and lodged itself in the thorax ; he being in the act of swimming off from a party of the enemy at St. Lucia on the 10th of May, was taken up and sent to the hospital at Martinique. On the 13th he complained of considerable pain and sensation of weight of the side, dry cough, pain of the back, orthopnæa,

and there was a slight empysematous tumour of the side, which sufficiently proved the penetration of the ball into the thorax, although there was no spitting of blood: he had been freely bled and evacuated: and he was put upon the strictest antiphlogistic regimen. 18th, A spontaneous vomiting and purging had come on the preceding night, after which the oppression at the breast was considerably alleviated, perhaps from the absorption of blood lodged on the diaphragm: the expectoration was very trifling during this period. On the 20th and succeeding days he had fever, frequent quick pulse, heat of skin, orthopnæa, dry cough, oppression, pain of back and loins, not relieved by bleeding, glysters, and the strictest regimen, pectoral and vulnerary ptisans, &c. 25th, The weight on the diaphragm had increased with the orthopnæa; the patient asserted that he perceived a fluctuation of fluid in the breast. On the 26th an attempt was made to relieve the patient by the operation of the empyema, but an adhesion was found to have taken place between the lungs and pleura. The suppuration from the wound however seemed to have a very good effect in relieving the thorax; a large discharge was kept up from it, by the introduction of three or four French beans into the wound, which discharged very copiously. On the night of the 3d of June, in coughing he found something burst within him like an air-bubble (according to his own expression) and an effusion of matter took place from his side with relief; the wound was found to have discharged freely: whether or not from the thorax is doubtful. On the 12th he was free from accident, had no fever or troublesome cough, rested well and reposed himself on either side; he was still kept on the strictest regimen, to which he submitted willingly, being well assured that it was the only chance he could have of recovery. On the 16th, in coughing, he spat up six or eight ounces of blood: this was followed by no other bad effect

than a small expectoration of purulent matter, with a very little degree of cough on the succeeding days. On the 29th he had tenesmus, with slimy stools, which went off after a dose of ol. recin. a dose of rhubarb, and afterwards ipecacuanha in small doses. July 9th he was discharged, in order to join a ship at St. Christopher's, bound to England: he was in good health, apparently free from all danger of a collection of matter in the breast; he was however recommended to continue a strict regimen and the use of the issue of the side, until after his arrival in England.

CHAPTER III.

Causes of the Re-appearance of the Ardent Fever as an Epidemic in the Squadron. Progress of the Disease as spontaneously generated, or spread by Infection. Cases. Bad Effects of Calomel and other Purgatives. Success of the Practice of Blood-letting in the Disease. General Strictures on Venesection in Ardent Fever.

THE ardent or yellow fever had not appeared on board of the ships of war, or in the naval hospital of Martinique, for six months preceding June, although some cases of it appeared amongst the troops in garrison and the seamen of transport and merchant-ships during those months.

The strong north-east gales, cool weather, and consequent healthy constitution of the air previous to June, gave room to hope that the approaching hurricane months of 1796 would prove more salubrious than were those of 1795, and that we should not suffer so much as in that year by a malignant epidemic. We were, however, disappointed in these hopes, by the late arrival of a squadron of ships from England at a season of the year very unfavourable to unseasoned men, as were the crews of these ships; and which the hurricane-season and the exigence of the service rendered it necessary to detain in port. Nothing could be more

unfortunate for the crews of the ships so detained in port than this necessity. Engaging of an enemy's squadron in close and desperate action, these men would have undertaken with alacrity and self-satisfaction; but cooped up, inactive, and uninterested by any passion save that of despondence and nostalgia, or the desire of revisiting their native country, in a sickly harbour, their minds and bodies soon became disposed to receive and foster the seeds of a malignant disease, to generate which many coincided in producing, by diet, intemperance in spirituous liquors of the worst quality (to the abuse of which these men seemed impelled by dissipation of mind) the full-manned state of the ships, and the constitution of the season.

The summer solstice coinciding * with the full moon, was soon followed by the frequent and fatal appearance of ardent fever; first in the carenage of Fort Royal, and soon afterwards in the road.

The crew of a tender belonging to the Thunderer, lying in the carenage, were the first victims belonging to ships of war to the epidemic fever of this season.

In the first instances, this fever appeared in the form of a double tertian, with remissions and even intermissions, allowing of the administration of bark. It very soon changed, however, and took the character of the acute ardent or yellow fever, apparently communicated by infection, as the persons who attended upon the sick were first attacked, and successively all the crew. Five out of a complement of fifteen died with very malignant symptoms. Nor did the disease

* "Ac maximi periculi plena sunt ambo solstitia, præcipue æstivum periculosissimum; etiam ambo æquinoctia existimantur, maxime vero autumnale."

Hip. de Ære Locis et Aquis.

stop here : another schooner was fitted as a tender, the crew of which, whether they were infected by some person from the other tender, or, what appears more probable, generated the disease whilst exposed to the foul air of the carenage in fitting out the vessel, were all attacked with fever in the course of a few days, after removing into the bay.

All the vessels which lay in the carenage had people attacked with this disease, except *l'Eclair*, a gun-vessel lately arrived, which, with a complement of fifty men, long resisted the disease. This could only be attributed to that vessel not having any hold, in which the air might become vitiated by stagnation, the putrefaction of provisions, and the vapour of bilgewater, but principally to the fire-place being placed below, in the same apartment where the crew was birthed.

As July advanced, the yellow fever became more prevalent, and early in the month appeared on board the *Thunderer*, lying in the bay ; which having a full complement of men, and being detained long in port, on account of being the flag-ship of Rear Admiral Christian, the production of the disease was the consequence. The same causes operated on board the *Prince of Wales*, a ship of 98 guns, carrying the flag of Vice Admiral Harvey, the commander in chief ; which arriving from England in the latter part of June, had not remained a month in the bay before the epidemic fever made its appearance on board.

It was supposed to have been communicated by infection, from a transport ship which had lost almost all her crew by the fever in the carenage, and on board of which a boat's crew of the *Prince of Wales* had been employed ; but, previous thereto, several men had been attacked by the disease on board the last mentioned ship ; so that, though infection may

have taken place in some instances, there is very little doubt but that the disease was spontaneously generated on board of ships of war, to which their crews were highly disposed, from having lately arrived in the country; the terror with which their minds were impressed of the fatality of the country diseases, and to dissipate which they had recourse, as much as possible, to the pernicious spirits of the island.

In the latter part of July the epidemic began to spread amongst the crews of the Thunderer and Prince of Wales, and proved fatal to many. Most of those who were sent to the hospital were in a hopeless state, having black vomiting, with stools of the same appearance, prostration of strength, digestion, epigastric region tense and painful, yellowness of the eyes and skin, tongue parched and often brownish, pulse sunk, flaccid, sometimes intermittent, and at other times not beating more than fifty-five times in a minute.

The following are a few of many deplorable cases which occurred. John Abercrombie was attacked with ardent fever on the 19th of July, and received into the hospital on the 23d: he was in an extremely debilitated state; his pulse small, irregular, intermitting every four or five strokes; tongue parched and brown; thirst intense; black vomiting, of a dissolved bloody appearance. 24th, He was highly delirious, in addition to the other mortal appearances. 25th, he died.

John Orpit was received in malignant fever, July 29th; his eyes were yellow, skin parched, speech faltering, tongue parched, pulse 130, scarce perceptible; yet was he able to walk about; said he had been six days ill, but thought himself better notwithstanding a severe purging which he had. He died in the night.

The administration of calomel, at this period so much recommended, evidently appeared to be attended with very bad effects in this fever; encreasing the extreme irritability of the stomach, occasioning a colliquative diarrhæa, and accelerating the dissolution of the blood. This is what appeared to be the effect of this remedy, in the patients who had been treated on that plan, on board such of the ships as it was in use by the surgeons.

In some patients, however, this boasted remedy seemed to be inert; and here it was hurtful in a different way, by the misplaced confidence in its efficacy, to the exclusion of those simple means and remedies so obvious to common sense, so gratifying to the patient, so efficacious in themselves, and which have been pointed out by Hippocrates, in a few words, as the principal means to be used in the cure of ardent fever; that is, to cool the body of the patient assiduously, by the application of refrigerants externally, and by potions and injections of the same sort internally.

Even the mildest laxatives appeared here, as in the epidemics of 1795, to be attended with bad effects in the beginning of the disease, from the proclivity to diarrhæa, by which the patient, without abatement of fever, was exhausted and fatigued by constantly getting up to stool; by which, whatever was taken as drink, if not immediately rejected by vomiting, passed off without ever having entered the circulation.

The practice of plentiful bleeding did not appear to be much more successful than that of purging. In some few cases, that evacuation practised very early in the disease was evidently beneficial; but large and repeated blood-letting, even in the young and vigorous, proved very hurtful. Some of the most rapidly fatal cases which occurred in the beginning of the dis-

ease, were such in which plentiful venesection had been used; and later in the course of the epidemic, the practice was abandoned.

The ill success of the practice of bleeding freely in the yellow fever was, however, more fully exemplified at the naval hospital of Antigua, in these autumnal months, where a very fatal epidemic reigned principally among the seamen belonging to the *Invincible*, a ship of 74 guns, which, entering English Harbour in July, with a sickly crew, from the epidemic dysentery, the ardent fever soon made its appearance, and acquired a fatal ascendancy. That ship lost, in about three months time, nearly three hundred men, including most of the officers. There were in the harbour some frigates that were sickly, and lost some men; yet the epidemic was by no means general, as the *Perdrix*, a twenty gun ship, which had been manned by seasoned men on the station, as well as the artificers of the naval yard and inhabitants, remained healthy.

In this epidemic, the seamen were transported from the ship to the hospital as soon as they were attacked. The late Dr. Rutherford, who was then surgeon of that hospital, was very much attached to bleeding in yellow fever: he practised it in this epidemic to the fullest extent, even *ad deliquium animi*.

The concurrent testimony of Mr. Rumney, surgeon of the *Invincible*, and the other respectable naval surgeons, who assisted at that hospital at the time mentioned, concurs in proving that the practice was attended with very ill success, and was afterwards renounced by them.

The sentiments of writers on blood-letting in ardent fever are very much divided. Hippocrates and his disciples either forbid it totally, or recom-

mend it with great caution*; for, one of the first principles of that school is, that the practitioner should avoid any thing which may do harm; and even in pleuritic and other topical complaints, Hippocrates was cautious of bleeding, when accompanied by ardent heat; and this doctrine of Hippocrates has been ably commented on by Martianus†, whose reasoning on the impropriety of venesection in ardent and bilious fevers, is fully applicable to the yellow fever of the West Indies, at least in general, and when reigning as an epidemic. Galen, with his delusive theory, attempted to overturn the opinions of his master on this head, founded on experience and just reasoning: he recommends bleeding, even *ad deliquium animi*. The most of the antients who have treated of ardent fever, either make no mention of bleeding in that disease, or speak of it as requiring the greatest caution in the application of it‡. Dr. Hillary recommends the moderate use of the lancet in yellow fever; and in cases which came under his care, being such as occurred sporadically, in intemperate new-comers (for he has not treated of the yellow fever as an epidemic) this practice bids fairest to answer well.

* In idea et omnino exquisita phlebotomia omittenda est, suspecta quoque in æa quæ ad ideam proxime accedit.

Holler de Morb. Int. l. 2, p. 27, de Febre Ard. Int.

What forbids bleeding, are, tenuity of the fluids, bilious discharges, and, above all, weakness or irritability of the stomach, which organ is weakened by venesection in ordinary cases, as appears from the faintings and vomiting which sometimes attend it. Hence it is a common precept, when the stomach is affected, to refrain from bleeding: but if, when simply affected, such ill effects follow this evacuation, what injury is to be expected from blood-letting when the morbid cause principally affects that organ?

Prosp. Mart. p. 411.

† P. Martian. Comment. tom. 2, p. 450.

‡ See Van Swieten's Commentaries; who has given perhaps the most complete work on ardent fever.

This observation may also apply, in a great measure, to the work of Dr. Mosely, who has written on this fever rather as occurring endemically than epidemically. Desportes* well exemplifies the bad effects of copious and repeated bleedings, in his work, though he was an advocate for the practice: his cases seem to discredit it very materially.

Of late, Dr. Rush, in his writings, the style and method of which are so highly contrasted by the drastic and unnatural practice they recommend, has endeavoured to establish the superiority of copious blood-letting, over all other modes of practice, in fevers of this nature; but, either the epidemics, of which Dr. Rush has treated, were very different from those which of late years occurred in these islands, or his patients were very different from seamen and soldiers, in being able to bear the prescriptions the Doctor recommended in ardent fever.

* Histoire des Maladies de St. Dominique.

CHAPTER IV.

*Removal of the Sick to the Hospital of Fort-Royal.
Description of it. Further Account of the Epi-
demic Yellow, or Ardent Fever. The most suc-
cessful Method of Cure. Cases.*

THE rains which fell in the second week of August, occasioned a diminution of the number of persons attacked by ardent fever, as well as of the malignancy of the disease, insomuch that on the 14th of that month we were enabled to transport all the sick in the temporary hospital on Gros Islet, amounting to about sixty-five in number, to the Hospital de la Charité of Fort-Royal, which it had been determined on to occupy as a naval hospital.

This building, one of the best of the kind for a naval hospital, was, previous to the war of 1777, the property of the truly christian institution of the Fathers * of the Charity, who had considerable property in all the French colonies, and contracted with government for taking care of all sick seamen and soldiers in the islands. It had been in possession of this religious society ever since the settlement of Martinique; was rebuilt in 1757, and sold to the French government about the year 1777; at which time considerable additions were made to it. The Christian Fathers still preserved the full administra-

* Les Peres de la Charité.

tion of the hospital, and the contract for the care of sick seamen and soldiers.

However unfavourable to the health of Europeans Fort-Royal may be supposed, and has unfortunately proved, with regard to British garrisons*, the Marquis de Bouille, who had the merit of bestowing every attention to this institution, whilst he governed Martinique, and the Pere Edouard, chief of the hospital administration, both of whom are now here, assert, that from an exact statement of the number of persons received into this hospital, and of the number of deaths taken for a series of years, and compared with the like registers of the great hospitals of Paris, the number of deaths in Fort-Royal did not exceed that of the Parisian hospitals, both of them taken in proportion to the numbers received into the respective hospitals.

Notwithstanding this, after the capitulation of Martinique to the British forces, in 1794, this building, occupied at first as a military hospital, and afterwards as a barrack, was successively evacuated, and at length left, early in 1795, to the depredations of the negroes, on the supposition that the epidemic sickness, at that time general with regard to the troops in Martinique and the neighbouring islands, was, at Fort-Royal, the consequence of the low situation of the hospital; and this prepossession against it had operated with our naval commanders so as to prevent the taking possession of it as a naval hospital, until the period just mentioned, when Rear Admiral Harvey, having taken every possible information relative to the salubrity or insalubrity of the situation, determined on the occupying of it as a naval hospital, the former one being inconvenient

* It is computed, that from ten to fourteen thousand British soldiers have died at Fort-Royal and its dependencies, since March 1794.

from distance, difficulty of communication with the town, from want of water, and capacity for receiving the sick of the Squadron.

This hospital being extremely well calculated as such for this climate, it may be necessary to describe: It stands, as has been already said, on a part of an outer angle of a piece of level ground, formed by the union of the navigable canal of Fort-Royal and the rivulet insulating the town to the westward, so that the sick can be disembarked at the hospital gates, either from the eastward or westward part of the bay; and the shipping are supplied with water at the same place, from a cascade, which falls about five feet, containing about a foot square of water.

After passing an iron gate, the entrance to the building is through an avenue of the most superb tamarind trees, 470 feet in length, whose deep shade affords a cooling retreat to the weakly convalescents, even in the most intense heat of this ardent climate; whilst the fever-cooling leaves or buds afford an agreeable remedy. This avenue is bounded, to the left, by an area of ground, 220 feet in breadth, in grass, and surrounded by a high wall. In front of the avenue, and a little to the right, eastward or windward of it, is a large suite of apartments, which it is necessary here to describe, being for the accommodation of the officers of the hospital and the sick officers of the Squadron, in length about ninety feet, and having an attic story joining the main building of the hospital, by a gallery of 100 feet in length.

The main body of the building is about 360 feet in length, and 27 in breadth, running east and west, forming an immense ward, including a small chapel at one end, and joined to a reflected wing, of 105

feet in length, running north and south, and which being to leeward of the whole suite of buildings, serves to receive patients in febrile diseases. This spacious ward is twenty-six feet high, is floored with tiles, and the floor is laid on an inclined plane, for the purpose of washing of it, which is done by means of a small canal, crossing the ward at the east end, from which a stream of water may, at pleasure, be sent to the west end of the ward, and into the reflected wing, carrying with it all the dirt of the ward.

The wards above are of the same dimensions, except with regard to height, being not more than ten feet from the floor to the frame-work of the roof. At the east end of this ward is a suite of baths, adapted for the use of officers and seamen, and separated by a wall: a stream of water supplies these baths, and a boiler, with pipes fitted, furnishes hot water, when the hot bath is required. The dispensary, cook-room, and steward-room, are situated in out-buildings, projecting from the middle of the great ward, and over them are apartments for the nurses, attendants, &c.

In the rear of the hospital are two pieces of ground: that to the N. E. is 208 feet by 103; adjoining to it is a canal or aqueduct, running along the top of a wall, which furnishes water to three stone cisterns, used for bathing in, or by the washerwomen, from which a constant stream of water runs, and washes the common necessary, while the main stream supplies the baths, then crosses the end of the long ward, and runs on to supply the garden, by a canal and two basons; the remains of it discharging itself into the river. The second piece of ground is 203 feet by 103 in dimensions, and, as well as the other courts, is surrounded by a wall; it also leads to a drying-house for linen, and a dead-house, in the leeward-

most part of the grounds, in the rear of which is another garden, and the hospital burying-ground.

The principal garden is surrounded by the body of the hospital; and the two wings, as well as some part of the grounds, are planted with lime-trees, four and bitter oranges, the beautiful *cassia fistularis*, fig-trees, tamarinds, the salutary four lop, guavas, and many species of medicinal and culinary plants, for the use of the hospital. Immediately to the windward of the hospital is an extensive plain, cultivated in sugar-cane, and bounded by the mountain on which Fort-George, formerly Fort-Bourbon, is situated, and from which the wind is often reflected, with great impetuosity, on the hospital below. To the S. E. of this plantation, a part of the low grounds is suffered to lie swampy and uncultivated; which, together with the circular canal surrounding the town in part, now daily filling up from neglect, must vitiate the air of the town and of the hospital when the wind happens to be southerly. The hospital-grounds form an inclined plane, and have a rocky bottom, so that rain-water cannot lie long on the surface, or penetrate deep, but descends to the adjacent river, which receives also the various drains which intersect the grounds.

This hospital, being surrounded and intersected by streams of water, and by a luxuriant and constant vegetation, particularly that of the thick and spreading tamarind-tree-avenue *, the walls being very

* So refrigerant is the shade of this beautiful and salutary tree, that persons overheated, particularly at night, incautiously reposing themselves to the breeze under it, are exposed to all the ill effects arising from a sudden suppression of perspiration. It is a custom with the planters, to fasten their horned cattle to trees during the night, which experience has taught them to be more salutary than housing them: it has also taught them that the over-cooling shade of the tamarind is unwholesome to cattle;

thick, and being so situated as to receive strong gusts of wind, reflected from the neighbouring heights, is some degrees cooler in temperature than the town of Fort-Royal; but as this coolness partakes much of moisture, especially at night, those who expose themselves to the night-air, by sleeping with the windows of their apartments open, are liable to attacks of remittent and intermittent fevers in the autumnal months.

The remission of the violence of the epidemic fever on board of the ships moored in the bay of Trois Islet (which, as has been already said, is an inlet to that of Fort-Royal) observed in the beginning of August, which had followed the fall of some salutary rains, was but of short duration: the very sultry and calm weather, coincident with the full moon, on the 18th, re-produced the malignant epidemic, which, fostered by despondency, inoccupation, a full diet of animal-food, and ardent spirits, the air of crowded ships, and the bilge-vapour, which, in calm and southerly weather, it is very difficult, or perhaps impossible to prevent, in a ship lying at anchor, spread among the crews of these ships, and proved fatal to many the latter end of August, and in September.

By far the greatest part of those patients affected with this fever, who were sent to the hospital, had been ill three or four days; in more than half of which, the most fatal symptoms had made their appearance, as æruginous or black vomiting, or diarrhæa, yellow and livid suffusion of the skin, hæmorrhages, sunk pulse, and clammy feel of the skin to the touch. In most cases which proved fatal, through the dark and black discharges which generally took

and they attribute to the emanations from it a deleterious quality, though perhaps without foundation.

place, unequivocal proofs of the sphacelated state of the stomach or intestines, gave sufficient warning one, two, or three days before the fatal event, and left no room whatever for any hope of recovery, however flattering other appearances might seem; for there were not wanting instances in which the patients, though in the hopeless state described, dressed themselves, and thought they were on recovery.

It is here proper to caution young practitioners against a mistake very common, with regard to the yellow or ardent fever; that is, of taking the fatal stage, which follows the cessation of ardent heat and great excitement, and which accompanies a sphacelus of the viscera, for a salutary crisis of the disease. Nothing is more common in these islands than to hear of an European in fever, reported to be on recovery in the morning, and dead at night.

If this sometimes arises from ignorance, on the part of the practitioner, it as often, perhaps, arises from inattention, in not sufficiently examining the pulse, respiration, but above all, the discharges from the body of the patient.

In this, as in the epidemic of the last year, black vomiting and purging were absolutely mortal symptoms.

In the commencement and course of the disease, the more depraved or the deeper coloured the bilious discharge appeared to be, there was a proportionate degree of danger: thus, a porraceous, æruginous, reddish or brownish matter vomited, announced great danger.

At Fort-Royal, the epidemic continued to reign with violence all the month of September, exerting

its greatest force about the equinox. Such mortality determined the Commander in Chief to remove the two ships, the Prince of Wales and Thunderer, from the land-locked bay of Trois Islet to the open road, where, though exposed to a hurricane, in case of such an occurrence, the ships would be ventilated better, and be more distant from the swampy borders of the bay, and the marsh-miasmata which exhaled from them. Accordingly, the ships were removed down abreast of Fort-Royal, September 23d; where they joined the Queen, a ship of 98 guns, and the Valiant of 74, just arrived from England, with their crews in perfect health.

This change of situation did not fail to have a good effect on the sickly ships, which, had they continued at Trois Islet until the expiration of the hurricane season, would, in all probability, have lost a large proportion of their complement.

This was actually the case with the transports and merchant ships moored in the carenage: most of them lost a moiety of their seamen in this epidemic.

The disease proved most fatal to the young, of a sanguineous and melancholy temperament, unseasoned to the climate, and who lived freely with regard to wine, spirits, and animal-food; the aged, those seasoned to the climate of late years, or at a more remote period, the temperate and abstemious were less liable to a fatal attack: few old persons had the disease.

The disease generally proved fatal to those affected with terror, anxiety, and despondency.

The unoccupied, those who did not use the bath, persons exposed to the meridian heat of the sun and to the night-air, those who had thick and long

hair, seemed more liable to a severe attack than their companions.

Those affected with tenesmus or white flux, with ulcers or itch, were not liable to be attacked with the disease; but the stoppage of these discharges, and a consequent plethoric state of the system, rendered such persons very subject to a severe disease.

Calm sultry days, with an intensely hot sun, were always attended with a number of fresh attacks amongst the men exposed to the ardent sun: a fall of rain was always followed by a more healthy state of the air, in which there were fewer persons taken ill; and those already labouring under the disease, experienced some alleviation of their complaints.

It was more immediately preceding a change of weather, from a sultry, calm, and clear temperature, when the atmosphere was charged with electric fire, to rainy and blowing weather, with thunder and lightning, that many men were seized with the epidemic: after rains the ardour and dryness of the skin were less violent, and diaphoresis more readily occurred, with alleviation of all the symptoms.

The ten or twelve days preceding and following the equinox, proved peculiarly disastrous; upwards of eighty patients, received in the hospital between these dates, died in the course of a few days (and sometimes hours) after they were received, forming a proportion of about two-fifths of the patients received in that time.

The full moon on August 18th, the new moon on September 1, and the full moon on the 17th, were remarkable in being accompanied by a great number

of fatal terminations; and the same influence of the phases of the moon on the epidemic, was observable all the season. The sixth day seemed to be the most fatal; next to which the 9th. Very few who survived the last mentioned day afterwards died.

The disease evidently partook of the tertian remittent type, the beginning of the constitution having been ushered in by tertians and closing with the same, which not infrequently degenerated into ardent or yellow fever. Even in the middle of the constitution, cases occurred in which remissions and intermissions took place, and in which the administration of the watery preparation of bark was attended with the best effects; and the omission of it in some cases, and the continuation of purgative medicines (as was the practice of many) it is imagined, proved hurtful.

In the ardent stage, as in the epidemic of 1795, the frequently bathing the patient with lime-juice, and washing him afterwards with a sponge and water, was highly beneficial, as was shaving the head as early in the disease as possible, and applying cooling lotions to it, or limes sliced. Cooling glysters, generally administered night and morning, were found beneficial in the first stage of the disease. Refrigerant drinks, as lemonade, infusion of tamarinds, or a diluted saline mixture, were generally used with advantage in the beginning of the disease; but they too often disagreed with the stomach, and sometimes when retained occasioned a diarrhæa, so that it was necessary to leave them off, and have recourse to bread-tea, barley or rice-water, and ptisans of endive, purslain, lettuce, &c.

With regard to that malignant and often unconquerable symptom, the nausea and vomiting, which very rarely was wanting in this fever, besides saline draughts in the act of effervescence, æther, half or one-third grain-doses of opium, administered every four or

six hours, columbo-root, the distilled water of the orange-flower given in the quantity of two ounces occasionally, the juice of green wormwood expressed in Madeira wine, and in a few instances some grains of the smaller capsicum, rolled in a wafer and swallowed by the patient, were all tried occasionally, varied according to the degree of fever and other circumstances; for it is, perhaps, needless to say that it was never judged safe to administer the latter remedy where there was any fever, or where the signs of erosion or gangrene of the alimentary canal had taken place; but simply in those cases (which were rare) where debility and an almost total loss of tone and of the peristaltic motion had taken place: and here, as well as in the state of convalescence, an infusion of snake-root or ginger was of very great use. The saline-draughts sometimes succeeded, but nearly as often disagreed with the stomach and intestines; and this may be generally applied to other saline-medicines, which were in the majority of cases inadmissible. Small doses of opium sometimes proved of use, care being taken not to have recourse to them when the head was much affected. Columbo-root was found frequently a very efficacious remedy both in vomiting and diarrhæa, and was administered in many cases where the fever was yet ardent, without increasing it, and with the effect of checking the vomiting and purging. The orange-flower water, which seems to possess an antispasmodic and anodyne virtue, was sometimes borne on the stomach when nothing else could be kept down: it was at least harmless in its operation, if it did not always succeed. Instances occurred where the patient desired spruce beer, and retained it with benefit. One gentleman who had the disease, and who, perhaps (with many others) was afraid to take medicine lest he might be salivated by mercury, as was not uncommon at this time, drank solely of that liquor, retained it, and recovered in the course of a few days.

When the ardent heat had diminished, and the degree of fever had abated, blisters were highly useful, not only in relieving the irritability of the stomach, but in generally exciting the nervous system, by making a revulsion from the oppressed viscera, and by inviting to the surface an efflux of morbid matter, in form of an artificial crisis, or (if the reader should be shocked by this antique pathology) by opening a vent for the evaporation of inflammable and fixed gases; with both of which we may suppose the system was surcharged at this time.

It not unfrequently happened, however, that the blisters were applied too soon, and occasioned the greatest disturbance in the system, by increasing the ardor of the skin, occasioning delirium, jactation, tenesmus, dysury, &c. in which circumstances the best practice was to take them off immediately, and bathe the part with camphorated oil, awaiting the diminution of fever and this extreme irritability, in order, if necessary to have recourse again to them at a more favourable time. Notwithstanding this hurtful effect of blisters when prematurely applied, which every practitioner conversant with the yellow fever may have observed, and which effect, added to the supposition of a septic ferment in the action of Spanish flies (which seems unsupported by facts) had strongly prejudiced the experienced Hillary against blisters; the deferring of their administration too long was attended with much worse consequences than the contrary extreme, the effects of which are easily remediable, whereas an almost total loss of excitability was rarely overcome, and the excitement occasioned by blisters, and the suppuration of them afterwards, might, perhaps, be fairly estimated as equal or superior to every thing besides which could be done for a patient in certain circumstances.

These reflections may, perhaps, be thought needless, as the utility of blisters in fevers of hot climates seems at present generally allowed, even by authors who differ totally with each other relative to the other part of the treatment, and even the ignorant negroes frequently in fever demand of us the application of them, so well are they convinced of their efficacy; yet experience proves that the season requiring the prompt application of blisters in yellow fever, as well as in remittent and anomalous intermittent fever, is often of a very short duration, and that the transition from a great degree of excitement, ardour, and pain, to a fatal coma, or total loss of irritability, is often very rapid.

The infusion of yellow Peruvian bark, given as frequently and in as large quantity as the stomach would bear, was always had recourse to as a principal means of security when any remission had taken place; which frequently happened in such cases in which the patient had not been fatigued, and the operations of nature disturbed by the administration of purgatives, in the beginning of the disease. The infusion of bark thus given, was often attended with the very best effects, and did not appear to be followed by any bad consequences; for it was not administered when the skin was ardent, the tongue parched, and the epigastric region painful. When the remission was more complete or an intermission occurred, the extract of bark in the form of pills or dissolved in the tincture, was also administered with the greatest advantage; insomuch, that some instances occurred during this constitution in which the patients, having great irritability of the stomach, were saved by means of the extract, or at least in great measure. Purgatives so much relied on in this disease, were here seldom indicated; cooling glysters and neutral saline draughts, were often obliged to be left off on account of the coming on of a diarrhæa: in some cases, however,

laxatives were indicated after the fever had remitted of its violence; and when this remission was sufficiently secure, an infusion of cassia fistularis, sometimes joined with tamarinds, soluble tartar, or orange-juice, and fresh prepared syrup or melasses, so as to render the medicine palatable, was administered occasionally until stools were procured. When the remission was not sufficiently secure, it was thought most advisable to continue the use of the infusion of bark, with a small quantity of Rochelle salts. The reasons for this practice were pretty obvious, for few or none of those afflicted with this fever (in whom the belly had been opened by glysters and cooling drinks) appeared to have suffered from the want of purging, or that the disease proved fatal in one instance from that cause; whereas it was very evident that in a great many the commencement of a colliquative diarrhæa, ending at length in bloody dissolved putrid stools, had its date from the administration of a purgative medicine; and in many the malignancy of the disease was, with much appearance of reason, supposed to be occasioned by purgatives given in the beginning of the disease. As an instance of this, the following case may be cited:—

A man, aged forty-five years, of a gross full habit, but seasoned by many fevers to the climate, and who prescribed for himself in the beginning of his illness, was attacked with fever, which remitted in the course of thirty-six hours; the heat was ardent, the head much affected, and he had a considerable affection of the breast, with dry cough and laborious respiration; he took a dose of calomel and tart. emet. after having had a glyster. On the 3d day, being then pretty free from fever, which operated very freely, and the fever coming on towards noon with violence, the debility occasioned by the evacuations and ardent heat, with nausea and vomiting, were extremely urgent; the respiration was laborious, there was a dry cough, no expectoration, and the head was affected with

coma; the patient continued in this state until the evening of the 4th day, when the ardour of the fever was considerably diminished: he lay prostrate, comatose, breathed with great difficulty, the pulse was sunk, irregular, and not to be reckoned; the diarrhæa had subsided, but nausea and vomiting yet continued; it was judged that a gangrenous state of the abdominal viscera had taken place, and an effusion of serum into the breast. The female, however, who attended him in this and several other fevers, assured us that so long as there was no appearance of putrescency or dissolution of the blood in the patient (nor were any such symptoms present) she still had hopes of his recovery; her prognosis was found just, the patient recovered by the application of half a dozen blisters, sinapisms, the bark in extract, and strong infusion with Hoffman's liquor, camphor, and snake-root. The irritability of stomach was principally allayed by some doses of the juice of green wormwood expressed in Madeira wine, taken in the quantity of half a wine glass: a medicine which has frequently succeeded after the fever had disappeared in overcoming this symptom.

The following case exemplifies the ill effects of purging in the beginning of this fever, in a still more striking light:—

Lieutenant Cox, of the marine forces, aged about twenty-five years, of a full habit, sanguineous melancholic temperament, and red hair, after having been disappointed in his hopes of returning to England, and some other causes of chagrin, to dissipate which he had lived freely in a tavern for some weeks, was attacked with the usual symptoms of ardent fever on August 31, 1796. I first saw him on the morning of September 3d, and could only learn from him that he had taken some doses of calomel, which had operated freely by stool, and which, together with the continuance of the disease, had reduced him to the state of

debility in which I saw him; his skin was cool but dry, his pulse regular but placid, his tongue not parched, and his countenance little altered, except that it was expressive of despondency: a slight tinge of yellow could be observed in his eye, he lay prostrate, had no complaint whatever but nausea and vomiting at times, of what was taken down, and extreme debility; he had not much thirst, and not the smallest inclination for food. He took an infusion of bark, and a few drops of tinct. opi. with Hoffman's liquor at night, in order to appease the nausea which had returned. September 4th, I found he had passed the night badly, had ardent fever, and had passed several stools with tenesmus, which he said were thin and dark coloured; his urine was very red, as if tinged with blood, and thin; the fever had now left him, and he was recommended to pursue the use of the infusion of bark, with Hoffman's liquor. At night he seemed to be pretty much in the same state, still dejected, prostrate, without desire for any sort of food; his diarrhæa still continued of a dark colour, and he said that in straining to vomit he had thrown up a little blackish matter. Before I left him he casually mentioned that he had some uneasiness from one of his legs; on examining which there appeared a slight ecchymosis of the calf of the leg, apparently the effect of a contusion, and which was directed to be bathed with lime-juice or vinegar. On the 5th I was informed he had been very ill all night, and had suffered much from his leg: I immediately judged the danger of his situation, and found him suffering the most acute pains from the leg and thigh, which suffering had commenced in the middle of the night; the skin covering the internal part of the calf of the left leg, and of the internal part of the right thigh, for a space about as large as the hand, were found to be livid; and he suffered the most acute pains from these malignant inflammations, which, however, were unaccompanied by heat or fever. Judging that the only chance of saving the patient

was by promoting suppuration of these gangrenous parts, in case this metastasis was not made by propagation from the viscera, but by a critical deposition, as sometimes happens in these fevers*, emollient and maturing cataplasms were applied to the parts, the extract and infusion of bark, with serpentaria, æther, and contrayerva were administered; and he was given as much wine and light nourishing food as he could be prevailed on to take: the symptoms, however, increased, a state of the utmost anxiety and despair took place, the heat of body diminished, the pulse sunk, he became delirious, and died convulsed early in the afternoon.

Two other cases, somewhat similar to the above, happened of anthrax; in one, the patient recovered; the other proved fatal, after a disease protracted to the 17th day.

It may not be improper to give a few cases here of such patients as were received into the hospital, at an early period of the disease.

Robert Bell, aged twenty, belonging to the gun-
vessel, Crache-feu, whilst at work, in the heat of
the day, August 23d, was attacked with ardent fe-
ver, accompanied with acute pain of the head and
back, flushed face, skin hot and dry, with a burning
feel; the tongue was foul, covered with a yellowish
fur, and dry; his pulse was full, regular, and at
ninety. Received into the hospital the same eve-
ning, he had a diluted saline mixture for beverage;
and a cooling injection was thrown up. On the 24th,
the violence of the fever had somewhat remitted; he
had two loose stools, the head-ach was yet intense.
His head was ordered to be shaved, and, together

* See several similar cases cited from Hip. (Epid.) and other
authors in Institut. Med. Pract. Busceri de Kanifeld, tom. I.
p. 289.

with the body and extremities, to be frequently rubbed with limes, slices of which were applied to the forehead; and he continued the use of the saline mixture. 25th, The fever had continued to diminish. 26th, He had loose bilious stools, and commenced the use of the infusion of bark. He recovered without other accident.

Robert Garraway, aged twenty-three years, moderately full habit, belonging to his Majesty's ship Prince of Wales, was received August 1796, for ardent or yellow fever, with which he had been attacked on the 13th: he had constant vomiting, ardent skin, flushed face, headach, tongue dry and foul, belly loose, pulse ninety, quick and soft. He was embrocated frequently with lime-juice (his head being previously shaved) and took infusion of tamarinds for drink. 19th, Vomiting of drink taken continued, ardour of skin a little diminished, yet dry, tongue a little moist, two stools in the night, took opi. nine grains every six hours, vitriolic æther in a light infusion of orange-leaves, had a glyster with lime-juice, with which he was also embrocated. 20th, Had sweat some in the night, vomiting recurred at times, his colour was evidently tinged yellow, which occurring at this period of the disease, was not so alarming as at an earlier day; the hypochonders were soft: he continued the use of the æther; the opium was omitted. 21st, He had hæmorrhage from the mouth, vomiting incessant, the tongue was black and parched, he craved for spruce beer, which was given him and retained; he had many loose stools through the day. 22d, Rested better, tongue less parched, used spruce beer for drink with satisfaction, was bathed in lime-juice and water of the temperature of the air, took sp. nit. vulc. in diluted saline mixture. On the 26th, he had found so much benefit from the bath, that he desired to be bathed every day, the tongue and skin had yet continued dry; during the night he drank plentifully of

water, part of which he vomited, and he sweat freely, which was the first appearance of moisture on his skin: after this he had no return of fever, took the bark, and soon recovered.

Stephen Saunders, aged 30 years, belonging to his Majesty's ship Thunderer, was received into the hospital July 30, 1796, for ardent fever, being the fourth day of the disease, for which he had been bled, and his belly had been opened by glysters; his colour was fallow inclining to yellow, skin dry, and tongue parched, his pulse ninety, full and regular, he had an emollient refrigerant glyster, saline draughts, and was bathed with lime-juice. On the 31st, he got some rest, the fever had remitted, the tongue was moist, and skin pretty cool but dry; he took a solution of the extract of bark (in the tincture) with the cold infusion. On the 1st of August he had rested ill, had vomiting and bloody salivation, and a degree of coma was present, the pulse was still regular and full, and the belly open; the vomiting was appeased by some draughts of orange-flower water; after which the preparation of bark was continued, and blisters applied to the legs. On the 3d, he continued to be affected with coma, was delirious, had bloody spitting, his pulse at eighty, sluggish, had singultus at times; he took julap camph. though with little hopes of his recovery, and he had Madeira wine administered in his drink, &c. On the 4th, had been more quiet in the night, pulse had risen, and was at ninety pulsations in a minute, the singultus gone, and belly open—he again had the preparation of bark administered. On the 8th the bloody spitting diminished, but his mouth yet continued bloody, he had no return of appetite, and a feverish state, though of a mild nature, yet remained; he was this day seized with gripes, tenesmus, and mucous stools, apparently the salutary conversion of the primary disease: for these symptoms he took small and repeated doses of ipecacuanha,

emollient and mucilaginous glysters, and drinks of the same nature: the piles made their appearance soon after. Nothing particular happened after this; the patient recovered in the course of a fortnight.

These were favourable cases, and such unfortunately were not the most common in the majority received into the hospital: it was evidently in vain to hope for any safety to the patient from any thing which could be done for him.

Henry Elliot, aged 16 years, of a sanguineous temperament, was attacked with ardent fever on the 27th of August, and sent to the hospital on the 29th; he had constant vomiting of black fluid, diarrhæa of a similar appearance, hæmorrhage from the nose, his pulse was below sixty, weak, small, and soft. On the 30th, symptoms continued, he was delirious and insensible, and his pulse was at fifty, small and thread-like. He died on the 30th at night.

Thomas Dane, aged 25 years, of a melancholy temperament, was received September 20th, being the fourth day of ardent fever: he had porraceous and incessant diarrhæa, hæmorrhage from the nose, epigastric region painful, skin hot and dry; he was bathed with lime-juice, a blister was applied to the epigastric region, and half a grain of opium administered every sixth hour. On the 21st, vomiting and purging had continued, his eyes were tinged yellow, tongue and skin parched, pulse 100 quick, hæmorrhage from the nose continued. On the 22d he died.

Thomas Fry, aged 27 years, was received into the hospital September 27th, 1796, being in the third day of ardent fever, which continued with ardent heat of skin, pain of back and limbs, tongue foul and white; he had diarrhæa in the night, which has weakened him; he took sp. nit. vulc. in diluted saline mixture,

On the 28th he had passed a bad night, his skin was marbled, and livid stools were frequent, a bloody and black vomiting came on, the pulse became slow, weak, and small, beating about sixty times in a minute: he remained in a state of stupor, and died on the 30th.

In some of these cases it appeared that calomel and other purgatives had been administered on the first day of the disease, as that was the practice of the country at this time, so strongly recommended by men of eminence; and in these instances, together with at least 100 more of a similar nature, it seemed evident that the administration of purgatives had been fully attended with the effect of inducing a plentiful diarrhæa, but which, so far from alleviating the symptoms of the disease, or stifling the fever (according to the gross idea of the efficacy of this practice) that they all seemed aggravated thereby. Whilst the patient's strength was sunk from the evacuation produced, he was deprived of all refreshing repose, from the necessity he was under of frequently getting up to stool; a speedy dissolution of the fluids took place, the intestinal canal became inflamed, eroded, or gangrenous, and the salutary effects which nature might, if unmolested, have made to relieve herself by the skin, kidneys, or by expectoration, were completely suppressed.

These cases demonstrated the pernicious effect of mercury used as a remedy in the cure of ardent fever; the following shews its virtue as a prophylactic in the same disease.

Edward Selsby, seaman, aged 30 years, lately arrived from an African voyage, was received into the hospital October 19th, 1796, having had a dysentery sometime before. Being sent to the hospital, calomel in repeated doses had been administered to him, ac-

according to the dangerous practice recommended by some authors, which, in room of acting on the bowels so as to excite ulceration and gangrene, the most natural effect of the administration of it in this disease, excited a copious salivation: his mouth was ulcerated, his tongue much swelled, and his teeth nearly locked, his breathing was laborious, the salivation viscid, and ejected with difficulty, he still had dysenteric stools, and his pulse was at 100; a blister had been applied to his neck, a second was put on between his shoulders, he had a detergent subastringent gargle, and took small doses of ipecacuanha with camphor. On the 21st the ulceration and swelling of the mouth and tongue continued, insomuch that the patient could not articulate; his breast was so much oppressed and the salivation so viscid, that it was found necessary to apply blisters to the legs, in order to prevent the suffocation of the patient by effusion into the breast; a large discharge from all his blisters occasioned a salutary derivation from the head, breast, and intestines; he began to amend daily, the salivation had pretty well subsided, and he had commenced the use of the decoction of bark, when, on the 29th, he was attacked by the reigning epidemic, ardent, double tertian fever, which, however, remitted with sweat and returned again in the night, remitted on the morning of the 27th, returned with rigour at noon, continued violent all night, with bilious vomiting and very loose stools, ardent skin, tongue parched, oppression at breast, with dry cough, and no expectoration; he took sp. nit. vulc. in saline mixture, was embrocated frequently with lime-juice, and took pectorals on account of the cough. On the 28th the fever was yet acute, and the paroxysms uniting, left no distinction of remission; continued all night with delirium. On the 29th, delirium, porraceous vomiting, diarrhæa, dry hot skin, pulse ninety, quick and full, breast oppressed: blisters were applied to the thighs. On the 30th the symptoms continued unre-

mitted, joined to subsult. tend. tremor, singultus, and eructation, eyes appeared glassy, the pulse was sunk about fifty-five in a minute, and slow. On the 31st he died.

The frequency of ardent fever diminished as October advanced, towards the end of which very few cases occurred on board the Prince of Wales; which ship having cruized for some days, her crew felt the good effects of a change of air. The Thunderer had been sent to cruize in the beginning of the month, when the epidemic yet reigned with force, and though that ship lost about twenty men in the course of a fortnight, a salutary change took place in the health of her crew. The same happened to the Carnatic; which ship had not been long in Fort-Royal bay when the yellow fever made its appearance on board. By beating to windward for a fortnight, the disease was checked; and that ship only lost two or three men during the cruize.

CHAPTER V.

State of Health on board of Ships stationed at the different Islands, and of the Prisoners of War in the Autumnal Months. Ardent Fever changes to Double and Single Tertian Fever in November. Description of these Fevers. Dysentery. Good Effects of Saline Lemonade in that Disease. Ulcers. Case. Bad Consequences from sending Invalids to England in the Winter. Case of Tetanus.

IN the latter part of August, the Vengeance, a ship of 74 guns, arrived at Martinique from the islands of the Saints, where she had been stationed for three months; and nine scorbutics were alone landed at the hospital, although the ship's company were unseasoned to the climate. This exemption from febrile diseases may be attributed to the healthy air of the Saints, to the temperance which the seamen are obliged to observe on that station, where rum is not to be procured, and to the activity in which they were preserved, by occasionally getting the ship under way to blockade the enemy's island of Guadaloupe.

The Vanguard, with a crew seasoned to the climate, and already considerably diminished by the epidemic of 1794, exhibited a sad contrast to the healthy state of the Vengeance; that ship, stationed in

the carenage of St. Lucia, one of the most sickly ports in these islands, for the protection of this lately captured island, during the hurricane months, soon became very sickly. A dysentery had reigned amongst the crew of the Vanguard in July, but without malignant or fatal symptoms until after having remained some time in port, when the disease became more general and mortal. Those who recovered from the first attack, were moreover exposed to be assailed by the ardent or yellow fever, which too often proved fatal to them, already weakened by the former complaint, and generally attended or followed by an enflamed liver.

Captain Miller, of the Vanguard, had humanely procured a cargo of cattle from the coast of Terra Firma, for the consumption of his ship's company, during the time of lying up for the hurricane season, so that each man had a pound of beef a day; yet to this abundance of fresh animal food, not only the surgeon, Mr. Steward, and the officers, but even the seamen, attributed in part the epidemic sickness which reigned amongst them, insomuch that many of them in health preferred salt provisions.

The disease proving fatal to numbers in that ship, Admiral Harvey thought proper, in the beginning of September, to order her to be transported to the healthy, though exposed bay of Gros Islet, where part of the sick were sent to Martinique, and the remainder put on board of a temporary hospital-ship. These measures were attended with the good effect of checking the epidemic: it proved fatal to about 120 men out of a complement of 500. The troops at St. Lucia were at this time extremely sickly; so that whole corps were destroyed in the course of a few months by fever, dysentery, and ulcers.

Whilst the seamen and soldiers at Martinique suffered so much from a malignant epidemic, about 800 prisoners of war, confined in transport-ships in the sickly carenage, preserved their health in an extraordinary degree. A slight catarrhal remittent fever, only attended with danger when a diarrhæa occurred, whether spontaneous or occasioned by purgatives, and a large moist species of itch, were almost the only diseases which affected them.

The retropulsion of this eruption, or the sudden desiccation of ulcers of the legs, were attended with dangerous attacks of fever and dysentery amongst some of the prisoners; hence the administration of sulphur was found less safe than that of decoctions of the woods, of sharp-pointed dock-root, or an infusion of that of the *pariera brava*.

The exemption of a prison-ship, called the *Superbe*, from any malignant epidemic, is worth remarking:—That vessel generally contained 400 men, without bedding, and closely stowed between low decks; yet this ship, though generally in a very filthy state from the negligence of the prisoners, has generally been healthy. This may be accounted for from the ship having an empty hold, and being leaky, by which means the bad air, generated from provisions confined, heated, and corrupted, together with the no less noxious vapour of bilge-water, are totally obviated: the cook-room being placed between the decks, is the means of preserving the ship in a dry state, and of occasioning a constant renewal of the air below; to all which circumstances may be added, the habitual moderation of the prisoners in the use of ardent spirits and animal food.

The English prisoners detained, many of them for upwards of two years, in the gaols or prison-ships of Guadaloupe, were far from being so healthy. A car-

tel for the exchange of prisoners was entered into in the month of September; at which time it appeared that 4000 British prisoners of war had died in Guadeloupe since the recapture of that island by the French in 1794.

Many of those exchanged British subjects had been long affected with intermittent fevers, diarrhæas, and ulcers; some of them on the passage from Guadeloupe were attacked with ship-fever, of an ardent and remittent kind. It is one of the hardships of warfare that individuals out of the public service, who had been captured by the enemy and exchanged, often find themselves in a situation more destitute on landing amongst their countrymen, than when provided for as prisoners: this was the situation of many of those invalid seamen, who, had it not been for the humane conduct of Admiral Harvey towards them, might have lain in the streets until succoured by the charitable. They were by his order received into the naval hospital.

The ship-fever which reigned amongst those distressful subjects, extenuated by confinement and a spare diet, proved by no means so acute or fatal as that which affected the seamen of the ships of war lately from England; it remitted generally in less than thirty-six hours; and the administration of bark in infusion, was here more safe and successful than in the fever which reigned in the squadron.

In November four ships, under the command of Sir Hyde Parker, left the station for that of Jamaica: of these the Thunderer had lost about seventy-five men in the epidemic; the Carnatic about twenty; in the other two ships, the Queen and Valiant, the disease had only declared itself, and proved fatal to a few men.

With regard to the other ships of the squadron, the cruizers, as is usual, continued perfectly healthy; the epidemic which had reigned on board the ships in English Harbour, Antigua, and which had proved fatal to about three hundred men, disappeared in October; and the Bellona, lately stationed at the Saints, after having lost about twelve men in fever, arrived at Martinique, in the beginning of November, with a healthy ship's company.

In the second week of November, after the rains had began to fall in abundance, very few cases of malignant yellow fever occurred, either in the ships or in the hospital; it still, however, continued to reign amongst the troops at Martinique, as well as the other islands; and it was said at this time, that the returns made by the army from the different islands, exhibited the sad information, that the forces under the command of General Abercrombie, in April, amounting to about 18000 men, were now diminished by death one-third (including, as was computed, thirty of the medical department) whilst an equal proportion was in the hospitals.

Remittent fevers, as they are generally called, but perhaps not so properly, being almost always marked with the character of the double tertian, succeeded to the ardent fever. At the first appearance it was often attended with dangerous and even fatal symptoms, generally attacking those persons who had previously laboured under the ardent fever, from which they had recovered without having had sufficiently large and evident evacuation, whether by sweat, the eruption of boils, or loose stools. In October and November the appearance of these anomalous and threatening symptoms were very frequent; as ardent skin, intense thirst, highly coloured bilious vomitings and purging. In December and the following months, when the air was cooled by regular and strong breezes, the dan-

gerous double tertians were succeeded by the regular and benign tertian fever; thus demonstrating the connection which existed between the ardent, remittent, and regular tertian fever.

The breast was often affected in these intermittents; pleuritic and peripneumonic symptoms being frequent, thoughly rarely, of a highly inflammatory nature, not requiring bleeding, readily giving way to blisters, expectorants, and above all to a plentiful diaphoresis, after the paroxysm of fever, which was promoted by the application of hot lime-juice and salt to the extremities and head, by the administration of *spt. n. v.* or *spt. mind.* by the wearing of flannel next the skin, and by the plentiful use of warm lemonade, tamarind-beverage, or an infusion of the country-tea; and it was seldom that the strong infusion of bark could not with advantage be administered in the intermissions or remissions; and safety to the patient often depended on the prompt exhibition of it.

In some, the head was much affected with coma, acute head-ach, and delirium; which symptoms generally remitted with the exacerbation. Blisters to the shoulders, thighs, and legs, were here highly useful, whilst the head was shaved and embrocated with lime-juice and salt: glysters were also serviceable in the intermissions. When the disease was complicated with tenesmus, diarrhæa, or dysentery, the treatment was more difficult than in any other complication, as the bark very often disagreed with the patient, and aggravated the complaint of the bowels. After emollient injections, *ipécacuanha* in small doses, with opium and aromatic confection, taken at night, so as to promote a diaphoresis, were here serviceable. The infusion of quassy bark, or the *angustura* bark, generally was found to answer better than the Peruvian bark.

The temperate bath, that is, a few degrees warmer than the atmosphere, was found useful in this species of the disease.

The same irritability of the stomach and intestinal canal, which marked the epidemic yellow fever of this year, was still predominant in the subsequent remittent and intermittent fevers, many of which, it is highly probable were changed into colliquative, malignant, and fatal diseases, by the improper administration of mercurial, antimonial, and other emetic and purgative medicines: it was only to negroes and robust people of colour, at their own earnest solicitation, and after several revolutions of the disease, that either an emetic or purgative was administered with safety; and here, though frequently found efficacious, particularly an emetic, in arresting the progress of the disease, the practice was not always unattended with some degree of danger. Where glysters did not sufficiently operate in evacuating the intestines, a solution of Rochelle salts, given in the infusion of bark, soluble tartar, or the aloetic pills, sufficiently produced that effect. In the cacahectic, scorbutic, dysenteric, those patients who had been subject to a purulent discharge, particularly from ulcers of the legs, the intemperate, and those who exposed themselves to the night air, the attacks of intermittent fever, were very often repeated once or twice in the course of a lunation for several months, most generally at the time of the full or new moon, though in others occurring at the quarterly change. This took place, in most cases, with a degree of regularity, patients having to guard more particularly against the exciting causes of fever at certain periods of a lunation. In such persons who may be said to have acquired the febrile diathesis, the return of the paroxysms might often be suspected, from the unusual plethoric appearance of the person; if in such state a purgative was imprudently taken by the person to obviate costiveness, which generally was

present, a paroxysm of fever seldom failed to make its appearance.

A change of air, by going to sea, or by emigrating to the mountains, was the most efficacious preventative of the returns of those paroxysms of fever, the use of chalybeats, bitters, and antiscorbutics, used together with the bark, or alternately with that medicine, were found the most useful remedies in those cases. The use of the temperate bath, flannel worn next the skin, the moderate use of capsicum with the food, and exercise, were also of benefit.

During the whole of this constitution, several cases of dysentery had occurred; tenesmus, with mucous stools, which, as it occurs in the West Indies, really demands to be distinguished from the former complaint, was also not unfrequent, chiefly affecting drinkers of spirits. At and about the time of the equinox, it was often attended with ardent fever, dangerous irritability of stomach, and discharges of dissolved blood, and seemed merely a modification of the reigning epidemic, and required to be treated somewhat in the same way, by refrigerants, externally and internally, demulcents, sub-astringents, occasional administration of opium, ipecacuanha in small doses, afterwards quassia, or angustura bark, with the use of the temperate bath. The antidyenteric medicine, composed of a solution of salt in lime-juice, diluted with water, is well known in the islands; and an account of its effects in dysentery has been given by Dr. Wright in the London Medical Journal, or some other periodical publication. It had been made use of on board of several vessels of war, during this season, with very great advantage. Amongst the rest, in an armed vessel, stationed at one of the islands, on board of which there was no surgeon, the commander was at a loss what to do with his men, who were all affected with dysentery: by the advice of some of the

inhabitants he administered to them the solution mentioned, with the greatest success. This solution was administered here to several patients in the second stage of dysentery and tenesmus, with much advantage: it seemed to answer best when there was not much fever present; in scorbutic patients, without any considerable discharge of blood. The effects of it were generally to produce free stools, with abatement of the tenesmus, detaching the coats of the greater intestines; this, by a continuance of the medicine, was followed by an evident stricture of the intestinal canal, and a diminution of the number of stools. I leave to those occupied in chemical researches, the task of explaining the action of this medicine in the cure of dysentery, to which, at first sight, it would seem so unfit. It appears, however, that it acts on the intestinal canal in a similar way to lime-juice applied to putrid ulcers on the surface of the body. The resemblance between the ulcerations of the colon and rectum in patients who have died of dysentery, and the putrid ulcers so frequent in these islands, is very great: there is the same spunginess and fungous excrecence of the borders, the same bloody ichor discharged, and the same factor in both instances.

It is probable that this medicine is only applicable to the cure of such dysenteries as occur in patients of a scorbutic habit, who have been long on a regimen of salted animal food, spirits, and bad water. As this is the species of dysentery which generally reigns in our fleets and armies, and has often proved a most dreadful scourge in the prosecution of war, is there not some reason to suppose that this may be found a most useful remedy against dysentery occurring at sea or in camp? The Dutch of Surinam appear to have been in the habit of preparing lime-juice with salt (perhaps for medicinal use) which seems to be thus preservable for any length of time; they also preserve limes in a similar way, that is, the limes plucked before they are

perfectly full, are put into a cask *, and a pickle (most probably heated) somewhat stronger than sea-water, is poured on them, and the cask closed. Some prizes brought into Martinique this year from the port of Surinam, were found to contain many casks of lime-juice and limes prepared (apparently) in this manner, and which might have been preserved for a length of time; the limes in particular seemed in good preservation: and from the ease and little expence attending this mode of curing that valuable fruit, the practice is strongly recommended to the commissioners for taking care of sick and wounded seamen, and to the army and navy in general.

Though the rainy division of the year is not, in general, that in which many ulcers occur amongst seamen in the West Indies, yet the unusual dryness of the season, and the number of distressed subjects who came out of the prisons of Guadaloupe, occasioned an unusual number of ulcerated patients in the hospital. In the latter months of this year many of them by the long continuance of their complaints, and the profuse discharge from a very extensively ulcerated surface, had been reduced to the greatest degree of debility, and a colliquative diarrhæa, accompanied with more or less of a phthical affection of the breast, commonly ascribed to an absorption of purulent matter, had already appeared, and they were fallen into a complete hectic disposition of the lungs and chylopoetic viscera. In such circumstances amputation is rarely attended with salutary effects: on the contrary, that operation, in itself dreadful and painful to an exhausted patient with unsound viscera, rarely fails to hasten a fatal termination. We lost some ulcerated patients in this way; but the number in proportion to those discharged cured, or sent to England as invalids, was but small. The following case may perhaps be worth reciting:—

* See Murray Apparatus Medic.

William Davis, aged 25 years, of a delicate complexion, and apparently scrophulous habit, on the passage from England in May 1796, was affected with a swelling of the right inguinal glands unproceeded by any symptom of venereal infection. This tumour matured, and in due time discharged a quantity of matter. On the supposition that the complaint was venereal, the patient was put on a mercurial course: this, together with the sea-diet, had the effect of occasioning a large, foul, ragged, sanious, foetid, spreading ulcer of the groin. In this state he was received into the hospital, July 2d. He was pale, emaciated, sleepless, dejected and scorbutic; a profuse bloody, foetid, discharge distilled from the ulcer, which contained the glands in a gangrenous state; his belly was constipated, and appetite gone; the ulcer was washed with a decoction of vulnerary plants with Seville orange-juice, dressed with the ointment of storax, and covered with a poultice of cassia fresh grated; the belly was opened by a gentle laxative of cassia fistularis; after which the bark was administered freely. On the 7th the inguinal glands had cast off; the edges of the sore had begun to clean, and the discharge was less offensive and corrosive. On the 12th the ulcer was deterged, the matter discharged good, and dry dressings were substituted to those formerly used: the bark was continued. On the 22d he complained of diarrhæa, with slimy stools, which soon degenerated into dysentery: a complaint at that time not unfrequent, occasioned by the use of bad water, and the extreme heat and dryness of the season. Glysters of starch and other mucilaginous substances given in drink, with small doses of ipecacuanha were administered; the disposition which the flux early shewed of becoming colliquative, precluded the use of any purgative. So early as the 25th he could not retain glysters; and his stools were so frequent as to prevent all sleep; this was succeeded by cold sweats, weak, small, and very frequent pulse; the flux continued unchecked by sub-astringent.

ptisans, infusion of Cascasilla bark, gum-kino, &c. The ulcer of the groin had not discharged freely since the commencement of the flux; it was dressed with digestive, in order to promote that effect, but in vain. August 1st, vomiting, succeeded by singultus, difficult deglutition, cadaverous fætor, extreme debility, pulse sunk, small, and very frequent, shewed the hopeless state of the patient. He continued to exist until August 12th, during which period the symptoms indicated that a suppuration of the lungs had taken place, as well as a colliquative flux, which continued, and appeared to be hepatic.

I would here remark on this case,

First, That there was no reason whatever to suppose the bubo which occurred to this patient was venereal, since the matter of venereal sores has not exclusively the property of producing inflammation of the glands of the groin: an occurrence which often takes place, sometimes from evident and sometimes from latent causes, independently of venereal infection.

Secondly, That the mercurial course was therefore unnecessary (supposing that mercury is the specific of the venereal ulceration) in this case, and occasioned that debilitated state of the habit and of the viscera, in addition to the gangrenous state of the sore, which led to a fatal termination.

Thirdly, Yet the gentleman whose patient Davies was in the beginning, is by no means to be blamed; he certainly treated him according to the rules laid down by some of the most eminent men on the venereal disease; as Astruc, Swediaur, Hunter, &c. and in the manner perhaps most generally adopted by the present practice.

I have been the more diffuse on this case, from having seen several instances of a similar sort, where the constitution of the patient was much impaired or totally destroyed on account of a suppurated bubo, by the imprudent use of mercurials, under the supposition that the cause was a venereal infection; whilst there was the greatest probability that the tumor, if left to itself, or poulticed, and afterwards simply dressed, would have healed in the same manner as any other simple glandular abscess.

In the latter end of November, a convoy of transports sailed from Martinique, on board of one of which about fifty invalids were sent from the hospital of Fort-Royal: they were most of them in a state fit to take care of themselves during a passage to England; but meeting with very bad weather and a heavy gale of wind, whereby these invalids were exposed to be constantly wet, many of them were attacked with dysentery; insomuch, that it was thought proper for the vessel to bear away for Barbadoes, where she arrived in January, after having buried twelve of the invalids. Many hundred invalids were sent from the military hospitals in the same convoy; and as there were many of them in a low state, it is to be feared that they suffered in a greater proportion than the naval invalids,—independent of the immediate loss of those who perished in the transports foundered; which, unfortunately, happened to be many.

The circumstance is mentioned in this place, in order to mark the ill consequences of sending invalids in a weakly state to the northward from these islands during the winter months: an occurrence which often happened last war as well as the present, with bad effects.

It generally happens that persons invalided, are so anxious to revisit their native country, that they will run all risks to effect that desired object, and often feign themselves better than they really are for that purpose; but they should be persuaded of the great danger they run in attempting a winter passage; and of their better chance of recovery in the islands during the cool months of the year.

The following case of tetanus occurred:—

Jacob Bloom, seaman, aged about 40 years, belonging to his Majesty's ship *Alarm*, was received July 27th; he was of a gross scorbutic habit, subject to the habitual eruption of prickly heat. A few days before, when at sea, after exposure to the night air, by lying on the damp deck, he was seized with stiffness of the jaw, soon followed by universal rigidity; in which state he was carried on a grating to the hospital, from which he was lifted by two men, and put into bed, in a state as stiff as if he had been completely frozen: his jaws were closed; all his muscles were rigid, but the abdominal ones extremely hard: he had spasms from time to time, during which the body was arched, and in the state of opisthotonos. The muscles of the eyes were convulsed at the same time, and the face covered with large drops of sweat, from the intensity of pain; the belly had been much constipated both before and since the commencement of the disease, the pulse was natural, and the skin moist; glysters, with castor-oil, were frequently injected; the patient was rubbed often in the day with a liniment, composed of castor-oil, petroleum of Barbadoes, and volatile alkali: the spine, neck, and abdomen, were particularly attended to in this friction; after which a flannel-shirt was put on, and the head and neck surrounded with flannel, on which the liniment was smeared. He took an anodyne draught the first night, with about half an ounce of the petro-

leum, and some theriaca, the diaphoretic effects of which were promoted by warm herb-tea, and sleeping in blankets: this had the desired effect of promoting a sweat, and the remission of the spasms. Castor-oil was administered to him, so as to procure free evacuations, which were occasionally promoted, as necessity indicated. The petroleum was given, joined with syrup, in the quantity of a spoonful, three or four times a day, and evidently acted as an antispasmodic and sudorific. In three or four days the spasms had pretty well subsided, the belly was open, and less indurated to the feel; the jaws were capable of separation, and food of a liquid nature could be taken. The bark in infusion was now administered with a strict caution, to prevent any degree of constipation from it, and the warm bath was had recourse to with advantage; after which the liniment was applied, and the petroleum, with opium, &c. administered so as to promote diaphoresis; the opium was, however, not administered every night, but occasionally, when the patient was restless, or after stools from ol. ricini, or glysters. By the continuance of this mode of treatment, the patient gradually recovered, and was well enough September 1st, to desert from the hospital.

PART III.

CHAPTER I.

*Of the Constitution of the Air, and the Diseases which
occurred between Jan. 1797 and Jan. 1798.*

THE new year began with cool pleasant weather, with strong breezes at noon from the N. E. with squalls, and some refreshing showers. This weather reigned all the month of January, the latter part of which was showery, with strong gusts of wind in the night, when the air was generally cool and humid. The same weather continued throughout February, with refreshing showers: towards the middle of the month, some rainy days were preceded by a very hot sun; the breezes were, however, uniformly strong from the N. N. E. and the temperature of the air cool and healthful. March was windy and cool: about the 12th the long-continued squally N. E. gales were interrupted, the wind veering to the E. S. E. with heavy rains at night, overcast sky at times, and showers by day. The last eight days of the month were cool, clear, with fresh breezes at east, and dry state of the atmosphere. The first ten days of April were dry, clear, with breezes, regular, but not so strong as in the preceding months, whilst the sun was

now ardent ; after this some sultry rains fell, the wind veering to the S. E. : this weather continued but two or three days ; the remainder of the month was dry, clear, with fresh N. E. gales ; and some showers fell towards the latter part of the month.

May continued very sultry and dry, but with fresh N. E. breezes until the 13th. On the 4th of this month, at noon, a large halo was observed ; and on the 8th, at half past two P. M. two smart shocks of an earthquake took place : this had been preceded by some rain on the night before ; the sea was observed to be much agitated in the forenoon, and a remarkable clearness of the sea-water was observed in the bay. From the 13th to the 18th, the weather was stormy, with fresh N. E. gales and overcast sky, with occasional refreshing showers : on the 18th the dry season seemed to terminate, by a change to rainy weather, with thunder and lightning, heavy rains, and S. E. breezes ; yet the last seven days of the month were dry, with strong N. E. gales at noon, rendering the temperature of the air cool, and more healthy than had been hitherto experienced by the British seamen and soldiers at this time of the year, since 1794. The first few days of June were dry, windy, and northerly. On the 4th a change to wet weather took place, with thunder and heavy rains ; after the full moon on the 9th, the dry N. E. gales, with fresh cool squalls, returned, and again changed on the 17th to southerly ; wet weather, with thunder, lightning, and heavy rains, which continued until the end of the month, but not without some variation of dry weather, and N. E. winds in the day-time. The whole of the month was remarkably well ventilated, and the air cooled by frequent showers ; the ponds and cisterns, which had been exhausted in May, by the long-continued dry weather, were now abundantly supplied with rain-water, and vegetation was vigorous.

July began with fresh N. E. gales, and squally at noon, with refreshing rains in the night; the full moon on the 8th was accompanied by a change of wind to S. E. with heavy rains, humid and dark sky, with thunder and lightning, the breezes were strong at times and squally. This sort of weather reigned the whole of the month, with some alternatives of dry, fresh, clear N. E. meridian gales *. The last week of the month was accompanied with heavy rains, thunder and lightning, from the S. E. with squally gales.

The same sort of weather continued in August until the full moon of the 7th, when the wind veered to the N. E. with fresh dry gales, and bright intensely hot sun, and calm serene nights. On the 15th the S. E. wind reigned, with heavy showers, thunder and lightning, particularly at night, with gusts of wind. On the 18th there was a heavy storm of thunder and rain, which fell in torrents for twelve hours; the weather continued calm or with light breezes from the southward, with rain, until the new moon on the 22d, when fresh and squally S. E. gales, were succeeded by light breezes and serene weather, with some thunder and rain on the 25th.

A sultry calm state of air succeeded until the 30th, when a slight shock of an earthquake took place at midnight, succeeded on the 31st by heavy rains throughout.

September began with calm weather, or unsettled, light, variable breezes from the S. E. with sultry temperature of air, which, however, was cooled nightly by heavy showers. On the 5th, after heavy rain the

* "Ac æquidem sub caniculæ æortum aqua & hyberna tempestas supervenirit etesiæque spiraverint, quietis speciest autumnumque saluberrimum fore."

Hip. de Ære Locis et Aquis.

two preceding days, the fresh, cool, squally N. E. wind prevailed and continued for some days, with occasional showers. From the 8th to the 20th the weather was dark, unsettled, with calms or fresh squalls from the S. E. thunder at times, and frequent heavy rains, with very little variation of the wind to the N. E. with dry air. This sort of weather continued until the end of the month.

The weather in the first week of October was rainy, dark, southerly, with squalls and thunder at times; this was succeeded by a calm, sultry, unsettled state of air, with frequent showers. On the 26th fresh gales reigned from the N. E. but soon gave way to S. E. winds, with heavy rain, overcast weather, thunder and lightning, which continued until the end of the month, tempering the extreme heats which had reigned in the calm sultry days in the middle of the month. Until the 7th of November cool N. E. gales reigned, with clear weather, and showers in the night-time. From the 7th to the 14th very heavy rains fell, with S. E. wind in fresh gales and squalls; to this succeeded a clear, dry state of air, with fresh N. E. breezes, bright sun, and a very great evaporation from the surface of the earth. On the 22d the southerly weather recurred with thunder, squalls of wind, and heavy rain; which weather again returned on the 28th. The intermediate time, and until the close of the month, was serene, with moderately fresh breezes, bright sun, and occasional showers in the night-time.

The beginning of December was windy, with gales from the N. E. fresh, cool squalls, and showers in the night. On the 8th the wind, veering to the S. E. became light and unsteady, with dark weather, and occasional calms, with some heavy rain. From the 11th to the 20th the weather was at times cloudy, unsettled, humid, squally, with strong heavy gales, and

on some days almost constant rains and some thunder, the wind keeping in the S. E. quarter. This was followed by clear, serene, dry, calm weather, in which the sun at noon felt more ardent than at the summer-solstice, from the privation of the breeze; the nights were cool, calm, serene, with an abundant fall of dew.

B. J. J.
 18.
 20
 ———
 38.
 2
 ———
 40. *Hall and Co*

CHAPTER II.

State of the Diseases in the Hospital during the first Months of 1798. Intermittent Fevers. Superiority of the Yellow Peruvian Bark in the Cure of them. Emetics and Purgatives rarely administered with Safety. The Seeds of the Argimone, or Thistle, used in obstinate Cases. Aromatics often necessary. Good Effects from the Application of Tourniquets. Ardent Fever. The Effects of Spruce-Beer and Essence of Spruce in that Disease. Case. Dysentery, or Hepatic Flux. Most successful Method of Cure. Case. Arrival of the Squadron from the Island of Trinidad. Hepatic Flux and Hepatitis. Devastation of Disease amongst the Seamen of the Spanish Squadron at Trinidad, and the Remains of them transported to Martinique.

THE naval hospital at Fort Royal, Martinique, contained about seventy patients in the beginning of January 1797, being almost the total sick of the Squadron of six sail of the line, and about eighteen frigates, sloops of war, and armed vessels; the crews of which, at this time, being much less crowded than formerly, and being actively employed in cruising at sea, enjoyed in general good health. Ardent or remittent

fevers were not seen at this time; and intermittent fevers rarely occurred, except in ships which had been long in port. Scorbutic dysenteries, diarrhæas, intermittent fevers, hepatitis of the chronic form, phthisis pulmonalis in the scorbutic, pleuritic, and peripneumonic affections, and old and scorbutic ulcers, were the diseases observed most common at this time; to which may be added, the large itch, or crow-crows, almost general amongst the prisoners of war: the only disease which affected materially about a thousand of them detained at Fort Royal.

Intermittent fevers may be said to have been the prevailing epidemic at this time, as most other complaints which occurred partook of the nature of these fevers, having regular diurnal exacerbations, remitting with diaphoresis, and requiring, in many instances, the administration of the bark: that medicine given in sufficient quantity, in the form of infusion, or in substance, joined to a diaphoretic regimen, seldom failed to put a stop to the intermittents which occurred.

Previous to having seen the essay of Dr. ^xRalph on ^ethe virtues of the yellow Peruvian bark, the sensible qualities of it had induced us to give the preference to that above all other species of Peruvian bark; and the superior efficacy of it had amply corresponded with the expectations formed of it. During the three last months of 1796, and three first of 1797, when intermittents were common, sometimes of the double tertian type, and at times degenerating into the remittent form, this bark was universally found very efficacious in the cure of intermittents. It has been thought by some eminent observers, that the Peruvian bark, when it arrests the course of an intermittent, if not followed by some visible evacuation, may occasion visceral obstructions; or a speedy relapse into the original disease may be expected: perhaps few persons

who have seen several constitutions of remittent and intermittent fevers, however highly they may esteem the Peruvian bark, when judiciously used in these fevers, will deny that constipation of the bowels, a degree of jaundice or hepatic affections, are sometimes occasioned, or at least aggravated, by the successful administration of Peruvian bark, in stopping the paroxysms of an intermittent. To relieve which accidents, the recurrence of a regular attack of fever, and the consequent diaphoresis, proves the most speedy remedy.

The yellow Peruvian bark, given in the form of infusion, seemed less objectionable to on this head than any other species, inasmuch as it appeared to act powerfully as a diaphoretic, when precautions were used to promote perspiration. This was effected by the use of a flannel waistcoat worn next the skin, and by the use of the tepid bath, when the pores were not sufficiently open during the intermission of fever, and after the bowels had been emptied by injections. The patient being thus disposed to perspire freely, the infusion of yellow bark was given in the quantity of half a pint, and repeated as often as the stomach would bear it, or there was any degree of thirst. If the patient was able to use exercise, by walking briskly, so as to promote perspiration, it had a good effect in promoting the operation of the medicine; even walking in the meridian sun, when the head was not affected, the belly open, and the body not heated, was found to have a good effect in promoting perspiration, giving room for further exhibition of the febrifuge, and thereby stopping the paroxysms of fever, or at least of diminishing the intensity or duration of it.

In cases attended with anomalous systems, protracted and redoubled paroxysms, the yellow bark was also found more efficacious than any other species;

but here it was often found necessary not only to give the yellow powder by the mouth and the anus, but the extract, formed into pills, which was observed to be very useful in cases where the infusion or powder could not be borne on the stomach.

The accelerating or promoting of the appearance of perspiration in the paroxysms, by the use of episthems of warm lime-juice and salt, was found serviceable here, as in the intermittents of the former year. The administration of *spt. nit. dulc. spt. mind. saline draughts*, or small draughts of warm lemonade, answered in the same intention. Towards the termination of the paroxysm, before the thirst and sweating stage had subsided, the light infusion of yellow bark, given in free draughts, passed off by perspiration with the best effects as a febrifuge. The method of preparing the bark was by infusing the proportion of a pound of quill-bark, fresh pounded, to a gallon of boiling water, which was left to macerate for one or more days; the residuum was strongly boiled in fresh water, and the decoction used in preparing another infusion.

This constitution of intermittent fevers reigned all the dry months of the year, beginning to decline in June, after the fall of rains. At the commencement of these fevers, that is, in the three last months of 1796, and in the beginning of 1797, the administration of purgatives and emetics demanded the utmost caution, the irritability of the stomach and intestines, which had generally accompanied the attack of ardent fever during the preceding months, continuing to appear with intermittents, and often threatening danger. But after the cool weather had continued some time in obstinate intermittents, as tertians, where the fever recurred regularly about the same hour, for a length of time, resisting the use of the bark, when vomiting was indicated by foulness of the mouth and

tongue, inappetence, vertigo, salivation, somnolency, &c. an emetic, given before the attack of the paroxysm, was sometimes attended with the effect of putting a stop to the accession and recurrence of the disease.

For this purpose the seeds of the thistle of the islands called Argemone by Linnæus, and resembling the great celandine, was, in some obstinate cases, found efficacious, given in the quantity of a drachm and a half, rubbed into an emulsion with a little water, and exhibited two or three hours before the attack of the paroxysm. A very plentiful evacuation was produced in general by this medicine, both by vomit and stool, and the accession either totally prevented, or the force of it diminished. As some of the intermittents, which occurred in the six first months of this year, were very obstinate, the use of aromatics, as ginger, piper longum, or capsicum, were often found necessary in the cure, along with the bark, or used dietically. The sal ammoniac, or ferrum tartarizatum, according to the indications which presented, were also found useful with the bark.

The bath, used with due caution, whether tepid or cold, was often found beneficial in these obstinate cases: in general it was thought most adviseable to begin with the tepid or even warm bath, and gradually diminish the temperature of the water at each immersion, until it was below the heat of the air. Persons who were unaccustomed to the cold bath whilst in health, and who were not afraid of the shock, used the cold or rather tepid bath with advantage, from the beginning. Flannel was worn next the skin after the use of the bath.

The application of the tourniquets to the limbs of patients threatened with the cold fit of intermittent fever, as proposed by Mr. Kelly, was repeatedly tried

before the end of this constitution of intermittent fever, and was found so generally efficacious, as to be adopted into common use, and very often with the effect of arresting the paroxysm. One or two cases occurred in persons of a weak formation of the breast and disposed to asthma; in whom, by the inadvertently retaining the ligatures in action too long, the respiration was rendered laborious and quick; doubtless, from the accumulation of blood in the breast. The practice certainly appears efficacious in intermittent fevers, and perhaps in other diseases; and as such, requires some caution in the administration of it.

Relapses were common to patients who had had these intermittents, often returning about the time of the full or of the new moon, and rendering the exhibition of the bark, and a strict regard to regimen, necessary at such times. The indulgence in fruit, particularly in the use of sweet oranges, and the use of milk, exposure to the sun, night-air, or the throwing off a flannel waistcoat, constipation, and the removal of it by laxatives, repletion, and the abuses of spirituous liquors, were the most generally exciting causes of relapses: to which may be added, the drying up of ulcers, issues, or of blistered parts.

Few instances of ardent fever occurred during the first six months of 1797: towards the latter end of January and in February three or four instances of it occurred in persons highly disposed to it, by having lately arrived from Europe, intemperance, and exercise in the sun. One of these was an American negro, who died on the 11th day, whose eyes, and the discharge from his blisters, were deeply tinged yellow. About this time the use of the essence of spruce was strongly recommended in letters from St. Domingo: it was tried here, and appeared to be useful in two cases, one of which is as follows, the other was pretty similar:—

February 9th. A young man was received, who three days before had been attacked with acute fever, severe head-ach, nausea, and bilious vomiting: an emetic was imprudently administered to him, and repeated on the 8th; he was found much sunk when received, his skin clammy, pulse 100, weak and small, and constant vomiting: a large blister was immediately applied to the epigastric region, columbo-root, with kali vitriolat. and ol. cinnam. was given and retained; and for beverage he had a few spoonfuls of a strong solution of essence of spruce, on which was poured some brisk spruce beer, and immediately drank off before the gas evaporated. The patient relished this drink, and it remained on his stomach: he recovered without any further accession of fever.

In other cases during the course of this year, the same medicine was tried, but more often without being retained than with success: it appears to me improper in the ardent first stage of the fever, from the inflammatory balsam it contains. Brisk spruce beer is harmless, and often relished by the sick in this disease.

Dysentery was very frequent on board of some of the ships of the Squadron during the first months of 1797; and most of the men who died on board or in the hospital, which were not many during these months, were carried off by that disease; which, in some instances, assumed a malignant form, and proved fatal in less than fourteen days. It more often happened that the disease continued a greater length of time, with less violence, and less fatal in its effects, generally attacking the scorbutic, dejected, melancholic, of a middle age, and those who had been much addicted to spirits.

The liver was very frequently affected in these cases with a degree of induration, enlargement, and

pain. Purgatives and mercurials were evidently inadmissible here; and it was reasonably supposed that many patients in this disease, with the greater intestines in a gangrenous state, and to whom calomel had been freely administered, could not have been much benefited by that panacea. In those received in a state in which medicine could be of any avail to them, demulcents, as the pulv. tra. c. jellies, or gruel of sago, that made from the arrum-root, starch-powder of Barbadoes, from the fruit of the ochry-plant, solution of gum arabic, &c. were found useful; glysters of a similar nature were beneficial. The temperate bath was very generally useful, and the cold bath answered, in those accustomed to it in health, without much hepatic affection. As a saline detergent, the solution of common salt in lime-juice and water, was sometimes used with advantage; flannel worn next the skin was constantly recommended, and when a disposition to diaphoresis shewed itself, ipecacuanha with camphor, administered every three hours, in the quantity of one or two grains, and joined at night to an opiate, in several cases procured relief. The long prosecution of this or of any other debilitating plan, was, however, hazardous: the surest chance of safety for the patient, was by adhering to a strict vegetable regimen, using the moderately cold bath, mild sub-astringents, bitters, and chalybeats. The ripe fruit of the cashew-tree was found very beneficial in the second stage of dysentery, particularly when there was much thirst, fever, or a large discharge of blood: the cool, agreeable, astringent-juice of that apple was found to allay thirst and febrile heat, to brace the stomach and intestines, without causing too great a degree of astringency. Pomegranates and unripe guavas were also found useful as sub-astringents; blisters were useful in many cases, as well to relieve the severe gripes, as to alleviate the hepatic obstruction and pain, when a repeated application of them, or a continual discharge kept up from the part, was at-

tended with good effects. The dissection of those who died, shewed that the greater intestines were generally in a gangrenous state. Of this the following is an example :—

M'Cushinan, aged about 45 years, of a thin habit and melancholic temperament, was received for dysentery in the beginning of June. By the account of the patient himself, the disease had been brought on and rendered habitual by the sole use of spirits : he acquired a little strength, and the purging abated somewhat, but soon returned after some imprudent indulgence, became colliquative, with hectic fever, extreme debility, and a total loss of appetite. He died July 6th. The body was greatly emaciated, and the abdominal viscera so much shrunk, that the navel seemed to touch the spine. The omentum was wasted, discoloured, and inflamed, as was the surface of all the intestinal canal, particularly that of the colon and rectum : internally these bowels were inflamed, ulcerated, the latter gangrenous, whilst the former was covered with foul, apthous ulcers : the liver was inflamed, tender, and livid on its concave surface ; the gall-bladder contained a large quantity of vitellinous bile ; the mesentery inflamed, tender, and nearly putrid ; the mesenteric glands, as well as those of the mesocolon, were very much enlarged, indurated, and inflamed.

In the beginning of March the Squadron, consisting of five sail of the line and some frigates, arrived from the successful expedition against the island of Trinidad, having the crews of the ships in good health, so that not more than twenty sick were landed at the hospital, most of whom were affected with dysentery, in many of whom a diseased state of the liver was sufficiently obvious, from a degree of pain, enlargement, and induration ; in others, the disease was accompanied with more dangerous symptoms, as a degree

of ardent fever, dissolved bloody stools, constant tenesmus, great thirst, emission of worms, prostration of strength, and finally gangrene and sphacelus of the colon and rectum, often after long sufferings, proved fatal.

Such cases too often occurred during the whole of this year in ships lying long in the road, where the seamen had opportunities of indulging in the abuse of spirituous liquors, and to whom purgatives or emetics had been administered in the beginning of the disease.

The hepatic affection generally accompanied a disease less acute; and the patients thus affected, if prudent in observing a strict regimen, have frequently done well: blisters repeated, and the discharge from them kept up for some time, light bitters from quassia, columbo-root or angustura-bark, mucilaginous foods and drinks, gentle sub-astringents and chalybeats, were the means most successfully used; to which the bath, a few degrees colder than the temperature of the air, was a powerful aid.

Some instances occurred of abscess of the liver in patients much exhausted by hectic fever and diarrhæa, too late to hope for any benefit from an opening being made. Hepatitis, in a slight degree in general, was frequent all the dry months of this year, affecting the intemperate, scorbutic, those who had formerly laboured under ulcers and scabby eruptions, or who had been affected with fevers or dysentery, and had, in their convalescent state made use of an improper regimen. Hippocrates remarks, that persons who feed plentifully on beef and drink austere red wine, during the summer heats, are very liable to become affected with obstructions and inflammation of the liver. The truth of this assertion is well exemplified by what happens to our soldiers and seamen in the West Indies; in great numbers of whom, during dry and

hot seasons, the liver becomes obstructed from the free use of ardent spirits and salted flesh, as was the case in this present year.

Whatever may be the success of mercurials, used externally and internally in this disease in the East Indies, the practice is far from being advantageous in the West, as far as might be ascertained from many cases of hepatitis which occurred at this time, and at other periods, in patients received from ships of war, in whom the administration of mercurials had been pursued with disadvantage. Dr. Saunders, in his valuable work on the Diseases of the Liver, has justly prescribed the mercurial course in acute hepatitis, the disposition to hectic fever with phthisis, a very common sequel of the disease: the formation of abscess in that viscus, or the presence of an intestinal flux, would also seem to forbid the administration of this remedy, even in those young, robust, intemperate hepatitics who seem to be the only objects for the mercurial practice. Perhaps some regard to regimen, the producing a discharge of matter from the side by blisters or a seaton, with neutral salts, mineral waters, or light chalybeats, would be found on trial preferable to mercurials: at least, what has occurred here would favour this supposition.

In April and May the Road was crowded with transports, having prisoners of war on board from the lately captured island of Trinidad. Notwithstanding experience has since shewn that our ships crews, when kept in activity and employed in the Gulph of Paria, on the coast of Trinidad, have preserved their health as well as if cruising in the open sea, and are little subject to the attacks of intermittent or other fevers; yet the Spanish Squadron, consisting of four sail of the line and a frigate, which was found at that island, where they had arrived about the month of July 1796, had suffered extremely from an epidemic fever,

which is said to have proved fatal to at least one half of the crews of these ships; and the remaining part was found so debilitated by disease, as to be incapable of defending the ships when attacked by Admiral Harvey in February 1797.

From the accounts which our medical gentlemen collected at Trinidad, it would appear that the epidemic which proved so fatal to the crews of those Spanish ships, was an ardent yellow fever, terminating in remittent and intermittent fevers, in a manner similar to what had happened here in 1796; in many, putrid gangrenous ulcers followed an obstinate intermittent; in others, a colliquative flux: near 100 of those wretches, in the most deplorable state, were sent here in their way to their native country. By these accounts, it also appears that the Spanish practitioners made a very general use of tartar emetic in this epidemic, apparently after the recommendation of a Dr. Masdeval, who having been employed by order of the Spanish ministry in 1783, to superintend the treatment of an epidemic fever which reigned in a part of Catalonia, published, by order of government in 1786, an account of his mission*, and successful treatment of the epidemic: with this work the Spanish surgeons of the ships at Trinidad were supplied; and it seems to have been their *vade mecum* in the epidemic of that island. This extraordinary author, after giving an account of the epidemic of Catalonia, and the successful event of his practice, roundly recommended it in every possible genus or species of fever, as far superior to any used since the days of Hippocrates to the present time. The reader will perhaps be surprised, after such assertions on the part of Don Masdeval, that his certain and specific method of cure in malignant and

* Relacion de las epidemias de Calenturas putridas y malignas en el principado de Cataluna, &c. &c. per Jos. Masdeval, M. D. &c. &c.

all other fevers, reduces itself in the main to the administration of two or three nauseous and unchemical formulæ: the first of which is a solution of tartar emetic (or antimonial wine) with cream of tartar; and the second an electuary, composed of Peruvian bark, vegetable alkaline salt, sal ammoniac, and tartar emetic. It may here be remarked, that the high degree of predilection which the French and English practitioners had formerly shewn to antimonial medicines in all fevers, has been pretty well overcome at present, and seems to be transferred by some chemical physicians to another metal; whilst the Spanish credulity is yet duped by the enthusiasts for antimony as a specific in fevers.

CHAPTER III.

Ulcers. Effects of various Simples used as Dressings. Medicinal Treatment. Cases of Tetanus. Of Compound Fractures. Of the Effects of a Venomous Puncture. Some other Chirurgical Cases.

MANY of these diseased Spaniards were afflicted with large foul putrid ulcers of the extremities, in some cases accompanied with diarrhæa or dysentery; in which circumstances art could do little for them, the discharge from the ulcers being generally translated to the greater intestines or to the breast, with a fatal termination. In such ulcerated patients, as well as in a number of English seamen affected with them during the dry months of this year, that is, until July, ulcers were found more obstinate, frequent, and troublesome than common, usually degenerating when nearly brought to a state of desiccation, after a paroxysm or two of fever, with inflammatory affection of the lymphatic glands and vessels, and spreading into a foul sore. In the generality of these cases dressings composed of lint, wetted in the juice of limes or four oranges, or a poultice made of the pulp of the orange, or that of the lime, sometimes after having been roasted, were found efficacious when the ulcers were inflamed, foul, putrid, discoloured, and sloughy, correcting the putrid nature of the discharge, promoting the formation of good matter, and deterring

the surface of the sore. The application of limes cut in thin slices, and applied over the surface of the sore, was found still more powerful in putting a stop to a spreading gangrenous ulcer; more especially, if it occurred in a seaman from a cruize; in which circumstance this practice rarely failed to arrest the disease. A poultice, formed of the root of the cassada or manioc, grated and applied on the surface of a putrid foul sore, also was attended with the best effects, correcting the fætor, deterging the ulcer, and promoting a laudable discharge. Sometimes this poultice was moistened with lime or orange-juice, or was applied over thin slices of limes, when the ulcer was very foul with a sphacelated eschar; or, if the eschar was dry and deeply attached, the edges of it were covered with a digestive, as the ointment of storax (which is one of the most useful applications in gangrenous sores) and covered with the cassada-poultice. When the ulcer had cast off a slough and became deterged, the further use of these applications was unnecessary; but what was found highly requisite, was the keeping down the exuberant granulations, which, in these sort of ulcers in this climate, occurring in full relaxed patients, generally spout up very fast, and if not repressed, occasion much trouble to the patient and the surgeon, as these granulations, of a fungous nature, are generally cast off by a recurrence of gangrene.

The daily application of alumen ^uustum, ~~petriol.~~ ^ææruc. or of the lunar caustic, was generally necessary to repel fungous flesh in these ulcers when granulating; a powder composed of equal parts of ærug. oris in fine powder, and of powder of savin, was generally used for the same purpose, and seemed to be more efficacious than even the caustic.

This practice in general succeeded; but in such cases as occurred in cahectic relaxed patients, not lately from sea, but whose diet had been more of an

accescent than of an animal nature, the effects of the vegetable acid were not so remarkable; and various other dressings were used occasionally, and changed when found to disagree with the ulcers, which, in many cases, assumed the nature of the true phagedæna.

The worm-grass of the English islands, *herbe à vers* of the French, or the chinæpodium anthelm of Linnæus, was often found very effectual in the foul, spreading, and putrid state of sores: the fresh herb was pounded into a poultice, and mixed with a few grains of common salt and a spoonful of spirits, and applied immediately to the sore, the fætor and sanious discharge from which it seldom failed to correct; the fresh herb moistened, and the juice thereof expressed, mixed with a little rum and a few grains of salt, formed a liquor, in which lint was imbibed, and applied to the surface of foul sores with similar good effects to the herb in substance, though less powerful.

Equal parts of lime-juice, rum, and honey, or fresh syrup, boiled in the quantity of a pint over a slow fire, with two drachms of finely powdered verdegrease, until a third part of the liquor was evaporated, formed an application very useful in these foul, fungous, and putrid sores, and is in daily use in this hospital. With this solution, the fungous putrid sores were wetted and deterged, and sometimes lint wetted in it was applied over the part.

Another application which we used with advantage in obstinate cases, was a cataplasm formed of the *solanum pseudo capsicum* of Linnæus, the agouman of the French, or the bitter spinach of the British islands. This plant, which resembles spinach in form, beat up with a small quantity of ærugo oris, and a little honey or syrup, formed a very powerful antiseptic and detergent application.

The soft fibrous, rotten root of the plantain, which is easily procured in plantations of that useful tree, makes an easy cooling cataplasm when applied to foul sores: it abounds with an astringent vulnerary juice, and was frequently used with good effects; it was, however, in some cases found to be too relaxing, from the cool watery juice which it contains.

It is impossible accurately to discriminate the appropriate use of these remedies, and describe the exact state of an ulcer in which one should have the preference over the others: this is generally only to be known by experiment.

To those who have never witnessed the ravages made by scorbutic ulcers, and sloughy gangrenous ulcerations of the hospitals, particularly in hot climates, and who are convinced from speculation that topical applications are generally indifferent, since the cure of an ulcer in most cases is effected by a spontaneous operation of nature, the foregoing details may appear to be misplaced and unnecessary; but as there is not a doubt that in the time of war, both army and navy lose a vast number of men, particularly between the tropics, by ulcers, which are often the occasion of amputated limbs, and still oftener of death, the subject seems sufficiently important to merit attention.

When ulcers were clean, in a granulating state, and the discharge kept up principally by relaxation of the part, and of the system in general, the bark of the tree called Hercules' Club, in English, *epineux* in French, or *zantoxylon* of Linnæus, infused in spirits (in which the lint applied in dressing being imbibed) was found very efficacious in promoting of cicatrization.

The grass called *pied de poule* by the French, couch-grass by the English, and which seems to be a

Species of panicum, was found to be a useful vulnerary externally applied, either in the form of a cataplasin (the herb being beat into a pulp and applied to the sore) or the expressed juice, diluted with water and a little spirits, being applied with lint.

There are various other vulnerary plants which abound in Martinique, and are constantly used by the inhabitants as dressings to ulcers, some of which were tried with advantage in the hospital during the course of this year: as the leaf of the common way-fairing plantain, softened by putting it to a fire, and applied to the surface of an ulcer: this was found to act as a good detergent, promoting the discharge of good and consistent pus, and favouring the production of granulations. The soft leaves of the pigeon or Angola-peu shrub, either applied whole or beat up into a poultice, were found highly vulnerary, astringent, and promoting the desiccation of ulcers. The leaves of the physic-nut shrub*, or *medicinier* of the French, softened by being put into warm water, and applied to the surface of ulcers, were found to possess similar virtues.

The continuance of dry weather with fresh N. E. gales of wind during the first four months of 1797, seemed to affect in a remarkable manner the state of ulcers, which were then very obstinate, foul, and painful. At this time too a metastasis of the purulent matter on the bowels, occasioning a fatal dysentery in exhausted patients, happened in a few instances; in others there was an evident hepatic affection, which rendered much caution necessary in healing of old ulcers. As to the medicinal treatment of these ulcers, in the inflammatory or first stage of them, when the lymphatic glands were generally affected with tention, pain, and enlargement, accompanied with one or

* ~~B~~atropa Lin.

more accessions of fever, a strict antiphlogistic regimen was indicated and pursued: emollient glysters, neutral saline draughts, and beverage of tamarinds, limes, or oranges were used. When the febrile paroxysm seemed disposed to go off by diaphoresis, as was commonly the case, it was promoted by gentle doses of vin. antim. sp. nit. vul. joined in some cases with tinct. opi. When the inflammatory stage had diminished in degree, the skin and tongue had become moist, and the sore had begun to discharge, the infusion of bark was administered freely, and given as common drink, if the patient could be prevailed on to adopt the practice.

When by the use of detergents and antiseptics the sloughy spreading state of ulcers had been succeeded by a clean surface and free discharge of matter, the bark was occasionally given in substance, and a strict injunction was given to the patient to observe as dry a regimen as possible; avoiding fruit, particularly oranges, butter, milk, and moist vegetables; for experience sufficiently shews, that these sort of ulcers are principally occasioned to become habitual, and in some measure constitutional, by full living, a moist regimen, and the free use of vicious or spirituous liquors. But as few of our patients could be restrained from indulgence, and began to walk about as soon as their ulcers (generally situated on the legs) began to contract, by which their appetites became increased, and a consequently large discharge from their sores took place, the constitutions of these men were generally habituated to the dram; and they seldom failed to be attacked by fever, sometime after the healing of their ulcers, generally of the intermittent or remittent kind; hence the substituting of issues in the room of the discharge from the healing ulcers, was recommended, and practised in some instances with advantage.

During the course of this year, two cases of tetanus occurred in wounded patients : their cases are briefly as follows :

In the beginning of April, Marco Zimba had his fore-arm shattered by a cannon-shot. As there was no surgeon on board the ship, having a letter of marque when the affair happened, the blood was with great difficulty stopped by his companions : three days after, he was sent to this hospital, where, after a due degree of digestion had taken place, the arm was amputated above the elbow. As the patient was of a scorbutic habit, extremely irritable, and very anxious about his state, and as he had suffered much from the profuse loss of blood, the ligatures which had been made on his arm on board, and the consequent gangrenous suppuration of the shattered fore-arm, the stump did not unite by the first intention : on the contrary, a large suppuration took place ; the stump was, however, apparently doing well, and contracting, when, on April 22d, after exposure to the current of air, which at that time was cool, dry, and windy, he complained of stiffness of the jaws and difficulty in swallowing : he was costive, and spasms soon came on pretty violently ; oily glysters, embrocations with camphorated volatile liniment, with flannels worn next the skin : moderate doses of tinct. opi. with petroleum Bardadens, continued, as occasion required, for some days, moderated the violence of the spasms : after which, the bark was given in as large quantities as the patient could be prevailed on to take, whilst the stump (the discharge from which had diminished) was dressed with an ointment of storax, with tincture of opium. The spasms and rigidity of the jaw had gradually diminished until the middle of May, when there only remained a slight degree of stiffness ; the stump had contracted considerably ; but the patient was extremely debilitated ; and being at the same time very irregular in his diet, a diarrhæa attacked him, which

soon became colliquative, and at length proved fatal May 31st.

The other case was more happily terminated.

William H. Howard, a young man belonging to his Majesty's sloop *George*, by the discharge of a musket had his hand shattered on the night of the 15th of June: his hand having been placed on the muzzle of the gun, the metacarpal bones of the middle, ring, and little fingers were very much shattered, and the soft parts, as it afterwards appeared, disorganized: a considerable effusion of blood took place, which was, however, arrested, and he was sent to the hospital next day.

The suppuration was preceded by much fever and pain, and followed by a profuse discharge: the little and ring-fingers, with the metacarpal bones, were amputated, when it was evident they could not be preserved. The parts were dressed with ung. g. elem. with storax, which is an excellent application to tendinous parts, and in a gangrenous or sloughy disposition of sores. He took the bark plentifully; notwithstanding which, the large discharge had rendered the patient so irritable, that on the 27th, when the wound was clean and contracting, symptoms of trismus shewed themselves; as inability of opening the mouth, stiffness of the neck and temporal muscles. He was enveloped in flannels, imbibed in ol. recini. aq. ammoniæ with ol. succini and camphor; his belly was opened by oily glysters, and he took small doses of tinct. opi. at night only, and not constantly. The infusion of bark (for the powder could not be borne on the stomach) was given in large quantities as a beverage, and seemed to have the most salutary effects; yet the wound became sloughy and gangrenous, and the spasms recurred for many days with considerable violence. In the middle of July the tetanic symp-

toms abated, and gradually went off, and were succeeded by a salutary diarrhæa. The patient still continued to take the bark infusion plentifully; two-thirds of the metacarpal bone of the middle finger cast off, the finger itself being sustained by the forefinger and a splint; which fingers, together with the thumb, remained (the metacarpal bone of the middle finger having been regenerated) and after some months, when the patient was discharged cured, promised to prove of some utility to him*.

The following chirurgical observations may perhaps be deemed worthy of recital:—

James Simpkins, aged about seventeen years, fell from a yard-arm to the deck, on board of his Majesty's ship Beaver, May 13th, 1797, and was received

* To avoid tetanus from occurring in wounds, it is highly necessary to pay strict attention to the suppuration, which should not be obstructed in its establishment by purgatives, or by application of styptic applications, as solutions of lead; neither should the continued use of emollient and warm fomentations and cataplasms be persisted in, so as to occasion a large and wasting discharge. The complaint is generally preceded by paleness, want of appetite, and lassitude; and the occasional cause is often exposure to a draught of air during the night. When these symptoms are perceived early, volatile embrocations, the application of flannels, opiates, joined with diaphoretics and warm drinks, succeeded by the free use of the bark (due attention being paid to procure stools by oily glysters) will very often be attended with success; at least, when the spasms are not violent, for the danger is proportionate to the violence and frequency of the convulsive motions. The ung. gum elem. alone, or joined with storax, or balf. Peruv. seems to be one of the most safe digestives, applied to tendinous parts lacerated; and which between the tropics endanger the attack of trismus. I have observed locked-jaw to occur very frequently in the Hotel Dieu of Paris, from, as it appeared to me, the very free and general application of a saturnine solution to compound fractures, and other severe injuries. Whether this effect of a solution of lead may arise simply from the stoppage of the free discharge of purulent matter, occasioned by this repellant application, or to the deleterious quality of that metal on the nervous system, I leave others to decide: the fact seems too important in practice to be passed over in silence.

into the hospital the 18th. The middle of the left femur was fractured, and the end of the bone had been forced through the external and lateral part of the thigh, and was reduced immediately, though with difficulty, by Mr. Bonieux, the surgeon of the ship. The laceration of the soft parts was not considerable; the bones of the right fore-arm were fractured, near to the wrist; the epiphysis of the radius separated, forced through the external and posterior part of the wrist, and found to be irreducible: he had, moreover, a simple fracture of the lower jaw, on the right-side, with a severe contusion of that side of the head and face. On the 19th, as there were no signs of suppuration from the wound of the thigh, and a very small degree of inflammation, the compresses and bandages were wetted with red wine, and the limb placed in junks or fanons, in the horizontal position; the dressings were not removed for several days, there being no inclination for it; and when taken off, the supuration was found so superficial, that the wound may be said to have united by the first intention: an effect which was aimed at by the use of traumatic balsam to the wound, and by the use of a strict bandage, wetted with red wine: this fracture re-united with as little trouble as simple ones generally do, it not being necessary to remove the bandage oftener than once a week during the cure. The fracture of the maxilla, from the nature of it, required nothing more than the application of compress bandages, &c. and was unattended by any accident. As to the compound fracture of the fore-arm, the portion of the end of the radius, which had been forced through the integuments, formed a considerable transverse wound, from which a considerable degree of suppuration took place, which, doubtless, tended to prevent inflammation and abscess of the fractured thigh; the portion of the radius protruded, cast off by a mouldering exfoliation, which was much promoted by the application of lime-

juice to the carious part, whilst a callus formed underneath ; and in less than six months the part was cicatrized. The patient was bled after the accident, was kept on the strictest antiphlogistic regimen at first, had occasional anodynes, took bark after the first stage, and had not any fever worth mentioning ; some degree of enlargement of the joint remained, and a partial ankylosis. In this case the re-union of the lacerated wound, made by the protrusion of the os femur by the first intention, seems to have depended in a great measure on the immediate reduction of the fracture, from the fracture not being oblique, from the abstemiousness of the patient, and from the copious discharge of matter afforded by the fractured arm, by which any disposition to inflammation was obviated.

John Payne, a negroe, was reported to have been bit by a venomous serpent, and to be supposed in a dying state about noon of February 20th, 1797. On visiting him, I found he had been convulsed, and was in a state of insensibility ; from which, however, after the application of volatile alkali, he soon recovered ; when he gave me the following account of his misfortune, which he fully expected would prove fatal, frequently interrupted in his narration by the most acute sufferings : — The preceding night, about nine o'clock, being very much intoxicated, he went to draw some water out of a cistern, situated in a house where snakes had frequently been seen : on laying hold of a bucket in the dark, he found himself pricked by a serpent (which had been drinking out of the bucket) on the left hand, immediately over the abductor policis, where the small points made by the poisonous fangs were yet evident. The pain he felt at the instant was very acute ; but being extremely intoxicated, he went to bed, and arose next morning with a degree of stiffness of the arm alone. He took

a more than usual dose of rum as a preventative, and towards noon began to feel the most acute pain of the hand, arm, glands of the axilla, and even of the breast; all which parts were swelled, painful to the touch, and affected with frequent and violent spasms: he suffered the greatest degree of anxiety, his respiration was laborious and interrupted, he was affected with nausea, the pulse was small, weak, and slow. This state soon gave way to the most frightful, strong, and general convulsions, in which the patient was thrown backwards, so as to form an arch, threatening instant dissolution, and returning at very short intervals, for about an hour and a half. A ligature had been made on the limb, which, as useless at this period, was removed; neither was it thought of any avail to scarify, excise, or cauterize the part. Hot lime juice, and afterwards camphorated castor-oil were rubbed over the hand, arm, and breast; the efforts to vomit were promoted by the administration of olive-oil and warm water, assisted by a feather, but in vain, as nothing could be thrown up. A large dose of Venice-treacle, with volatile aromatic spirits, and virriolic æther, was then administered to the patient, the effect of which was promoted by warm rum and water, in small quantities, as it is deemed highly dangerous by the natives to indulge a patient in similar circumstances with large draughts of cold water, for which this patient ardently craved. After about six long and severe convulsions, in which the respiration was impeded for a considerable time, and in the intervals of which the patient fully expected to be carried off in the succeeding attack, the pulse began to rise in strength, and to become more regular; the patient was now encouraged to hope for safety; another dose of the remedy mentioned was given him, and he was covered well with warm blankets, for signs of a diaphoresis had shewn themselves. About two, P. M. the shooting pains of his hand, arm, and breast, had con-

siderably remitted, the convulsions had ceased, and turning himself on the right side, he got some tranquil sleep, after which the convulsions did not return: he perspired freely during the succeeding night, and next morning was only affected with a slight degree of fever of no consequence.

This case is so remarkable, from the length of time elapsed between the infliction of the venomous bite and the serious symptoms, that, had the limb affected not given unequivocal signs of the injury received, one would incline to attribute the effects to the force of imagination rather than to the bite of a venomous reptile. Accidents of this kind are very common in Martinique and St. Lucia, often proving mortal in a few hours. On the other hand, it is common to see negroes who have been pricked by snakes, recover with the ordinary treatment. The fatality attending some cases is supposed to be occasioned by the infusion of the poison into a vein, by which it immediately enters the circulation. Various are the applications said to be made use of by the negroes: a ligature immediately applied, scarification and cupping of the part, excision, cauterizing or filling the wound with gun-powder, and blowing it up, or the filling the points slightly scarified with arsenic, are all said to have proved effectual in prevention of bad consequences. Limes roasted and applied with salt to the part, a species of aristolochia, called by the French *learic*, a serpent, the leaves of which are bruised and applied to the part bitten; a species of grass, called in French *pied de poule*, beat with salt, and applied to the part; wood-ashes mixed with oil, and a number of other simples, are the popular remedies in use here; to which may be added the force of imagination and superstition. For the negroes who profess the cure of venomous bites, called *Panseurs*, observe the greatest secrecy with regard to the applications

they make use of, and impress on the minds of their simple African patients, that the art they profess has something supernatural in it, rendering it almost infallible; hence they encourage the afflicted with certain hopes of a speedy cure*.

September, John Johnson, a seaman, belonging to his Majesty's ship Dictator, was received into the hospital on account of an injury he had received by a fall down a hatch-way, which occasioned an universal paralysis of the trunk and extremities; he breathed with some difficulty; and the bronchæ becoming gradually charged with effused mucous, he died of strangulation in forty-eight hours.

On dissection, the dentoid process of the second cervical vertebra was found to be luxated by the rupture of the ligaments which bind it to the os occipitis;

* Le Pere du Tetre gives a tradition of the Indians of Martinique, related to him, explaining the reason why St. Lucia and Martinique are stocked with venomous reptiles, whilst the surrounding islands are happily exempted from them: — "The Indians held it from their forefathers, that this calamity came from the Arrouagrées, a savage nation of Terra Firma, with which the Caribbées of the islands carry on a cruel war. The former being constantly tormented and persecuted by the incursions of the islanders, bethought themselves of a mode of attack, not common, but extremely injurious and dangerous to their enemies; for they collected a number of these serpents, which, enclosed in calabashes and baskets, they transported to Martinique, where they set them at liberty, in order that, without leaving their own country in future, they might be able, by means of these fatal reptiles, to wage against their enemies an eternal war." However they may have been transported into these two islands, it is somewhat extraordinary that their number has not prodigiously augmented, considering their prolific nature. I have seen upwards of ninety young ones, each in its proper membrane, taken out of a female snake; and from that number to a hundred is said to be common. According to the narration of the country-people, the snake, when she brings forth her young, returns on the path on which she had dropped her offspring, and devours the greatest part of them.

the third vertebræ was fractured, and the transverse and spinal processes drove in upon the spinal marrow; the inferior vertebræ were also much infused.

About the same time a marine, belonging to his Majesty's ship *L'Etrusco*, received a fracture of the lumbar vertebræ, with consequent paralysis of the lower extremities. He lived in this deplorable state fourteen days, when a sphacelus of the rectum put a period to his existence; and this seems to be the most usual way of termination in these hopeless cases of compressed spinal marrow.

In the latter end of November, a negroe, named Joe, received a wound of the head by a piece of iron, or langridge-shot, and was abandoned in a state of insensibility on a vessel's deck until next morning, when he was carried on shore, and, some days after the accident, put under my cure. The upper and middle part of the left parietal bone was fractured, and a portion of the bone depressed the fifth part of an inch; the matter lodged in the fracture was found to have a free issue, and to be actuated by the pulsation of the vessels of the brain; the patient had a slight paralysis of the right leg, but was otherwise free from accidents. The external wound being contracted around the fracture, was enlarged, from the incisions an effusion of blood, and afterwards a free discharge of matter took place; and as the symptoms of oppression of the brain seemed to dissipate, and there was no immediate indication of applying the trepan, the patient was kept on the most strict regimen: the denuded and depressed bone was covered with a dozil, squeezed out of lime-juice (which promotes the exfoliation of carious bone powerfully) and this covered with ungt. arcæi. In the course of six weeks the depressed part of the bone cast off the outer table, and the greatest part of the diploe, which,

together with the denuded border, that is also exfoliated, were as large as a dollar in circumference; the only ill effects of the injury which remained was, a slight weakness of the right leg and the depression, when he was discharged in January 1798.

Julian, a French prisoner of war, was received into the hospital, July 9th, 1797. The preceding day he had received a blow from a splinter of wood on the left side of the head, which had occasioned a slight wound, with considerable contusion; he had been insensible, and was found to be comatose and speechless; his head was immediately shaved, the part exhibited considerable marks of contusion, a longitudinal incision was made, and the cranium found uninjured; he was bled plentifully, and had stimulating saline injections administered twice in the course of the day: the orifice by which he had been bled in the arm opened, by which he lost a very large quantity of blood before the hæmorrhage was arrested; and this, though occasioned by the puncture of the artery, was perhaps eventually the means of preventing inflammation of the meninges of the brain, and of promoting the absorption of the blood effused within the cranium. He became more sensible in the course of forty eight hours, recovered his speech in some measure, and continued progressively to recover, to which a very strict regimen and a free discharge from the wound of the head contributed remarkably. About three weeks after he had been wounded, he complained of a swelling in the arm, where he had been bled: on examination, an aneurismal tumor, of the size of a walnut, was discovered, and apparently of that species, formed by an opening made between the artery and vein: compression and a strict bandage were applied, and recommended to be continued for some months, on his being exchanged a few days afterwards. After the lapse of six months, Julian was

again made prisoner, and informed us that a surgeon at Guadaloupe (to which island he had been exchanged) endeavoured to persuade him to submit to the operation of the aneurism, to which he would not consent; and that by continuing the use of compression, under the care of another surgeon, he had attained the state in which he then was. On examination of the part, there appeared to be a small firm tumor, about the size of a hazle-nut, on the artery: he had nearly the full use of his arm.

In the same engagement, Pierre Lecoque was wounded in the right arm by a musket-ball, which pierced the anterior border of the deltoide muscle, passing out at the posterior one, apparently in the direction of the axis of the head of the humerus. When received into the hospital, the part was much swelled, the arm could not be moved in the smallest degree without acute pain, and there was every appearance of the capsule of the joint having been wounded, if not accompanied with a fracture of the head of the bone. By plentiful venesection, the strictest antiphlogistic regimen, cooling glysters, anodynes, emollient fomentation, and cataplasms, the inflammation was overcome in the course of eight days; a plentiful suppuration ensued, which took off the tumefaction; and without being able to ascertain the fact, whether the bone had or had not been fractured, the patient recovered with the privation of a free use of the joint.

Nature was yet more favourable to Pierre Lavin, who received a musket-ball through the axis of the right knee, the ball entering at the lateral part of the external condyle of the femur, passing out at the internal and anterior part of the joint; it then passed through the axis of the head of the tibia, passing out near to the fibula, which bone appeared to have been

fractured, simply from the want of support. The wounded joint formed an ankylosis, occasioned no dangerous consequences, and was long cured before the fractured tibia, from which considerable exfoliations were cast off, previous to the re-union of bone which at length took place.

CHAPTER IV.

State of the Crews of two Frigates on their Arrival at Fort Royal from the Coast of Africa. Cases of Attack by Ardent and Remittent Fever. Healthy State of the Crews of Ships cruising off the Islands of the Saints. Fatality of Fevers in Martinique, Dominique, St. Lucia, &c. &c.

TO resume the narrative of the diseases which reigned this year, the Sheerness, of 44 guns, and Maidstone frigate, arrived at Fort Royal, from the coast of Africa, in the beginning of July: the companies of these ships were healthy on the passage from England, and in running down the coast. The latter ship had only lost one man: this occurrence of the ships of war from Africa, arriving in these islands with a healthy ship's company, is very common, and may be accounted for from the shortness of their anchorage in any road, the little communication the crews have with the shore, and the privation of ardent spirits, with which the fatal industry of these islands so abundantly furnish our seamen, on their arrival in the West Indies.

A few days after the arrival of those ships, John Miller, belonging to the Maidstone, after intemperance, was attacked with ardent fever, violent peripneumonic symptoms on the third day : he was carried to the hospital totally insensible, his respiration stertorous, laborious, and rare, with the emission of frothy, purulent, mucous by the nostrils ; the heat of the skin was ardent, and the pulse strong, full, and rare ; the bladder was much distended ; he had long laboured under symptoms of calculus, and had frequently been afflicted with suppression of urine ; two pounds of urine, with some ounces of matter, were drawn off by the catheter : he died at seven, A. M. on July 5th. At six o'clock in the evening of the same day, the cadaver was found to retain a considerable degree of heat, was yellow, and exhibited strong muscles covered with much fat. On dissection, the omentum was found to be wasted, and adherent in some parts ; the surface of the stomach and intestines shewed considerable signs of inflammation, and were much distended with flatulence ; the concave surface of the liver was inflamed, the gall-bladder contained a small quantity of deep coloured bile ; the urinary bladder was situated high, and contained a pound of urine ; this viscus was found to be three times its natural thickness, its inner surface inflamed, eroded, and ulcerated, more especially towards its neck, where was found lodged a rough stone, as large as a pullet's egg, surrounded by matter. The thorax exhibited marks of the most violent degree of inflammation, both lobes of the lungs were infiltrated with a thin sanies, the bronchæ filled with the same, the posterior part of each lobe was gangrenous, and each cavity contained a pint or upwards of effused serum.

The strong N. E. gales which ushered in the canicule, alternating with rains and thunder-storms from the S. E. seemed to ensure the continuance of a heal-

thy state of air and an absence of the malignant epidemic fever. This fatal disease, in fact, seldom made its appearance during the months of July and August, and only in persons strongly predisposed to it, by having lately arrived from Europe, and who neglected due precaution. Double tertians, or remittent fevers, generally unaccompanied by malignant symptoms, were not uncommon; but in some cases these fevers degenerated into a malignant form, and terminated fatally. This happened in some instances where the patient had been imprudently purged, a diarrhæa sinking the strength of the patient; most or all who died of fever at this time being carried off by diarrhæa.

The breast was generally affected in some degree, and pleuritic pains or peripneumonic symptoms were not unfrequent. Here bleeding was seldom necessary, and demanded much caution in the exhibition of it; purging required still more caution, as by that evacuation expectoration (which, together with sweat, seemed to be the means by which nature endeavoured to relieve herself) was suppressed, and the disease terminated fatally. Emollient glysters, refrigerant embrocations in the accession of fever, small doses of antimonial powder, or kermes mineral (avoiding them when nausea or diarrhæa occurred) pectoral ptisans, blisters in the remission applied to the sides, and made to discharge freely for some time, and the infusion of Peruvian bark, when the expectoration was free, and the violence of the paroxysms abated, occasionally joined with expectorants, antimonials, sweet spirits of nitre or of vitriol, formed the practice usually adopted in the ardent remittents, accompanied with peripneumonic symptoms. After the autumnal equinox, the sultry, unsettled, and southerly weather which reigned, occasioned a greater frequency of malignant symptoms in remittent and intermittent fevers; some patients

recovering from ulcers, and using a full diet, had violent attacks of fever: here, in some instances, the large suppuration from a blistered part was found highly beneficial. In one case of remittent fever, protracted to the 22d day, in a young man received from a ship returned from the unhealthy station of the carenage of St. Lucia, in whom there was, during the exacerbations, delirium, ardent skin, parched shrivelled tongue, considerable thirst, pulse 110, irregular and quick, diarrhæa of foetid brownish matter, and extreme debility,—shaving the head and bathing the patient with lime-juice, and placing him in a bath under a jet of water a few degrees colder than the atmosphere, afterwards rubbing him dry, and putting him to bed between blankets, had the most beneficial effects; by the repetition of which, aided by the bark in infusion, and Hoffman's liquor, the patient soon recovered from a disease which partook of the nature of the ardent remittent of the climate, complicated with the jail or ship-fever.

The unsettled weather which reigned in October was not attended with many cases of ardent fever, or malignant symptoms accompanying intermittent and remittent fevers, occurring amongst the seamen or prisoners of war. The latter continued to be affected with a benign, catarrhal, remittent or intermittent fever, only attended with danger in those of a phthisical habit, or in those affected with diarrhæa, whether excited by purgatives or coming on spontaneously. Amongst the ships at the different other islands, some partial epidemics reigned, as on board the *Eurus**, a frigate of 32 guns. This ship had been some weeks refitting in Fort-Royal bay in July and August, and

* Dr. P. Blair, physician to his Majesty's fleet, arrived in that capacity on the station about this time, who will, in all probability, give to the public a particular account of the health of the squadron.

had sent two men to the hospital with fever, more of the nature of malignant ship-fever than that of ardent remittent; one of whom died. Soon after arriving at her station off Grenada, the disease shewed itself with violence; and spreading by infection and terror, proved fatal to about forty men, including the surgeon and three other officers, in a short space of time. The causes of this fatal epidemic, which cut off upwards of a sixth part of the frigate's crew, were supposed by some as follows:

First, The ship's company had arrived in the country on the preceding March, consequently were not seasoned.

Secondly, The ship had been employed a good deal in port; by which means the men had opportunities of indulging in the abuse of spirituous liquors.

Thirdly, The pernicious vapour of bilge-water, contaminating the air in sultry southerly weather. This was judged to proceed from the leakage of wine and other liquors, in the after-part of the ship, united with salt-water, the steam of which was so strong, on opening the spirit-room hatchway, as scarcely to be borne, affecting the eyes by its pungency, and occasioning immediate nausea in some cases. The number of persons lodged in the after-part of the ship (where, when the ship lay at anchor, they were exposed to the foul air of the hold when open) who fell a sacrifice to the disease, seems strongly to favour the supposition, that bilge-vapour was the more immediate exciting cause of the epidemic. Of this number were the surgeon, some of his attendants, an officer of marines, and two boatswains. There was also a quantity of damaged biscuit on board, which might tend to injure the air of the ship. The commander of that ship, judiciously abandoning his sickly station, steered to

the northward; and such was the efficacy of a change of air in stopping the progress of the complaint, that he lost only two men at sea. She arrived here in the latter end of October with a healthy crew. The sloop of war Cyane, arrived here in October from Tobago, where the gunner and his crew having been landed to air powder, they were all attacked with violent remittent fever, two of whom died on the passage, and six were sent to this hospital; none of whom had any malignant symptoms, admitting of the successful use of the infusion of bark, drank liberally: in two a salutary hæmorrhage took place on the 11th day; in others the eruption of boils proved critical.

The three line of battle ships, the *Invincible*, *Vegeance*, and *Alfred*, being stationed either at the healthy islands of the Saints, or employed in cruising during these autumnal months, preserved their crews in good health. The same may be said of all the other ships of war on the station, the crews of which were remarkably healthy, except the *Assurance*, of 44 guns, on board of which several men were attacked with malignant remittents; apparently complicated with ship-fever, and probably occasioned by transporting of troops between the islands.

The hospital of English Harbour, Antigua, was, during the hurricane and autumnal months, nearly void of patients. The same happy exemption from serious diseases enjoyed by the crews of most of the ships of the squadron, did not extend to the troops in garrison. In Martinique, St. Lucia, Dominique, Barbadoes, Grenada, and Trinidad, malignant remittent and intermittent fevers reigned, and proved fatal to many officers and soldiers during the latter months of 1797.

In November, remittent and intermittent fevers continued to reign, and in some few cases, attended with anomalous and fatal symptoms: as coma, particularly in the aged, asphexy, irritability of the stomach, diarrhæa, and dysentery, yellow suffusion of the skin, &c. In many of these cases the patients had been evacuated by mercurial and other purgatives, which induced an extreme degree of debility, by exciting a colliquative diarrhæa.

In two cases of ardent remittent fever, with the most dangerous appearances in elderly men, a salutary crisis, by yellow suffusion of the skin, took place about the seventh day, which was preceded by a remarkable irregularity of the pulse, which intermitted every three or four pulsations, and was inordinate in strength and frequency: great anxiety and restlessness, also preceded the crisis. In two young men the accession of fever was attended with a state of asphexy; in one of them, the respiration was very small, the pulse rare and weak, and the heat diminished: he lay prostrate in this manner for nearly two hours; friction of the extremities with hot salt, agitation, and the application of volatile alkali to the nostrils, at length roused him into a state of sensibility. The free administration of bark, and the application of blisters, obviated a recurrence of those alarming symptoms.

In December, catarrhal and rheumatic complaints were not uncommon, in addition to remittent and intermittent fevers; some dysenteries also occurred, and proved fatal to a few extenuated, hectic patients, in whom there appeared to be incurable obstructions of the mesenteric glands. Some of those who had been affected with dysentery, and had acquired a fullness of habit, were attacked with remittent fever of a malignant nature: in which ardent skin, æruginous

oily vomiting, intense thirst, proclivity to diarrhæa, and speedy prostration of fauces took place, and terminated fatally. Purgatives were here very pernicious; even laxative glysters required cautious application: some were saved by the speedy application of blisters, as soon as a remission had taken place, and the keeping up a free discharge from the blistered parts for some time, together with the prompt exhibition of the bark, in infusion, extract, and by injection. Intermittents were in many cases obstinate, recurring in most persons about the changes of the moon, and requiring the observance of regimen, the change of air to sea or to the mountains, and the occasional administration of the bark some weeks before the health of the patient could be insured.

Two cases of rheumatic swelling of the knee-joint occurred: in one, the patient had frequently laboured under the complaint; and in the Isle of France had found much benefit from the application of an inflamed cylinder of cotton to the internal part of the joint, in the manner moxa is applied in the East, and as is strongly recommended by Poiteau*. The discharge from the cauterized part had effected a cure in the present attack. The application of a blister procured relief.

The second case was more obstinate, occurring in a young man of an irritable habit; who, whilst rubbing in mercurial ointment, on account of a venereal complaint, and consequent exposure to a draught of cold air, experienced an attack of rheumatic fever; the pains abandoning the other articulations, settled in the left knee, attended with the most acute sufferings for several weeks, immobility of the joint, and effusion of fluid into the cavity. The reiterated application

* Œuvres Posthumes de Poiteau.

of blisters to the parts (alternately on each side) as recommended by that judicious author Mr. Ford, was here of the greatest utility in diminishing the pain and swelling of the joint : the occasional administration of the bark was beneficial ; the sudorific woods in decoction were used, with powder of sarsaparilla, without much perceivable advantage : a decoction of sharp pointed dock-root appeared to be more efficacious. The patient recovered without an anchylosis.

APPENDIX.

NUMBER II.

Observations on the Putrid Ulcer, Communicated in a Letter to Samuel Foart Simmons, M. D. F. R. S. by Mr. Leonard Gillespie, Surgeon of the Navy, and late Assistant Surgeon to his Majesty's Naval Hospital at St. Lucia.

[Extracted from the LONDON MEDICAL JOURNAL for 1785.]

THE putrid or scorbutic ulcer proved to be one of the most troublesome, inveterate, and dangerous diseases which afflicted the British seamen employed in the Leeward Islands during the late war. The ravages which I have seen made by it, as well in naval hospitals as on board the fleet; the many opportunities I had of comparing different methods of treatment, and of observing the most eligible; and the duty I owe to humanity in general, and the naval service of my country in particular, all induce me to lay before the public a few remarks on this complaint.

I prefer the name of putrid ulcer to any other, because the marks of putrescency always were evident to the senses, although those of the scurvy were not. It, in general, did not attack the ships crews until they had been at least a year in the West Indies; and it often seemed to rage epidemically on board certain

ships, whilst others remained, in a great measure, free from it : thus his Majesty's ships *Ajax*, *Montague*, *Ruffel*, and *Triumph*, in the beginning of 1781, landed a great number of men on Pigeon Island, St. Lucia, with ulcers of the most malignant nature, whilst several ships in the fleet, which had been employed the same length of time in the same climate, and on the same service, remained in a great measure free from such complaints. It often affected those who began to recover from fever or dysentery, and those who had other symptoms of scurvy ; but it often occurred to those who had been healthy during their continuance in the West Indies, and most generally after having received a wound or contusion, however slight, particularly of the lower extremities.

The wounds of seamen, received in the different general actions, were generally affected with this putrid exulceration ; and horrid were the devastations made by it. Those who had been formerly affected with ulcers of the legs seldom escaped a return of their complaint, after having been some time in the country.

The bites of moschitoes often gave occasion to this disease ; and sometimes, without any evident exciting cause, a small pimple made its appearance on the leg or foot, which on being scratched, oozed out a small quantity of serum ; an inflammation of a livid reddish colour and diffused appearance generally succeeded ; and when, in this state, warm fomentations and poultices were applied, with a view of discussing the inflammation, the ulcer soon began to spread ; a foetid corrosive ichor was discharged, which soon acted on the surrounding parts, and in the space of a few days produced a foul, sloughy, gangrenous ulcer. A considerable degree of fever accompanied these external appearances, with great thirst and restlessness. It generally happened when the complaint affected

the extremities, particularly the lower ones, that the lymphatic vessels and glands of the part were more or less affected with swelling and pain : a circumstance which I have often observed even when there was no ulceration, and which seems to be meant by Celsus, who says, in speaking of fever *, “ Igitur si semel
“ tantum accessit, deinde desit, eaque vel ex inguine,
“ vel ex lassitudine ; vel ex æstu, aliave simili re fuit,
“ sic ut interior nulla causa metum fecerit, postero
“ die, cum tempus accessionis ita transiit, ut nihil
“ moveret, cibus dari potest.”

When the disease attacked the leg, it seldom confined itself to the soft parts. The sloughy gangrenous disposition frequently affected the periosteum of the tibia, and was accompanied with the most excessive pain ; large and profound sloughs were formed, the limb became œdematous, and hæmorrhages often occurred.

In the autumnal months of the year 1780, I had an opportunity of seeing about two hundred cases of scorbutic ulcers in the naval hospital at New York, some of which belonged to the ships of the West India squadron, which was then at that place in order to avoid the hurricanes ; others belonged to the American squadron. The hospital was well provided with every thing necessary, as well of diet as medicine. Every attention was bestowed, in order to keep the sores clean ; bark and wine were liberally dispensed, and opium was not sparingly administered ; but in vain were cataplasms, fomentations, and warm dressings applied, as they seemed evidently to hasten the rapid progress of the disease. Precipitate powder, which was proposed and tried as a detergent, produced still worse effect ; and simple dressings of dry lint were

* Cap. v. lib. 3.

very far from putting a stop to the rapid putrefaction. A number of men were rendered unfit for service. Amputation was had recourse to in some instances, but with very indifferent success, as the sloughy disposition generally made its appearance on the stump; and a great many men lost their lives by this dreadful disease, in which they might literally be said to die by inches.

Finding the inefficacy of simple dressings, and the very bad effects attending the use of warm poultices and fomentations, the powder and decoction of bark were tried, but not with any very obvious benefit. Vinegar and water answered much better; but what answered the best of any was, a solution of the gummi kino in equal quantities of claret and red port; by the use of this the large, fetid, bloody discharge was diminished and corrected, and a stop was put to the exulceration.

In the beginning of 1781, a naval hospital was established on Pigeon Island, St. Lucia, which was soon crowded with patients affected with the most dreadful ulcers. The progress of the disease, as might naturally be expected, was much more rapid in the hotter climate of St. Lucia than at New York; and what tended much to increase the malignity of those complaints was the excessive scarcity of all vegetable productions, the hurricane which happened in October of the preceding year having destroyed them.

The same plan of treatment was followed here as at New York. Bark, wine, and opium were administered internally in as large quantities as they perhaps ever have been administered. A solution of essence of malt was allowed as common drink; but I could not then, nor have I ever observed any considerable

effects from that substance which was furnished to the ships in the West Indies, during the war, at such considerable expence. This I am confident of, that had one half of the money been laid out even on sugar-canes, or their juice, they would have been found a much more serviceable anti-scorbutic.

The external applications were either warm poultices, or cold fermented ones; lint, dry or wetted in vegeto-mineral water; pledgets of cerate, &c. We pursued this mode of treatment for some time, and were inclined to attribute the bad success of it to the want of fruit and vegetables; but when we found these were not sufficient to check the rapid progress of the disease, we gladly pursued a different course.

We lost a very considerable number of men by this disease, during the first five months after the establishment of the hospital. When the complaint affected the leg, its general progress was from a trifling sore, often proceeding from a hurt, till it became surrounded with an erysipelatous inflammation, discharging an ichorous matter, which darkened the lint applied to it, and afforded the most foetid smell; blood was often discharged in a thin dissolved state, sometimes by an oozing from the entire surface of the ulcer, and at other times from small vessels, the mouths of which, though visible, were with great difficulty closed, owing to the great degree of putrefaction. There was generally some pain and tension of the inguinal glands; a considerable degree of fever attended the first stage of the complaint, with great thirst; the belly was inclined to be bound at first, but as the disease advanced in its progress, a dysentery or diarrhæa generally made their appearance, and in the end carried off the patient. The disease was sometimes more rapid in its progress, and in the course of a few days, seized on and denuded the tibia, whilst

large pieces of integuments and cellular membrane were found to be entirely mortified.

When a slight wound was received in one of the toes of a person of a scorbutic habit of body, it often produced a spreading sloughy ulcer, which very soon affected the bones with caries; and if an attempt was made to put a stop to the disease by amputation of one or more toes, the ulceration and caries generally made a very rapid progress, so as, in some cases, to render the amputation of the leg necessary. I have observed the same bad effects from amputation of the fingers in very bad habits, and have always observed the truth of Mr. Pott's observation on the evil effects of applying a cutting instrument to the toes or fingers in a sloughy state, whilst one living fibre remained.

Having seen the good effects of vinegar in the naval hospital at New York, when applied to putrid ulcers, and being convinced, by reasoning from analogy, that the vegetable acid of limes would prove still more powerful, I made some inquiries amongst the negroes employed about the hospital, to know what was their practice in bad sores. I was not greatly surprised when I learnt that their common practice in putrid sores was to apply thin slices of limes over the surface of the sore, which were repeated two or three times during the course of the day.

Mr. Bulcock, surgeon of the hospital, whom I assisted, readily allowed a trial to be made of this new application. We began by applying a mixture of lime-juice and water, in which the lint to be applied was wetted, as were the bandage and compress; but we were soon encouraged by its good effects to apply it in a more concentrated state, and even to cover the surface of the sores with slices of limes.

The quickness with which a stop was put to large spreading ulcers was astonishing; large mortified sloughs were soon cast off; the bloody discharge ceased, in general, after the first application, and the fœtor, which had been insupportable, entirely disappearing, a mild indodorous pus, with healthy granulations, succeeded.

We continued to make use of limes and lime-juice as a dressing in a great variety of cases: first, in putrid, scorbutic, gangrenous, sloughy ulcers, such as occur after fevers or other acute diseases, or take place in bad habits of body, or in hot countries where the atmosphere is strongly loaded with marsh miasmata, or such as are observed in hospitals that are too much crowded (*la gangrene humide des hopitaux* of the French surgeons); for in my opinion, these complaints, though distinguished by different names, bear a great resemblance to each other, and require to be treated in a manner nearly similar.

I think they may all be comprehended under the name of putrid ulcer, from this simple and obvious characteristic, *viz.* their yielding a discharge always fœtid, often bloody; their having that appearance of sanies or ichor different from good pus, and which irritates and corrodes, or acts as a septic ferment on the surrounding parts, and is often attended with great pain, debility, hectic fever, and a fatal diarrhœa. In all such cases, I can, from much experience, venture to recommend the application of fresh vegetable acid, as a most excellent remedy. At this day, when the absorbent system and its functions are so well ascertained, that part of surgery which treats of the topical application of medicines (a part so much cultivated by the ancient surgeons, and so little regarded by the more modern ones) seems to regain the importance it so highly deserves; and happy shall I be

if the recommendation I give to the vegetable acid, as a topic, should tempt surgeons to try the effects of it, and other fresh vegetable productions, in surgical complaints; convinced as I am that the ill success of operations in large hospitals may, in a great measure, be attributed to those putrid suppurations which too often baffle the use of internal medicines when sufficient attention is not paid to the topical treatment of the part.

I have daily attended the Hotel Dieu at Paris for upwards of a twelvemonth, and have been witness to a vast number of operations performed with the greatest dexterity, yet attended with very bad success, for a putrid suppuration generally succeeded and carried off the patients: and I am inclined to believe that the lives of some hundreds might annually be saved in that house, who fall a sacrifice to putrid suppurations after operations, compound fractures, large abscesses, &c. were care taken to correct the putrid fœtor of the sores by vegetable-antiseptics, particularly the fresh vegetable acid.

It has been alleged by some authors, that putrid suppurations often prove infectious to patients confined with surgical diseases in the same wards of hospitals; and I am much inclined to join them in opinion from what I have observed in hospitals; for I have often remarked, that a healthy person who had been received for a slight wound, and placed in the surgical-ward of an hospital where there were many patients labouring under putrid suppurations, has soon been affected in the same manner; and I have not a doubt that the vegetable acid, by correcting the offensive fœtor, or by neutralizing it, prevents the spreading of infection.

Secondly, In ulcers, attended with caries of the bones, the application of lime-juice was attended with

the most happy effects, and soon brought about an exfoliation. When the caries extended to a considerable thickness in the tibia, or other bone, perforations were made down to the living parts; slices of limes were then applied over the caries and the surrounding soft parts, with the effect of preventing the spreading of the caries, repressing fungous excrescences (which, in these sort of ulcers, are so very troublesome, and which we found impossible to be kept down previous to our pursuing this method of treatment) allaying pain, and preventing hæmorrhage. We had many instances of ulcers with caries of the tibia, of a considerable size, being cast off in a very short space of time by this method of treatment. When the caries did not extend to any depth, but affected merely the external lamellæ, no exfoliation took place, the earthy part of the carious bone being found in the form of a blackish powder on the dressings.

Thirdly, We experienced the most decisively good effects from this application in protracted venereal complaints, particularly in that large, spreading, sloughy ulceration which often succeeds the opening of buboes in bad habits, and which often occurs amongst seamen; some fatal instances of which I have been witness to in naval hospitals. The dangerous effects of long-continued courses of mercury, in patients of a bad habit of body, have been well pointed out by some late authors; but if such courses have been found so prejudicial in persons enjoying their native healthful air, and every convenience of life, how much more destructive must they prove to highly-scorbutic seamen in an unhealthy spot between the tropics! Indeed we admitted so many patients at the St. Lucia hospital, whose constitutions had severely suffered by a too-long-continued use of mercurials, (the effects of which appeared either in ill conditioned sores of the groin or prepuce; in dysentery or diar-

rhæa, attended with hectic fever; or in phthisis pulmonalis, in those pre-disposed to that complaint) that I am much inclined to believe that the remedy often occasions more evil than the disease in that climate, particularly amongst seamen: nor can I too much recommend to those who have the care of our brave seamen, to beware how they administer mercury, and to be careful in observing the tendency to scorbutic diathesis, being convinced that this complication takes place much oftener than is generally suspected.

As most of the patients received at the naval hospital on Pigeon Island for venereal complaints, had previously undergone a course of mercurials, which had left them in a state of debility; and as the appearance of their ulcers, whether of the groin or prepuce, exhibited the same sloughy disposition above-mentioned, we seldom hesitated to lay aside the use of mercurials, and proceed to the use of tonics, such as bark and wine, correcting at the same time the scorbutic diathesis, by fruit and vegetables, and procuring rest and ease by the occasional administration of opium. The sores were dressed with slices of limes, or their juice; and it had the same happy effects in correcting the putrid discharge and detarging them. When there was a phymosis from ulcers under the prepuce, a mixture of lime-juice and water was injected with good effect; and even in gonorrhœa, evidently complicated with scurvy, we sometimes had recourse to the same injection with very good success. I am led to believe, from some experiments I have made, that a dilute solution of the mercur. calcinat. or any of the precipitates of mercury, in lime or lemon-juice, will be found an excellent application in many venereal cases, the operation of it being much milder, and, if I do not deceive myself, much more efficacious, than the mineral saline preparations of mercury.

Fourthly, In large abscesses we experienced the most happy effects from the use of this topical application. The danger attending large collections of matter in bad habits of body, particularly when large openings are made, is well known to English surgeons*, and the advantages of a seton in such cases are very obvious; but I can venture to recommend, in addition to that practice, the topical application of lime-juice. As abscesses after fevers were very frequent amongst the seamen at St. Lucia, and as they too often continued to discharge large quantities of pus, so as to threaten a hectic, and as the surrounding integuments in some cases became sloughy, we made trial of the lime-juice, and found it answer very well. When a seton had been introduced, and a large foetid discharge was kept up, we moistened the dressings with a mixture of the acid and water, and sometimes applied slices of limes to the orifices; but if the abscess was not very extensive, we merely made a depending opening, which we kept from closing too soon, by introducing a small tent moistened with the liquor, over which a compress and bandage were applied, moistened with the same. The lime-juice, by correcting the effused fluids, procuring a discharge of mild laudable pus, and gently stimulating the parts, soon procured that adhesive inflammation which always takes place previous to the re-union of ulcerated parts.

We had two or three collections of matter under the *fascia lata* of the thigh, and several others, in different parts of the body, of a very considerable size,

* I wish the dangerous consequences attending the making of large incisions, in order to discharge collections of matter, were equally well known to the French surgeons, as I am convinced that a great number of men in the Hotel Dieu of Paris, annually fall a sacrifice to the custom that prevails there of making large incisions.

successfully treated in this manner; we had also one or two compound fractures, where collections of matter, and a sloughy disposition with a large discharge, made their appearance, treated successfully in the same manner: and as the amputations which were performed in the hospital were done according to Mr. Alanfon's method (an account of the great success of which mode of operating will probably be soon published by Mr. William Bulcock, surgeon of the said hospital) when abscesses formed, or a sloughy disposition made its appearance on the stump, we immediately had recourse to limes applied in slices to the external opening, after having injected into the cavity a dilute mixture of lime-juice and water; and I am led to believe that some share of the success attending that excellent method of performing amputation, which we so clearly experienced at St. Lucia, may be attributed to this mode of after-treatment; and I cannot help remarking in this place, that tetanus, which proved so fatal to many brave seamen who had limbs amputated after the different general actions in the West Indies, and which carried off, at least, one half of those operated on in the usual method, in the commencement of the establishment of the hospital at St. Lucia, never once made its appearance after the operation was performed after Mr. Alanfon's method: a circumstance which, in my opinion, more strongly recommends it than any of the other advantages with which it is attended. I can venture to give the same sort of negative recommendation to lime-juice as a preventative of tetanus in ulcers of the extremities, for though complaints of that sort often succeed very slight hurts in the West Indies, and seldom fail to prove fatal, yet I have never once known tetanus to come on when lime-juice has been applied as a dressing to sores.

In fistula in ano, after the operation, we experienced the good effects of this application; and in one case

of fistula in perinæa, I am inclined to believe that a stop was put to the disease, and an adhesion of the parts brought about, by the application of this acid.

Fifthly, We had some reason to suppose that the application of the vegetable acid may be frequently used with success in that sloughy state of the scalp *, which often succeeds to wounds and contusions of the head, so fatal in its consequences, and so well described by Mr. Pott. A marine belonging to his Majesty's ship Princess Amelia, who had been attacked by a number of negroes armed with cutlasses, and wounded severely in different parts of the body, was sent to the hospital in January, 1783. He had more than a dozen cuts on the head in different directions, some of them penetrating through the first table, and a triangular piece of the scalp was perfectly cut off from the rest in such a manner that it afterwards sloughed off, leaving the cranium bare. His wounds were dressed in the common method for some days, until that sloughy disposition of the scalp, described by Mr. Pott, made its appearance, attended with a great degree of fever, and some delirium. The pericranium became detached from the bone, and there was every symptom of mischief going on under the cranium: whilst proper attention was given to the treatment by internal medicines, evacuations, &c. his wounds were dressed with thin slices of limes, over which lint was applied, moistened with a mixture of lime-juice and water, and his bandage was kept constantly wet with a solution of sal ammon. in vinegar and water. The good effects of this method of treatment were soon

* That fatal suppuration of the meninges of the brain, which often follows injuries of the head, is not peculiar to that cavity of the human body; wounds and ulcers of the external parts of the thorax and abdomen often communicate to those cavities the same putrid suppuration; of which I have seen two or three instances confirmed by dissection,

remarkable ; a stop was put to the sloughy ulceration, the fores were soon deterged, and afforded a laudable matter, and exfoliations took place in a short time.

I could recount a great many more surgical complaints in which we used lime-juice with success, as fistula lachrymalis, ophthalmias that occur in scorbutic persons, and foetid ulcers in the ear ; in all of which cases I can venture to recommend a trial of this acid.

It is proper, however, to remark, that though the most happy effects were observable from the use of this external application, yet we did not depend on it alone ; as it seemed to be less efficacious by being constantly applied, we intermitted the use of it as soon as a sore was properly deterged, and we often made use of a poultice made of the recent root of cassavi or cassadu, grated in the room of it. Next to lime-juice, I know no application equal to that root (the juice of which, taken internally, is well known to prove a deadly poison) in bad sores ; and I am well convinced that it would be found exceedingly useful in alleviating the pain and correcting the discharge of cancers. As it is cultivated in considerable quantities in the West India islands, and as it may be preserved in sand for a considerable time, the surgeons of ships in a future war may readily provide themselves with a stock of it when in harbour ; and I can assure them it will be found a most excellent application. We also found good effects from astringent applications, such as a solution of the gummi kino, or terra Japonica, in red wine and water, or a decoction of the bark of the cassu and mangrove-tree, or of the leaves and green fruit of the guava-tree, in claret and water. We found such applications necessary in that hot climate, where the fibres are so much relaxed and the fluids so prone to putrescency. We had also recourse to metallic preparations, as tonics ; such as a tincture

of brass in a solution of sal ammon. or a weak solution of the vitriol of copper ; and we often used the Roman vitriol as an escharotic.

We kept the patients, as much as possible, in an horizontal position, when the ulcer affected the leg ; and we did not neglect the use of bandage made of bunting : a thin woollen stuff.

With respect to the medicines administered, and the regimen adopted, it may be observed, that in the beginning of the complaint, when there was much fever, pain, and restlessness, the belly was kept open by laxatives or glysters ; saline draughts, made with fresh vegetable acid, were administered in large doses ; lemonade was allowed as common drink ; and opium alone, if the stomach was irritable, or joined with ipecacuanha, was given at night, and a perspiration was encouraged by a draught of warm negus. This had generally the effect of procuring an intermission of the fever ; and the bark, in wine, was administered in such quantities as the stomach would bear. The use of the bark, however, was not continued uninterruptedly for a series of days, without the most urgent necessity forced to such a procedure. Experience convinced us that a continued use of the bark deprived it of its efficacy ; and, on the other hand, we observed that there were certain times when the recurrence of fever, and the sloughy disposition of sores, were most likely to return ; that is, about the full and change of the moon. After the authorities cited by Dr. Mead, and many other authors, relative to the influence of the phases of the moon on diseases, whether in their attack, course, or recurrence ; and the notoriety of the fact amongst all people between the tropics, my testimony can have little weight in this matter in attempting to convince those sceptical reasoners, who wish to deny what has been carefully

observed in different and remote ages, and in different and remote countries, by the savage as well as the philosopher, merely because they are too ignorant of the laws of nature and of the animal œconomy, to form a rational theory of the action of lunar attraction on the human body. For my own part, I am so well convinced of the effects of the phases of the moon on the human body, pre-disposed to disease, that I think the physician should not only pay attention to the equinoxes with Sydenham, but as the seaman and farmer, taught by experience, expect some revolution in our atmosphere about the time of the full and change of the moon, so should he expect some change in the state of diseases. Every person who has been affected with an intermittent in an unhealthy situation between the tropics, must have remarked the regular recurrence of the paroxysms at the end of a fortnight, answering to the full and change of the moon; I have myself been obliged to take bark at every full and change for a considerable time, at St. Lucia; and I have had occasion to remark the recurrence of many other diseases, as well as intermittent fevers, at those times.

As to regimen, spirituous liquors were totally forbidden, but Teneriffe or Madeira wine was allowed: in the beginning, when a considerable degree of fever was present, animal food was totally withheld, and afterwards recommended to be sparingly used. Fruit and vegetables of all sorts were given in as large quantity as they could be procured. The use of capsicum (so universally used by the natives of warm climates) infused in vinegar, was often found beneficial in those whose stomach and intestines were weak.

The practice I have now recommended was found to be so successful, that it was adopted by many of the surgeons of the West India fleet before the conclusion

of the war; many of whom, as well as Dr. Blane, physician to the fleet, will, I am sure, bear testimony of the excellent effects of the vegetable acid in ill-conditioned sores *. It were much to be wished that the navy, especially during the time of war, might be supplied with a quantity of the preserved juice of limes or lemons: an article much more salutary as a preventive in fleets and armies than essence of malt, or stinking four-kROUT. That it is possible to furnish a sufficient quantity of it for the use of the fleet, will appear from the following circumstance:

A Dutch ship, from the coast of Guinea and Surinam, was captured in the beginning of 1782, and sent into the carenage of St. Lucia: she had on board upwards of 1200 gallons of lime-juice, in casks containing forty gallons each; it had been fined by means of isinglass, or the membranes of fish, and would have kept, I am inclined to believe, for several years. We were supplied with a quantity of it at the hospital on Pigeon Island, and found it little inferior to the recent juice. I have since been informed by a gentleman who had long resided on the coast of Guinea, that every Dutch factory is obliged to send home annually, a certain quantity of the preserved juice of limes. Such a regulation in the British factories might be readily established, and would furnish to our fleets the most noble preservative against those diseases which too often unman them.

When limes, lemons, or their preserved juice cannot be procured on board, several things may be used to stop the ravages of scorbutic ulcers; as claret or

* Dr. Blane, in a valuable work on the Diseases of Seamen, published since we were favoured with this communication by Mr. Gillespie, confirms the account given by the latter of the great efficacy of the juice of limes and lemons as an external application in scorbutic ulcers.—EDITOR.

red port, vinegar, the vegetable astringents alone, or combined with red wine, fruit of different sorts; as oranges, tamarinds, &c. the recent root of the cassavi, the excellent effects of which I have already remarked; and I have no doubt that apples, plumbs, &c. as well as turnips, carrots, potatoes*, &c. grated into a pulp, and applied as a poultice to sores yielding a putrid discharge, would have an effect similar to that of the fresh vegetable acid.

In June 1783, I was ordered by Commissioner Laforey at Antigua, to take charge of thirty-two invalids (all of whom had ulcers of long standing, some in a sloughy condition, and others with caries of the tibia) embarked on board a transport bound for England. I had, by representation, obtained an order to have wine in the room of spirits; and I took care to be well supplied with sugar, rice, sago, limes, oranges, preserved tamarinds, &c. When the stock of limes was expended, I was obliged to have recourse to oranges cut in slices, and applied as a dressing; and though they became saturated with the putrid discharge much sooner than the limes, yet I found them answer much better than any other thing within my reach. As our passage, however, was rather long, the oranges were also expended; I had then recourse to a mixture of the syrup and pulp of tamarinds in French wine, and found it to answer very well in foul,

* A seaman who had served on board his Majesty's ship *Rainbow*, informed me, that he had been cured of the scurvy in a high degree, on board and at sea, by eating a few raw potatoes every day; a practice which, he said, had been recommended to the surgeon of the ship by an old American pilot. I have since inquired into the truth of this story, and, from what I can learn, believe it to be a fact*.

* The good effects of raw potatoes, in the cure of the scurvy at sea, have not escaped the attention of Dr. Blane in the work mentioned in the preceding note.
—EDITOR.

floughy sores as a detergent and antiseptic. It may well be supposed that I could not gain much ground in the cure of these old ulcers while at sea; indeed I was well satisfied with landing them all at Portsmouth in a better condition than I had received them.

The encomiums I have bestowed on the external effects of lime-juice, may, to many persons, appear extravagant; but I hope they will not condemn me before they have made trial of the practice I recommend. In the mean time, I hope the following quotation of that marine Hippocrates, Dr. Lind, from Bontius (the justness of which I have had many opportunities of observing) will plead in my behalf:—

“ The most knowing practitioners in India place
“ greater confidence in lemons against the malignant
“ diseases, pestilential fevers, &c. of the country,
“ than in costly bezoar or theriac. For my own
“ part,” says he, “ I affirm, that in my practice there
“ I found more benefit from them than from any one
“ single remedy.”

LOTHBURY,
October 5, 1785.

THE END.

strongly force as a detergent and antiseptic. It may well be supposed that I could not gain much ground in the use of these old waters while at sea; indeed I was well furnished with landing them all at Fort-Mouth in a better condition than I had received them.

The encomiums I have bestowed on the external effects of lime-juice, may, to many persons, appear extravagant; but I hope they will not condemn me before they have made trial of the practice I recommend. In the mean time, I hope the following opinion of that eminent physician, Dr. Lind, & Sir Thomas (the justice of which I have had many opportunities of observing) will plead in my behalf:—

"The most knowing practitioners in India place great confidence in lemon-juice against the malignant fevers, pestilential fevers, &c. of the country; and in colic, dysentery, or cholera. For my own part," says he, "I esteem that in my practice there is found more benefit from lemon-juice than from any one other remedy."

LONDON,
1753.

THE END.

Wm. G. Jones

