

Surgeon Royal 1809
Medicina Nautica;

AN

1 **ESSAY** 2240

ON

THE DISEASES OF SEAMEN:

COMPREHENDING

THE HISTORY OF HEALTH

IN

HIS MAJESTY'S FLEET,

UNDER THE COMMAND OF

RICHARD EARL HOWE, ADMIRAL.

By THOMAS TROTTER, M. D.

MEMBER OF THE ROYAL MEDICAL SOCIETY;

AN HONORARY MEMBER OF THE ROYAL PHYSICAL SOCIETY, &c.

PHYSICIAN TO THE FLEET.

"Grave Martis Opus."

ÆNEID.

L O N D O N:

PRINTED FOR T. CADELL, JUN. AND W. DAVIES, (SUCCESSORS
TO MR. CADELL) IN THE STRAND.

1797.

DEDICATION.

TO
RICHARD EARL HOWE,
Admiral:
THE FLAG OFFICERS,
CAPTAINS,
AND OTHER
OFFICERS OF THE FLEET.

MY LORDS AND GENTLEMEN,

DURING the unexampled Health of the Fleet for some time past, and while my attendance could be dispensed with, my leisure hours have been employed in compiling this Work: I now humbly solicit your patronage.

It

It comprehends the history of Health during a period of considerable exertion. To You, in a particular manner, these labours look for protection; for You have witnessed the whole.

It has been my wish, to make the duties of the Medical Profession subservient to the comfort and happiness of Men, that have earned laurels for You, and given security to their Country. In doing this, I have been neither tenacious of form, or scrupulous about correcting old customs. As posterity will only receive from us, what they may deem beneficial to themselves; so we have a right to reject or embrace the opinions of those who have gone before us, as may best suit our purpose. Medicine is connected with so many branches of science, that as they improve, it is necessary to incorporate every

every discovery into our system of Health. The LORDS COMMISSIONERS of ADMIRALTY, have bountifully attended to our applications : Your testimony of their utility will, therefore, give fresh support to what we have further proposed. When these improvements have received all the perfection of which they are capable, we apprehend that they will add resources to the naval power of GREAT BRITAIN, that have never yet been duly called to her assistance. These are motives which urge me to lay this Work before the Public, without delay : but it must appear under all the disadvantages inseparable from my present situation. Whatever may be its fate, here, or hereafter, it affords me an opportunity, which I earnestly embrace, to return You my most sincere thanks, for the numerous instances of confidence,

confidence, friendship, and regard, which have followed all my official and professional engagements among You. The impression which they have made, shall be treasured in my heart; shall attend me to retirement; and shall be cherished in remembrance, to the evening of life.

Et moriens carum recordabor Argos.

I have the honour to be,

My LORDS and GENTLEMEN,

Your faithful humble Servant,

T. TROTTER.

Spithead, Dec. 12th

1796.

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E R R A T U M.

Page 21, line 2, of the New Form, for *Welch linen*, read *Welch flannel*.

MEDICINA NAUTICA.

INTRODUCTION.

THE following pages contain the history of health, for three years, in a Fleet that has performed the most brilliant services for Great Britain ; which include the splendid victory of the 1st of June ; the masterly retreat of the “little squadron,” under the Hon. Vice-admiral Cornwallis, from a fleet four times his force ; and the handsome capture of three sail of the line by Admiral Lord Bridport, in the very mouth of a French harbour.

The operations of a large Fleet in Channel service offer a field for observation, of the first importance to the medical inquirer : that the present has afforded some novelty will scarcely be doubted. Ships newly commissioned, by receiving raw landmen, and drafts of seamen from crowded guard-ships, tenders, and hospitals, are the most liable to suffer from infection, and are generally employed, at first, on home-stations. Hence this

subject has engaged much of our attention: but a variety of other diseases has presented us with much matter for animadversion; such as the scurvy, catarrh, &c. I have endeavoured to imitate Dr. Blane, in calling upon the surgeons for occasional remarks; and much valuable information has been received from that quarter, which I have thrown into the form of notes. It is to be regretted that these communications were not more extensive; but various causes conspired to render an uninterrupted correspondence impracticable: the chief of these were, ships being dispatched from the fleet to different ports; the fluctuation of others, and the desultory operations of the whole, after the winter cruize, in February 1795.

My accounts of different diseases, besides the more immediate connection they have with naval service, will be found useful to medical readers in general. They abound with facts that could be met with no where else; and, being compiled from a number of cases, they bring into one view an endless variety of symptoms. Of theories I have said little, or have only touched on some, where practical inductions rendered it unavoidable. We have infused into our system of health such improvements, as our acquaintance with chemistry, in its cultivated state, warranted; this particularly applies to the means of subduing contagion. We have, therefore, entirely disregarded the
agents

agents employed by our predecessors, for more than a century past, as well as some recent ones recommended by writers of the present day : and we contend that every substance whatever, that tends to diminish the respirable part of the atmosphere, such as the *gasses*, in vogue, is hurtful in the extreme. We have not, however, thought it of sufficient moment to search the first authorities for the employment of these fumes ; they, doubtless, sprung from false hypothesis and inaccurate experiment, and have been pursued without scrutiny. To a hyperoxygenated atmosphere, or one possessing its due proportion of oxygene, we look for security against infection ; not as acting, by chemical combination, on contagious miasma ; but as supplying the human body with a quality that enables it to resist the offending power. But we do not rest this preference on an appeal to first principles only ; we have witnessed its success on a larger scale of experience than has usually fallen to the share of one observer.

Our stock of facts on the subject of scurvy is great beyond all precedent : its prevention and cure have, from recent experiment, been brought to a certainty, so as to supersede the utility of future investigation.

In the treatment of typhus we also hope to have made improvements : from the advantage of

having attended an immense number of cases in very diversified situations, we suppose there will be found some practical distinctions in the symptoms, and remarks on the remedies, that are peculiar to ourselves. On other diseases it has been our wish to add whatever our own practice has selected as useful, and, throughout the whole, we have strictly adhered to the duty of a faithful historian.

Situated as I am at present, it is incumbent on me to consider every thing that is allied with my subject; and my labours will be often found directed to objects entirely overlooked by my predecessors. It was my fortune, as a medical man, to be introduced to the Navy early; since which I have passed through the gradations of mate, surgeon, and physician. To alleviate the miseries of human nature, it is necessary to probe them to the bottom, and trace them to their source; but to relieve effectually the distresses of a particular class of men, as the British seamen, we must associate with the character, and keep aloof from none of their frailties. If this has been done with any success, the indulgent reader will forgive many errors, otherwise reprehensible, in these pages. The whole were compiled from notes taken as opportunity offered, and with little premeditation. The studies of a naval physician are something like

4 the

the soldiers prayers; they must be said, "*when and where he can.*"

With respect to the arrangement: Two Discourses are premised; in the First I have made some observations on recent changes in the medical department, and what may be still deemed objects of reformation. In the Second Discourse, I have mentioned such desirable alterations as are connected with the preservation of health, and the service at large. A general abstract is given of the health of the fleet, in one view; and then, a short essay on the diseases: the body of the work is so arranged, that future experience may be infused into the respective subject, or added in another volume, should the war go on. This would particularly embrace the province of surgery. Some operations have been performed by our surgeons, with a degree of success and elegance, that have been surpassed in no hospital whatever. I allude to two amputations at the shoulderjoint, by Mr. HOUSEAL, of the *Melampus*; and one, under the most hopeless circumstances, in a French officer, on board the *Niger*, by Mr. BURD; and these are a few out of a number that deserve to be known.

It may now be asked, whether or not this work might appear with more advantage at some future period, as has been customary with subjects collected during war. But very powerful

reasons induce me to publish it at this time. A practical subject can gain nothing by being kept; on the contrary, it may lose much: facts ought to be recorded as they first strike us, and not as they may do at a long interval. It is true, that more elegant language, and more correctness, might have been employed, by protracting the publication; but an unvarnished tale is preferable to both. The body of the work might also have been swelled, by contrasting my own opinions with those of former writers; but that would not have added to the value of the original. We have, besides, been engaged in a department of public service, where a progressive plan of improvement has taken place, from our suggestions, under the auspices of a Board of Admiralty, whose generosity has *answered every application* made to them on the subject of health. If these applications have been seasonably made, and judiciously administered when complied with, they will give additional weight to our authority and advice in recommending further alterations, and a moment ought not to be lost in making them known. There is, moreover, a responsibility attached to the duty of physician to a large fleet, that I should never wish to lose sight of. But the medical profession, as subservient to the happiness of mankind, has claims upon my labours, that I hasten to absolve. Such mistakes as become visible
here

here will be *beacons* for future adventurers; and if any thing is discovered worthy of imitation, it ought to be followed.

It will be grateful to every lover of his country to read so many fine traits of the naval character, which, as the Historian of Health, have fallen to my lot to record. On the whole, it has been providential on my part, that my professional studies have been associated with the services of a fleet, that have raised the naval force of this country to the highest pitch of glory. To the illustrious Commander at its head, and other officers, the public has now fresh acknowledgments to make, for acts of kindness and condescension to the health of the people, that have never been a secondary consideration in our ships.

It remains for me to make an apology, in this part, to Rear-admiral Sir ROGER CURTIS, Bart. for the liberty I have taken, in publishing his Narrative of an infectious fever, on board the Brunswick, as lately printed, for the use of his friends, more especially as I never hinted this, when consulting him on other subjects. My readers will consider themselves highly obliged, and agree with me, that it merits a better fate than the circulation of a day, and could no where appear with more propriety, than in the history of a fleet, whose sick owe its author singular obligations.

On a future occasion I purpose to add a more accurate detail of the deaths, and the people sent to hospitals; but this is a business for which I have no leisure at present. From what is told here, may be collected a lesson useful to posterity; as it shews with what a small expence of human beings a naval war may be carried on, when compared with the fate of the army on the continent and elsewhere.

I must now in the name of the Fleet, offer my grateful thanks to CHARLES DODS, Esq; surgeon at the Royal Hospital, Haslar, for the kind and candid support he has uniformly given to the measures which have been devised by me to meliorate the condition of our sick, and the general state of the hospitals.

Similar acknowledgements are also due to Capt. JAMES STEVENSON, and the officers of the Charon Hospital Ship, for their attention to the sick of the squadron under the command of Rear-admiral HARVEY, during the severe weather in October and November 1795, at Quiberon.

MEDICINA NAUTICA.

DISCOURSE I.

MEDICINE, considered as an institution for relieving and alleviating the distresses of mankind, is so ingrafted on the customs of civilized nations, that every well-ordered government has admitted its utility, and extended bounties to its professors. As a handmaid to the art of war, it has been infused into our naval and military services; and to each a medical establishment has been deemed a most necessary appendage. The necessity of medical assistance has been particularly observed in modern wars. The colonies in Asia, Africa, and America, which belong to the powers of Europe, have, with their riches and commerce, brought a train of diseases peculiar to their climate, and fatal to the constitutions of northern nations, and which leave us to doubt whether or not we ought to regard these acquisitions as beneficial to society. The contests, which have arisen between one country and another, and the jealousy occasioned from the commercial consequence of these

these possessions, have afforded a gloomy detail for the medical register during the last century ; but these are evils that have prevailed in all ages of the world : the scenes that are now acting in Europe do not offer a more consolatory prospect to philanthropy. It is, therefore, the *task* of the medical profession, in the conflict, to step between severe necessity and the human species ; to wrest the innocent victim from disease ; to calculate unwholesome seasons ; to detect and destroy contagions ; to explore climates, situation, soil, water, and air ; and lastly, when the efforts of skill can neither preserve or restore health, they may tend in a great measure to soften affliction, and “ *smoothe the avenue of death!*”

What has come to us, concerning the military operations of the ancients, is so clouded with superstition and fable, that nothing is to be learned from it. Sea diseases, in the ages of Greece and Rome, were altogether unknown, as their navigation was necessarily coast-ways, from the compass being unknown. It was, therefore, the extent of navigation and commerce, that gave birth to a new train of distempers, some of which had been little known, if at all, to the ancient world. We must, on that account, come nearer our own times to reap much information, and Dr. Lind may be justly styled the father of nautical medicine. To his works have succeeded those of

Robertson

Robertson and Blane; it may also be proper to mention with them, Dr. Clarke, who was a surgeon of an Indiaman, and wrote on the diseases of seamen.

Although the cultivation of medical science, with all its auxiliary branches, has been much encouraged of late, yet our medical institutions in the navy are far from having acquired improvement adequate to the object in view. This is partly to be attributed to the small emolument, which any naval appointment holds out to a physician or surgeon; and partly to the want of a board of science, to appreciate abilities, and reward industry in a profession, that fundamentally differs from every other form of service, and the knowledge of which is almost confined to its own members. To remedy these evils, a liberal and discerning Board of Admiralty have changed the commissioners for sick and wounded, into a

MEDICAL BOARD.*

We are not yet informed what new privileges will be granted to this Board; but we must expect them to be of a very liberal nature, if they
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* It may, perhaps, be acceptable to the medical reader of some future day, to know the names of the lords commissioners of admiralty, who have thus far contributed to the
general

are to extend the full advantages of the profession, to his Majesty's naval service. They will of course be invested with power to act, in all cases of emergency, with promptitude and decision, as becomes the ministers of health. The progress of disease will not wait the return of post, nor can forms of office stay the stroke of death. The appointment of surgeons has already been assigned to the physicians, and with this it is supposed that new regulations concerning the examinations will also take place.

On a subject, where my own opinions have contributed something to effect improvements, and where, for a length of time I stood alone, I
may

general welfare of the navy, and the medical department in particular.

JOHN EARL SPENCER, First Lord.

LORD ARDEN,

SIR PH. STEPHENS, Bart.

C. SMALL PYBUS, Esq.

J. GAMBIER, Esq. R. A.

LORD H. SEYMOUR, R. Adm. WM. YOUNG, Esq. R. A.

EVAN NEPEAN, Esq. }
WM. MARSDEN, Esq. } Secretaries.

MEDICAL BOARD.

DR. ROBERT BLAIR, }
DR. GILBERT BLANE, } Physicians.

SIR WM. GIBBONS, Bart. Civil Commissioner.

JOS. STEWART, Esq. Secretary.

may now be allowed to add some observations, as it will scarcely be disputed, that my field for remarks has been extended, and my sources of information equal, if not superior, to any other person whatever.

In the little tract, which I published seven years ago, on the medical department of the navy, I took up the subject in a new manner, and confined the discussion of it to principles of science entirely. A longer experience, more extensive acquaintance, and the general approbation of officers, induced me to keep the business still in view, in hopes that some favourable opportunity might offer for a more perfect investigation. In a task of this kind, it cannot be expected that our actions will escape either comment or calumny: one man suspects that his indolence is impeached, another dreads the exposure of his ignorance, and a third may be afraid of something worse than either. My promotion to Physician of the Fleet, has neither relaxed my endeavours, or made me less zealous to see it accomplished, although I may be supposed not quite so much personally interested in the issue as formerly. On the contrary, a large majority of the surgeons looked upon this appointment as a fortunate circumstance for their cause: if they should be disappointed in the end, they must accept the *will for the deed*.

It

It has been the good fortune of the medical profession in Great Britain and Ireland, to enjoy emoluments far beyond what is to be acquired in any other country in Europe. In the metropolis, some of its members are now in the receipt of five thousand pounds and upwards *per annum* ! This liberal support and reward of acknowledged worth and superior abilities, may be justly attributed to wealth generally diffused among different classes of society, and one of the happy consequences of a free constitution and government. Many of the Physicians in London, and other great towns of England, began the practice of medicine in the army. Pringle, lately at the head of the Royal Society, was an army physician; but there are few of the navy list, that have been so fortunate in their professional career. This can be imputed to nothing else, but different habits acquired by different modes of life; for the advantages of the early education are found to be much the same among navy and army surgeons. But the army surgeon has many advantages, in other respects, that can never fall to the lot of any person living in a ship: these are chiefly derived from being quartered in great towns, the intercourse with polished society, and the gay manner of life peculiar to the army. Men attached to study and observation have it also more in their power to follow the bent of their inclination;

nation; they are not cut off from information to be obtained from books; and their situation affords them opportunities to cultivate acquaintance with literary characters, and the general progress of medicine. The very contrary to all this is the condition of a navy surgeon; and the sea-life assuredly begets a disposition of mind, that unfits him for the exercise of his profession in private practice. He is, therefore, in the decline of his days, frequently left in a state of precarious dependence: his naval servitude, in the prime of youth, had prevented him from making friends and forming connections, that would have been favourable to his future prospects in medical rank and reputation; and his half pay is so small, that it only helps him to draw a comparison, painful to reflection, when he beholds the affluence of some old school-fellow, who never needed to encounter the toils and dangers of the ocean, to earn his *otium cum dignitate*.

There are, moreover, a number of lucrative appointments in the medical department of the army, to which the surgeon has to look up, and to which there is nothing equivalent in the navy. The extent of the army staff at this moment, abundantly shows a far superior encouragement; and the regimental surgeon has just been allowed a half pay of *five shillings per diem*. When we draw the comparison between the one service and
the

the other, it is very natural to mark an obvious distinction. We may not be considered as their equals in medical knowledge and abilities; but in a faithful discharge of our duty, to the best of our power, we cannot yield up our claim to an equal indulgence from the bounty of the public.

When half pay was first granted to the navy surgeons, it probably included the whole list at the time, as the number of ships was small. But as our navy increased, the encouragement to the medical gentlemen does not seem to have been proportioned, and progressive; for till lately one hundred and twenty-five, out of five hundred, received half pay. The victory of the 1st of June, that will be memorable on many accounts, was an occasion where the abilities of the surgeons were generally noticed, and called for much exertion on their parts. It appeared also to give fresh support, and a fit season, for renewing their claims for a further extent of the bounty of government. It became my official duty to mention to the Admiral and Captain of the fleet, the meritorious conduct of these gentlemen; and their situation had frequently been the subject of previous conversation with both. I was made to understand, that the commander in chief would most cordially support any application the surgeons might make to the lords commissioners of admiralty, as a testimony of his approbation of their recent services.

This

This welcome intelligence being communicated to Mr. Peter Smith, Mr. Stephenson, and Mr. Glegg, a general meeting of the surgeons took place, and a short, but impressive petition was transmitted to the secretary of the admiralty, to be laid before their lordships.* From this time the lords commissioners were pleased to order the necessary information to be laid before them; but before definitive arrangements could be made out, very considerable changes took place at the admiralty.

When the fleet was called out in the winter, there were upwards of forty vacancies for mates throughout the ships, which afforded the admiral another opportunity to request their lordships attention to the business: the board was just formed under Earl Spencer. Their lordships were, therefore, pleased to decree an increase of half pay, and other encouragements, as they now stand; and they are great indeed compared with the former establishment.

The pay of the individual, and the interest of the public service, in this department, are so inseparably connected, that it becomes necessary to

* At this time their lordships were pleased to increase the pay of surgeons mates 1*l*. per month: if the first mate was in possession of a set of instruments, he was decreed to receive 5*l*. per month.

combine them in this discussion: improvements in one, can only take place with an increase of the other. When the late additions were made, it was observed, that a number of surgeons came forward, who had declined employment at the beginning of the war. I consider it as much a part of my duty to record these circumstances, as any other transaction. But a total change in the mode of payment must be the first step towards a scientific system. It must be a fixed sum, whether by the day, or by the month, and the half pay modified by it. This was the object I had in view in my former work, and what improvements have been adopted lately, are but so many advances towards it. There will be found in these pages ample proofs, how much, on certain occasions, the defence of this country may depend on a vigilant and active medical practice; which in their proper place will plead a sufficient excuse for the warmth with which I must continue to recommend further alterations.

It requires no eloquence of mine, or that of any other person, to awaken the sensibility of an Admiralty Board, that has already looked so kindly to the sick-bed of the sailor: but for many reasons it is to be wished, that all improvements, which by the directions of their Lordships are to descend from the Medical Board, should be brought to trial before the conclusion of the war.

I lament that an hour should pass before the completion of a scheme that cannot fail to give fresh resources to our naval department.

The supply of medicines claims immediate correction from the Medical Board. It is at present interwoven with the pay, and the source of multifarious abuses. These, like some others, can only be prevented by changing the mode of payment, and allowing the medicines at the expence of government. The full pay of the surgeon has never been the cause of complaint, unless in very sickly ships; and in such situations it is liable to engross the whole of the emoluments. But it is a liberal half pay, that is to answer the magnitude of the object, utility to the service, and support to the individual; and to make it equal to that of the army surgeon, could only be doing away an invidious distinction.

I am still of opinion, that the supply of medicines to his Majesty's ships, can only be effectually done at government expence, and under the controul of the Medical Board. Some time ago, when consulted on this business, I sketched out a plan, down to the minutest forms of office. The outlines were, to erect Dispensaries at the dock-yards of Chatham, Portsmouth and Plymouth, to be superintended by a navy surgeon, with clerks, porters, &c. Branches of these institutions, for the supply of ships abroad, should be established

at Kinsale, Gibraltar, Madras, Calcutta, Antigua, Jamaica and Halifax. A sum of money, not exceeding 20*l.* should be allowed the surgeon, on his first appointment, to furnish instruments, which he is to repair and recruit at his own expence afterwards: these are to be annually surveyed at the Dispensary, for which he will receive a certificate; and when unemployed, they are to be deposited in one of the Dispensaries. Medicine chests for different rates will be appointed by the Board, and alterations made in their contents, to correspond with the nature of service and station of the ship. Occasional supplies shall be made, as in other branches of service. He shall make oath, once a year, on passing accounts to receive pay, that these articles of medicine have been duly and faithfully administered on board his Majesty's ship. From these Dispensaries all the surgeon's necessaries should be issued under similar forms. It appears to me, that an institution of this kind, to answer all the purposes of service, might be brought into actual practice in a few weeks.

After the return of the fleet to port, in June 1794, we accomplished a very desirable change in the necessaries, by throwing out some useless articles, that quickly spoiled, and others that engrossed a large part of the money, though of little use. It was of great consequence to procure more tea, which of all articles in diet is most relished
by

by our sick: the whole alterations were limited to the sum allowed for the old form. A seventy-four, for one month, receives,

NEW FORM.*			OLD FORM.		
		<i>yds.</i>			<i>lb.</i>
Finer new linen	—	12	Lump Sugar	—	48
Welch linen (bandages)	8		Tea	—	1
		<i>lb.</i>	Currants	—	20
Tea	—	8	Rice	—	18
Cocoa, or Coffee	—	12	Barley	—	18
Sago	—	8	Sago	—	10
Rice	—	16	Almonds	—	1 $\frac{1}{2}$
Barley	—	32	Tamarinds	—	3
Fine soft sugar	—	64	Garlick	—	4
Ginger	—	6 $\frac{1}{4}$			<i>oz.</i>
			Shallots	—	8
Saucepans, strong	—	4	Mace	—	2
Canisters	—	2	Cinnamon	—	4
Boxes	—	1	Nutmegs	—	2
					<i>yds.</i>
			New linen	—	12
			Saucepans	—	4
			Boxes	—	1
			Canisters	—	2

* These articles being now sufficient for the purposes of service, it only remains to allow an addition to the sum, that the quality of each might be improved.

When an increase of salary was ordered to the Medical Board, we are led to regret, that Govern-

ment did not at once make it equal to the Army Board. The physicians, who are to superintend the health of the British navy, should be surpassed by none in splendour of establishment; and it would have put it more in their power to enforce some regulations, that are essentially connected with its welfare, and to which all eyes are, at this moment, fixed. I would have their lordships to proceed with this work of benevolence, and not to confine the limits of it, by comparing what is done with what it was before, that the spirit of the undertaking may never be damped by any ill-timed parsimony. It can be deemed no breach of national œconomy, to reward the services of eminent and learned characters, in such a manner that the public may enjoy the full benefit of their abilities. It is not in Board hours alone, that these talents will be usefully employed: their private, as well as official correspondence, must pervade every corner of the department. Such is the nature of medical science, that as it is constantly acquiring new accessions of knowledge, from new facts and observations, these physicians will serve as a *focus*, where every scattered ray is to be condensed, and where every new idea will again diverge, for the information of the whole. Our present labours are a humble epitome of this manner of collecting facts, and an imitation of what Dr. Blane was the institutor, in a former war.

When

When the younger members of the profession are aware of a scientific Board to watch their labours, it will tend to stimulate genius and industry, and will occasionally draw forth valuable talents, that might be left to rust in obscurity, or remain neglected, to the loss of themselves and the country. By these means only will Physicians at the Board be able to confer that distinction on merit, which must always be expected from their hands; and which I conceive to be a sacred part of the trust confided to them, as the directors of medical science in an extensive public service.

HOSPITALS.

A word at parting: Much of my professional labours having been directed to the reformation and improvement of the Royal Hospitals, it remains for me to add something here, as peace does not seem very distant; for I should be sorry to withhold a single idea that can assist the completion of a work, to which the interests of the navy are so nearly allied.

When I was honoured with the appointment of Physician to the Fleet, I deemed it my duty to submit to some officers high in command, what I conceived to be deficiencies in these institutions, and whom, I knew, would interest themselves in

the business. The Commander in Chief, as the proper mode for official inquiry, ordered Admirals Caldwell and Gardner, with Captains Domet and Nichols, to survey Haslar Hospital, and report to him their remarks. This duty was conducted by these officers with great patience and attention, and some very material changes have taken place. In an undertaking of this kind, but little foresight might assure me that I was soon to meet opposition to my projects. Men, who were my seniors in years, and superiors in knowledge, were quickly ruffled at the idea of change, in a situation where all had been thought perfect, and where the smallest step towards reformation had never been judged expedient. These institutions were particularly deficient in naval officers to keep the seamen under discipline and command; in the pay of physicians and surgeons, with other officers; in the number of physicians and surgeons; in buildings to lodge the officers; in the internal œconomy of the hospital, such as administration of medicines, diet for the sick, washing of the cloathes, &c. My remarks on these subjects were afterwards printed, with cursory arguments, for the information of public boards and officers, without a view to publication. Here, as with the navy surgeons, I contend, that the want of improvement has been owing to the want of encouragement; and till it is made equal to the
duty

duty of the trust, the service must occasionally suffer: it is because I value the abilities of these gentlemen as much as I ought to do, that I wish to see them amply provided for. Those who know me best, will testify how little any thing personal has influenced my criticism; and those who wish best to the navy, must regret that any member of a public department should be obliged to receive part of his support from private practice.

Anxious as I always must be for the welfare of the navy, I cannot help feeling, when I look to the pay of physicians on the army staff; and compare it with the naval hospitals. To these stations, the industrious surgeon of a ship, who has to pass a youth of turmoil and care, should be taught to look up, as an incentive to emulation, and premium of service. Men who can fill these appointments with advantage to the navy, and reputation to themselves, a discerning Medical Board will always be able to select. In short, this Board has the happiness of thousands in their hands; by directing the streams of the science to flow from themselves to every individual, to give health to the sick and comfort to the distressed. Their precepts will be revered, and their example imitated: what is no inferior consideration in the medical character, they will also extend the kind offices of humanity to the
sick

sick bed. It is the lot of the sailor and soldier to languish under affliction and disease far from the cheering support and watchful attendance of friends and relations * ; and hence a charge of another kind devolves on their physician, that nurses and others may be tender and assiduous in their respective duties.

Would not a medical library be a valuable appendage to these hospitals ?

Might not the ground round Haslar be advantageously laid out in gardens and orchards for the use of the sick ? How grateful is a dish of salad after a long cruize ? How delicious an apple, a pear, or a plumb, after a long sickness on board ? Speak you, who, like me, have had three narrow escapes from death, and a long confinement, with a tardy convalescence, at sea ! To these I would add a pigeon house, and poultry farm ?

Amidst other deficiencies, I think a suit of baths one of the greatest. There are many diseases peculiar to naval officers and seamen, where they would be of infinite service ; and it is surprising they should have been so long neglected. The situation of both Haslar and Plymouth Hospitals are convenient for their construction : they

* *Heu, terra ignota, canibus data præda Latinis,
Alitibusque jaces ! nec te tua funera mater
Produxit, pressive oculos, aut vulnera lavi.*

ought to be made for different temperatures ; and joined to a magnificent national charity, the baths of Haslar would become famous as those of Baiæ, in the days of ancient Rome.*

We may with these improvements hope to see an apparatus for the exhibition of *fartitious airs* : for surely an institution like Haslar Hospital ought to be the first to introduce discoveries into practice, that promise and have already effected cures in diseases, for which the *Materia Medica* had been ransacked in vain.

“ Jam nova progenies cælo demittitur alto,”

The first part of my attendance at Haslar Hospital was marked by a desire to correct any forms, that might not be consistent with my own ideas of medical practice ; I therefore began with the following regulations, which would have been altered and improved, as a longer acquaintance

* Tubs were employed for this purpose, while I belonged to Haslar, in the form of those used in slop ships, for purifying new-raised men ; but the seamen had such a dislike to them, that it was found impracticable to get a rheumatic patient to bathe, because they reminded them of *scrubbing*, by way of punishment, on board. Instruments of this kind degrade a public charity ; a sailor under disease ought to be bathed like a gentleman.

with

with the duties of my station might suggest. The impartial reader will observe that, in any changes which I have prescribed in these institutions, no restraint has ever been offered to others, that was not adhered to by myself. In an hospital like Haslar, I think the practice of the medical profession might be carried to a higher degree of perfection, than in any other in Europe; and the pure spirit of the science made subservient to the treatment of the objects it is intended to relieve, beyond what can be done any where else. If I am thought to be singular, or Utopian, in this opinion, I have no objection to stand alone.

DIRECTIONS,

For the Visiting Apothecary, and Assistant Dispensers, in the wards of the North Wing of the Royal Hospital at Haslar,

I.

They shall see that the general regulations of the hospital, as put upon the ward doors, are duly attended to by the patients, nurses, &c.

II.

The Dispensers shall go through the different wards, allotted to their superintendence, every morning: from March to September, at eight o'clock;

o'clock ; and from September to March at nine o'clock, to see that the wards are all disposed in clean order and in due time, viz.

1. The patients in the Recovery Wards to be out of bed.
2. The beds to be properly made up.
3. The wards to be cleanly swept afterwards.
4. All pots and offensive matters to be carried out and purified.
5. The doors and windows to be opened for the purposes of ventilation.—This to be done, by the sash of one window being put down, while that of the next is thrown up ; and so with the others.
6. They are to enquire of each nurse, who has had the watch, whether any thing particular has occurred in the night, and to act accordingly, or report it to the Physician.

III.

Every patient is to be visited immediately on coming to his ward, and what may be deemed necessary, prescribed.—The Gentlemen are desired to be attentive, in examining the duty of the labourers employed in cleaning and washing the people ; to return them if not sufficiently cleaned, and the neglect to be reported to the Physician.

IV. Patients

IV.

Patients with contagious fevers, small pox, and measles, are to be strictly separated from others, and no visitors are to be admitted into these wards. Those labouring under chronic complaints of the same nature, are to be put together, as nearly as circumstances will admit of.

V.

Cleanliness being one of the greatest requisites of an hospital, in all their visits this is to be particularly watched, and the nurses are to be charged with it; viz.

1. The men are to be kept clean in their persons, by frequent changes of body-linen, &c.
2. By wearing their hair short.
3. By washing themselves every morning.
4. The nurses are to wash those who are unable to do it themselves.
5. Their beards are to be regularly shaved.
6. The bed-linen is to be duly shifted, and the beds as often as occasion may require.
7. All close-stools and bed-pans, &c. to be emptied, and washed immediately after use.

8. In

8. In non-compliance with these rules, the nurse or patient to be reported.

VI.

As personal flovenlinefs is disagreeable in men, fo it is difgusting in women : when obferved; it is to be reported to the Matron.—This rule extends to keeping clean and neat,

1. Their cabbins,
2. Floors and ftairs,
3. Water-clofets, &c.

VII.

The attendance of the fick in bed is to be particularly watched; that they have their medicines duly; that they are regularly ferved with diet and drink; and that no nurse be permitted to treat them harfhly or unfeelingly.

VIII.

As it becomes the duty of every medical attendant to fupersede the ufe of medicine by diet, when it can be done, fo the appetites and cravings of the patients, for any particular kind of food, are to be regarded; and as far as the regulations of the hofpital admit, are to be complied with.—In cafes of debility, and want of the ufual defire for animal food, wine will be grateful, either by itfelf, in the drink, or with fago, rice, panado, &c.

IX. The

IX.

At the hour that the medicines are received into the wards from the Dispensary, the assistant dispensers shall attend in their respective wards, to be certain that each man has received his medicines, as prescribed on the ticket, that it may on no account be left to the nurses, as hitherto.—At this time they are also to be assured, that every patient is in his proper ward, and to permit none to leave their wards, afterwards, for the night.

X.

The garret wards being solely reserved for men about to be discharged, no patient is to be moved there that takes medicine; but in cases where this may be again necessary, the patient is to be moved into another ward, more under the inspection of the Physician.—Fever patients, with surgical complaints at the same time, are to be sent to Lobby 62, to be visited by both Physician and Surgeon.

XI.

The Physician will begin his morning visit at No. 81, and finish with the small pox wards, No. 103 and 104. The visiting apothecary and dispensers, are desired to begin and finish their rounds in the same manner.

XII. The

XII.

The Physician will prescribe to all those cases which more particularly require his attendance; but all changes of importance in the state of any patient, are to be duly reported to him.—His prescriptions, for the sake of distinction, will be written with *red ink*; and they are not to be altered without a material change of symptoms, or in the recovery of the sick man.—The visiting apothecary shall see these patients as often as the nature of their complaints may require, and attend to the exhibition of their medicines.

XIII.

The Dispensers are desired, at *unstated times* of the day, to walk through certain wards, in order the more readily to detect all deviations from the modes of regulation and discipline it is wished to inculcate: many opportunities for disobedience may occur, whether from disorderly nurses, or by men who have *feigned* complaints for the purpose of being invalided.—The assistant dispensers in the wards shall perform this duty in weekly rotation.

XIV.

As it appears absolutely necessary, for the benefit of his Majesty's service, that a regular
D system

system of duty, among the medical attendants, should be established, whether for punctual visits to the sick, or to make themselves sufficiently acquainted with the characters and dispositions of men who practise deception, the gentlemen are required to give the necessary orders to the nurses and others; and to assure them that nothing can be forgiven, that infringes against these rules: the Physician therefore expects that they shall be strictly adhered to in all departments.

T. TROTTER, Physician.

Royal Hospital,
Feb. 4th, 1793.

MEDICINA NAUTICA.

DISCOURSE II.

THE character of a British Seaman exhibits so many striking singularities, that blend themselves so much with all his habits, that a thorough acquaintance with them becomes necessary to both officer and physician, in their respective stations. These peculiarities are the offspring of a sea-life, from the little communication it affords with the common manners of society. The love of adventure and enterprize, that so soon discovers itself in an active boy, seems to prompt the first inclination for sea; a longing curiosity keeps it alive, and nothing but a voyage will at last satisfy the youthful Argonaut; to which the parent consents, in the hope that a life of danger and toil will soon sicken the unexperienced sailor, and make him wish to live at home. This, however, seldom happens, and the first cruise or voyage casts the die for a future sea life to the young adventurer. It is somewhat remarkable, that boys in inland towns should so

often show this early desire of going to sea. I have, however, seen it discover itself there in a very romantic manner, and terminate in an elopement purposely to embark: among boys of this description, the history of a broken sailor is accounted the finest piece of eloquence; and whenever he appears, the narration of his voyages, battles, and shipwrecks, are listened to with rapture. The voyages of Drake and Anson round the world, are famous in this way, and eagerly read by school boys; but Robinson Crusoe has made more profelytes to these kinds of adventures, than all other mariners: his story, from first to last, is so full of incident; in all his difficulties he shows so much courage, address, and ingenuity, that the young reader fancies himself the discoverer of some great kingdom, and his imagination wanders for ever in quest of an island. Even the English newspapers, now so generally circulated, have a wonderful effect in spreading this enthusiasm for a sea-life: the number of well-fought actions, between single ships, during the present war, will cherish it, and shape the fortune of succeeding warriors; while the sublime manœuvre of piercing the French line, by Earl Howe, will be equally appealed to, at some future day, by the historian and school-boy.

In a country, like this, that owes her security to a naval force, we see a victory at sea celebrated
above

above all others; it rouses the *amor patriæ* to the highest pitch of enthusiasm, and reminds a free people of their independence; because nature has decreed that this is our element. The names of our great admirals are therefore revered as so many tutelary deities of our island—Hawke, Rodney, and Howe—and the heroes of the Granicus and Rubicon shrink into insignificance, when compared with those of the 12th of April, and the 1st of June.—Hence, from peculiar causes, the naval spirit of Great Britain, descends, as it were, in hereditary succession.

That courage which distinguishes our seamen, though in some degree, inherent in their natural constitutions, yet it is increased by their habits of life, and by associating with men, who are familiarized to danger, and who, from national prowess, consider themselves at sea, as rulers by birth-right. By these means, in all actions, there is a general impulse among the crew of an English man of war, either to grapple the enemy, or lay him close aboard: French men shudder at this attempt; and whenever it has been boldly executed on our part, they run from their quarters, and are never to be rallied afterwards. Nor does this courage ever forsake them; we have seen them cheering their shipmates, and answering the shouts of the enemy, under the most dreadful wounds, till, from loss of blood, they expired.

It is only men of such description, that could undergo the fatigues and perils of a sea life ; and there seems a necessity for being intured to it, from an early age. The mind, by custom and example, is thus trained to brave the fury of the elements, in their different forms, with a degree of contempt, at danger and death, that is to be met with no where else, and which has become proverbial. Excluded, by the employment which they have chosen, from all society, but people of similar dispositions, the deficiencies of education are not felt, and information on general affairs is seldom courted. Their pride consists in being reputed a thorough bred seaman ; and they look upon all landmen, as beings of inferior order. This is marked, in a singular manner, by applying the language of seamanship to every transaction of life, and sometimes with a pedantic ostentation. Having little intercourse with the world, they are easily defrauded, and dupes to the deceitful, wherever they go : their money is lavished with the most thoughtless profusion ; fine cloathes for his girl, a silver watch, and silver buckles for himself, are often the sole return for years of labour and hardship. When his officer happens to refuse him leave to go on shore, his purse is, sometimes, with the coldest indifference consigned to the deep, that it may no longer remind him of pleasures he cannot command. With minds uncultivated and uninformed, they are equally credulous and superstitious :

stitious: the appearance of the sky, the flight of a bird, the sight of particular fishes, sailing on a certain day of the week, with other incidents, fill their heads with omens and disasters. The true-bred seaman, is seldom a profligate character; his vices, if he has any, rarely partake of premeditated villany, or turpitude of conduct; but rather originate from want of reflection, and a narrow understanding. Hence he plays the rogue with an awkward grace, though the degree of cunning which he occasionally practices towards his creditors bespeaks art: but from them he has learned the way to over-reach; and it ought to be remembered, that they have a particular interest in emptying his pocket as quickly as possible; for his bargains with the world, are limited to his landlord and shop-feller. In his pleasures he is coarse, and in his person slovenly: he acquires no experience from past misfortunes, and is heedless of futurity. His conversation, commonly, turns upon his own profession, and his animadversions are almost confined to a ship, her various properties, such as sailing, rigging, &c. yet the sailor has a wit of his own, and he translates all occurrences into his own phrases: *curns* a horse when he rides; *heaves the lead* from the top of a stage coach, and *wings* * his enemy, when he shoots away his stun-sail haliards. Thus his narrations are full of hyperboles,

* Captain M'bride's Letter to the Admiralty, Nov. 1781.

families and comparisons : and if he finds he can work upon the credulity of his hearers, he will frequently outdo *De Foe* or *Gulliver* himself:

————— even from his boyish days
Till the very moment that you bade him tell it.
Wherein he will speak of most disastrous chances,
Of moving accidents by flood and field ;
Of hair-breadth 'scapes, i' th' imminent deadly breach :
Of being taken by the insolent foe,
And sold to slavery ; of his redemption thence
Wherein of Antres vast, and desarts wild,
Rough quarries, rocks, and hills whose heads touch Heaven ;
And of the cannibals that each other eat,
The Anthropophagi, and men whose heads
Do grow beneath their shoulders.

SHAKESPEARE.

Some new traits are engrafted on the character, by coming on board a man of war, and to be traced to the custom of impressing them. This is apt to beget a fulkiness of disposition, which is gradually overcome, when he recollects that he only resigns his own liberty for a season, to become a champion for that of his country. It, however, often preserves a determination to watch every opportunity for effecting his escape : it is also the source of numerous deceptions, by making him assume diseases, to be an object for invaliding. Hence he employs caustics, to produce ulcers ; inflates the urethra, to give the scrotum the appearance

ance of hernia; and drinks a decoction of tobacco, to bring on emaciation, sickness at stomach, and quick pulse. Under trials of this nature, there is exercise for both patience and discernment on the part of the officer and surgeon; but there is rarely occasion for punishment. A well-regulated ship, soon reconciles all disaffection. This war has been singular for few desertions; and general punishments have scarcely been known in the Channel Fleet. His real diseases spring from causes peculiar to a sea life: laborious duty, change of climate, and inclement seasons, bring on premature age, and few of them live to be very old.

If such are the follies and vices of the sailor, his virtues are of the finest cast. In the hour of battle, he has never left his officer to fight alone; and it remains a solitary fact in the history of war. If, in his amours, he is fickle, it is because he has no settled home to fix domestic attachments: in his friendships he is warm, sincere, and untinctured with selfish views *. The "*heaviest of metals*," as
Sterne

* When a ship comes to action, it usually puts an end to all party quarrels among the officers and people; so ready are they to unite against the common foe of their country. It also tries the sincerity of friendships.

On board the *Berwick*, where I was surgeon's-mate, in the action with the Dutch fleet on the Dogger Bank, Aug. 5th, 1781, a sailor was seized with convulsions immediately on being

Sterne calls it, becomes light as a feather, in his hands, when he meets an old shipmate or ac-

ing informed that his messmate was killed. They had lived three years together: whenever the mess sat down to take victuals, this man's convulsions always recurred, and the feat that his friend used, always brought him to his mind, when he looked at it. It was a very affecting sight to the officers.

In the same battle, a young midshipman who was wounded on the fore-castle, could not be found after the action, and was supposed to be thrown over-board. Another young gentleman, who lived with him in the gunner's mess, became inconsolable, for the loss of his friend; never was grief so exquisite.

Ut stetit et frustra absentem respexit amicum:

Euryale infelix, qua te regione reliqui?

Quave sequar!—

Tantum infelicem nimium delexit amicum.

It happened, however, that, stunned with a blow which he had received on the head, he crept into the bread-room, where he fell asleep, and did not wake for some hours. On coming out, he was perceived by his friend—they flew to one another; while the spectators wept at the interview: it could only be exceeded by the Roman Matron, who died with joy, on being informed, that her son survived the battle of Cannæ. These youths were twelve or thirteen years old: one of them had the honour of being signal officer, in the Queen Charlotte, on the first of June: they are both captains of the navy at this moment, with the hopes of their friends and country, fully realized in their professional accomplishments.—What a nice test of friendship!

Fortunati ambo! si quid mea carmina possunt.

VIRGIL.

acquaint-

quaintance under distress: his charity makes no preliminary conditions to its object, but yields to the faithful impulse of an honest heart. His bounty is not prefaced by a common, though affected harangue, of assuring his friend that he will divide with him his last guinea: he gives the *whole*; requires no security, and cheerfully returns to a laborious and hazardous employment, for his own support. Was I ever to be reduced to the utmost poverty, I would shun the cold threshold of fashionable charity, to beg among seamen; where my afflictions would never be insulted, by being asked, through what follies or misfortunes I had been reduced to penury.

Having said so much of the sailor, it may be expected that I should add something on the officers; but I have associated too long with the character to be deemed an impartial delineator. The country will learn their value, from recent and matchless services: and some of the gentler virtues which adorn the naval profession, in watching the health and comfort of their people, will receive abundant testimony from the following pages.

RAISING MEN FOR THE NAVY.

The experience collected on this subject, during the present war, entirely corresponds with the
account

account of numerous evils, related on former occasions. They must be inevitable, till a new system is adopted. A country, that boasts so justly of her *civil rights*, ought long ago to have rescued from an involuntary engagement, a description of people, to whom she owes her greatness in the *scale* of empire. I am afraid that men high in office, have a very limited idea of the afflictions occasioned by impressing seamen. Instead of calling it, a necessary and politic measure, for the safety of the country, I pronounce it to be a most fatal and impolitic practice. It is the cause of more destruction to the health and lives of our seamen, than all other causes put together ; and every nerve of invention ought to be strained, to put a speedy and effectual check to it.

We have at last found an alternative for pressing : the *requisition* of seamen and landmen for the navy, which was made in the spring of 1795, by act of parliament, brought into the House of Commons by Mr. Pitt, has formed a precedent that ought to be imitated on every future emergency. I am only sorry that this act was not made permanent, so as to enable ministers to call upon the counties and towns, whenever a levy of men was found necessary. There is not an objection, of any force, to be offered against a repetition of this kind : and had the officers, who regulated the volunteers, been somewhat more attentive in examining

aming them, there remains no doubt, but it would have effected all that was wished for the good of the public service. At some places, very high bounties were given, even to forty guineas, which were the cause of much fraud and imposition: men utterly unfit for duty, but with no apparent disease, entered for the sake of this sum, and after being a few months or weeks on board, discovered their complaints to get invalidated. It was particularly hard to press an able seaman, after such high bounties had been given to landmen; for the king's bounty and these bear no comparison.

In the beginning of a war, if we suppose the peace establishment to be twenty thousand men; sixty thousand more may be raised by requisition, in the like manner, and in the space of four months; by which means, seventy sail of the line, with a proportion of smaller vessels, would be ready to strike a blow before any enemy could be prepared to face us.

The evils of impressing are manifold: a great number of our best seamen immediately disappear at the beginning of a war, and conceal themselves. It requires some time to get ships and tenders ready; the people are crowded together; they sleep on the decks; they are without cloaths to shift themselves; persons of all denominations are huddled together in a small room, and the first twelve months of a war afford a mournful task for
the

the medical register, in the spreading of infection, and sickly crews. Hence a new commissioned fleet of ships can never be deemed an effective force at the early commencement of hostilities.

In a country like this, where so large a proportion of the people are employed in manufactories of different kinds, it is the first effect of a war to throw many of them out of employment. The only resource is the navy and army. We must suppose that men of this description, at least that are married and have children, leave a situation where they have had enjoyments, and have to look forward to one where these blandishments are to have no share; consequently, they must feel those pangs of separation at leaving a virtuous charge, which are natural to human beings: this affecting tale needs not the language of romance to find its way to feeling hearts; but must now and then be aggravated to the most poignant distress, by resigning wives and children to beggary and want, and a thousand ills of which I can form no idea. Hence that dejection of spirits that makes them the first subjects for the scurvy, and the earliest victims to contagious diseases. Many a melancholy story is thus related to the medical attendant of a sailor or foldier, and it begets a sympathy that interests us the more in their recovery: under this species of mental affliction we know that numbers perish, without any apparent disorder.

Now

Now if these people were all levied by the requisition bill, their bounties would be so considerable, that a moiety could be left for the support of their connections, which I know was very generally the case on the late occasion; and it tends to alleviate the pains of separation. The poor landman receives a bounty of twenty or thirty shillings, which buys his first jacket; he probably passes through two receiving ships, and three or four tenders, before he arrives at the ship where he is to be stationary. By this time fresh fops are wanted, and the first year of his servitude does not put a shilling in his pocket. Very different is it with a requisition man; he can be trusted to march by land, and go to a king's port at once, without incurring diseases from the passage in a tender. He also considers himself a volunteer, and feels nothing to depress his mind, or to prevent him from accommodating himself to the customs of a new situation. He is thus reconciled to the navy, thinks less of trying to desert; or, if he did, he runs a greater risk of being taken up, as he may be known or heard of on the spot where he entered.

It may be said that high bounties were a heavy tax upon individuals: but if we were to calculate the vast saving of human lives, and the money spent in raising men under other modes, it will be found the very quintessence of œconomy. But,
putting

putting that out of the question, what a trifle ought it to be reputed, when it prevents an Englishmen from being impressed, and makes him a volunteer in the service of the public. I must, therefore, congratulate the country on the efficacy of Mr. Pitt's bill, and hope to see it made permanent. My authority ought to give some weight to the repetition, for I have seen much of its good effects, and have often witnessed the horrors of the old system.

D R E S S.

A general uniform for seamen has been mentioned in the valuable works of Lind and Blane, and supported by arguments so conclusive, that nothing can be offered against them. Amidst so many improvements in the navy, we are surprised that such a one as this has never been brought into universal practice. A uniform in all situations contributes so much to personal delicacy and cleanliness, that we are at a loss to conceive how our officers have neglected it so long: it is the more to be wondered at, as the most punctilious attention is now paid to the cloathing of the people. The Hon. Captain George Berkeley, when he commanded the *Magnificent*, as a guard-ship at Portsmouth, had his men dressed in a particular way: they were easily distinguished from others,
and

and became proverbial for neatness of appearance, and orderly behaviour when on shore. Nay, so little have these ideas refined old habits in the service, that the navy slops are really made in a form that no sailor, who has any taste in dress, will put them on. But there are other arguments to be used in favour of a general uniform. It appears to me, that desertion would be very much prevented by it: at least, it would increase the difficulty of escape, as disguise could not be so easily assumed. The cloathes might be manufactured of a particular kind of cloth; and an act of parliament passed, enforcing the same regulations and penalties as are usual in the army. The uniform should consist of a blue jacket, with a sleeve and cape of the same, and lined with thin white flannel: a waistcoat of white cloth, trimmed with blue tape: blue trowsers, or pantaloons, of the same cloth with the jacket, for winter; and linen or cotton trowsers, either striped blue and white, or all white, for summer: check shirt, and black silk neckcloth. A button of metal, or horn less liable to tarnish, with the letters R. N. upon it. The hat small and round, water proof, with a narrow belt, on which should be printed the name of the ship; which could be conveniently shifted when a man is turned over to another ship. An outside jacket, of a thicker texture, and flannel waistcoats, might be occasionally supplied, as a de-

fence from cold and rainy weather. Such a form of dress could not fail to be acceptable to the seamen; and it would be highly pleasing in the eyes of officers and others. The crews of different ships would be known by the name on the hat-band, which would make them emulous to appear clean and orderly: this again would increase attachment to the service and its commanders, and with these all the virtues of good discipline.*

D I E T.

This is a department where great improvements have been made of late years. The salted beef and pork are excellent; and the bread, till the high price of corn rendered a mixture necessary, was as good as could be desired. Equal attention has been paid to other branches of provision. Our officers are not a little vigilant in taking care that all articles are in due preservation, and of the proper quality.

Some alterations might, however, be still made, with advantage. The allowance of salt meat, is too much at sea: when a ship leaves the harbour, it ought to be reduced one third, and the full

* As soap has not yet been fully introduced to supply the people, the captains would do well to insert an article into their private orders, for the men to buy it at pay-day, and to be mustered with their cloathing at stated times.

value of it supplied in something else. I think some of the cheaper pickles would be very acceptable. The molasses by admiralty order being now made general, the oatmeal breakfast is rendered palatable, and must be highly relished; it forms a valuable article in the vegetable part of the diet. In the West Indies, cocoa is supplied for breakfast with sugar, in lieu of some species of provision liable to spoil in that country. The late Captain James Fergusson, lieutenant-governor of Greenwich Hospital, was the benevolent inventor of it.

Our ships are now liberally supplied with fresh vegetables for the first fortnight after coming from sea; by which means, along with fresh meat, they are quickly recruited for any emergency, and prepared to resist the effects of salted beef or pork for a longer time. I think if we could give every ship, on going to sea, a quantity of onions, to mix with their pea-soup, or even to season the salt meat, it would be useful in preventing scurvy. It is much to be wished that a few sheep should be carried out, for the use of the sick: a little mutton broth is so nourishing under debility, and so desirable in many cases after a long cruize, that to grant it would be the *ne plus ultra* of our improvements. Our officers have kindly shared their stock with the sick; but look at their pay, alas! they cannot afford it.

From experiments which I made at Weevil, in the summer of 1792, when surgeon of the Duke, a certain means was found to preserve *water* pure and sweet for any length of time; by the simple process of firing the casks, in putting the staves together, till a *charry coat is formed over the whole surface*. They are to be found in a little work intitled, Medical and Chemical Essays; printed by Jordan, in Fleet-street, London. I am not, however, satisfied with the attention the Victualling Board has given to this method; and it has never yet been practised from sufficient authority.—Other observations and proposals for improving the diet, will occur in different parts of the work, among the diseases.

C O N C L U S I O N .

It has for some time been a custom in the navy, for Captains to give out a code of regulations, for the observance of officers and men in their ships. Many of these are of great importance in the preservation of health, and nearly connected with our subject. Officers, however, have different ideas of modes of discipline; and we see the condition of ships, and the conduct of the people, differ materially. It would appear invidious in me, to select or point out such as I might think most worthy of preference and imitation.

tation. But I cannot help being of opinion, that a system of valuable regulations, for the internal government of his Majesty's ships, might be compiled from them. I am acquainted with some, where, in cases of fire in any part of the ship, the distribution of the people, and what ought to be done, are detailed with the most perfect experience of a practical art ; and at the same time with the most correct knowledge of those branches of philosophy, which are required on a subject of that nature. Others I know to be equally exact in all that relates to cleanliness, to washing decks, to the treatment of the sick, and the situation of a sick-birth, which is most commodious under the fore-castle, to take in the round-house, and to be perfectly free from the gally smoke. A Captain, singularly attentive to his sick people, asked me one day, if it was not improper to wash white paint, though in a sick birth, with vinegar: he always observed a dampness afterwards, which was occasioned by the vinegar converting the ceruse into a fugar of lead. This was certainly good chemistry ; and white paint in sick births should be always washed with soap and hot water.—In the London, Vice-Admiral Colpoys has ordered the books sent to the ship by the societies, to be kept in the sick birth, for the amusement and instruction of his people : others have checkers, &c. to keep the seamen employed: and I re-

member, Captain Charles Thompson ordered the people of the *Vengeance tops*, by way of exercise, when we approached the cold weather, on our passage home.

During the present war, many observations have occurred to me, which point out some alterations to be necessary in the payment of smart-money to the seamen. When the chest of Chatham was first instituted, that was considered the chief naval port: but from the immense increase of our navy, since that time, and the business to be done at Portsmouth and Plymouth, it becomes exceedingly inconvenient for the men to attend there; and the intention of the charity is often frustrated. Now, there would be other good effects reaped by the service, were this money paid at the other ports. It is given with the benevolent view of alleviating the distresses of men, who have been maimed on duty; and it would be of material consequence for the officers of the ship to attend, that the character of the man might be better certified, than can be done in a smart-ticket; for surely there must be occasion, now and then, for discrimination; as, when the wound was received on any hazardous undertaking. It would thus operate as an encouragement, and would be held up as a reward of merit and great exertions, whether

whether in an engagement, or other species of duty. I also think that an admiral and two captains, would be the fittest officers to award these favours of Government to the deserving objects. Their station must afford them the best opportunities to appreciate the value of the service; and by carrying their surgeons with them, or the physicians of fleets and hospitals, and surgeons of hospitals, the qualities of the hurts would be better ascertained. But a sailor would receive the boon with double gratitude, when it came from the hands of officers high in rank; and it would convince them, that they had an interest in doing him justice, and in his future support and happiness.

I would have it preserved as a sacred *Creed* in our Navy, never to separate the condition of the seaman from his officer: who can feel for men of this description, like the Commander, to whom he he must look for protection, whether in health or disease? It is this that begets the reciprocal attachment among them, and hence the numerous instances of a paternal solicitude for their welfare, which are daily coming under my review.

MEDICINA NAUTICA.

GENERAL ABSTRACT

OF THE

STATE OF HEALTH IN THE FLEET,
FROM THE 1st OF JAN. 1794, to DEC. 1796.
AND OF THE WEATHER DURING THAT PERIOD.

I THINK it necessary to begin my remarks from this time, as my attendance at Haslar Hospital afforded me some opportunities of knowing the general state of health in the Fleet.

It is not intended in the following pages to give a minute detail of the changes of weather, as have been usual in some medical registers; but only to mention those particular occurrences in each season, which evidently tended to affect the health of the fleet. Journals of the weather, which are given at length, swell the work unnecessarily; and I believe are not always read. It is, therefore, my intention to be very brief on this part of my subject.

The

The winter of 1793-4, was rather mild upon the whole; not remarkable for the quantity of either rain or snow that fell; and there were but few days of frost.

The fleet had been cruising late in the season; and by chasing a French squadron of seven sail of the line, a considerable distance to the westward, were by an easterly wind, which lasted upwards of three weeks, prevented from getting into the Channel, before the 20th of December.

The *Ruffel* and *Invincible*, at this time, or very soon after, landed a number of men ill of a contagious fever. So late as the 19th of March following, two very bad cases of this fever were sent to Haslar Hospital, from the *Ruffel*. The sick from this ship complained much of washing decks so very often during cold weather; it was performed no less than thrice a week; and the poor fellows attributed their sickness to this cause: certainly, with great reason, it ought to be considered as having materially assisted the effects of infection.

In February, some cases of small pox were sent on shore from the *Alfred*. The infection was traced to a child brought on board in its mother's arms. They, in general, did well.

I may here mention a contagious fever which appeared on board the *Raisnable*, commanded by Lord Cranstoun.* This ship had been long at

* This ship did not belong to the fleet.

sea, and had met with much bad weather. She came to Spithead in January, and landed upwards of a hundred, very ill of typhus and dysentery. Mr. Newberry, the surgeon, suspected the contagion to have been brought on board by draughts of men from the guard-ship, but did not trace it to any particular person. During their absence from England, one hundred and seventy people were sent on shore at one of the western islands, under Mr. Newberry's care. Lord Cranstoun humanely attended to every proposal from a judicious surgeon, for making the sick comfortable, and they were supplied with every thing necessary. Of this number, ten died.

A considerable number of cases, in flux and fever, were received from the Gibraltar. This ship had sailed from Plymouth in November, to join Lord Howe; but after a cruize of some weeks, during much stormy and rainy weather, not falling in with the fleet, she was obliged to return to port. Of these a few died with symptoms of great malignity.

These ships being all affected with fevers very much alike in their nature, in their progress and symptoms, probably received the contagion by men sent to them from receiving ships and tenders; which during fine weather attracted little notice, but appeared under a more serious form, when the cold and wet weather set in. None of them had
been

been long in commission; but from any inquiries which I made, nothing satisfactory could be learnt.

Feb. 23. This day six men, in typhus, were received at Haslar Hospital, from the London. On examining the particulars of their situation, I was not a little surprized to find, that some of them had been bled two or three times; and a larger quantity of blood taken, than is usual among seamen, even under inflammatory complaints. They were, as might be supposed, in a state of extreme debility. I was not able to trace this fever to its true source, but had reason to believe that it much resembled the condition of other ships, just mentioned. These people, and others who followed them, to a man complained incessantly of the severe duty they had undergone in returning the ships stores to the dock-yard. They were not discharged on the eighth of April, when I left Haslar; to such a degree of weakness were they reduced.

It having appeared to me, from the treatment of the fever, as now narrated, that the officers of the London were not aware, that a disease of a contagious nature was extending itself among their crew; I therefore requested Dr. Johnstone, the resident commissioner of sick and hurt, to make the inquiry. Dr. Johnstone was told, that no disease of this description was known on board the London. I
have

have been thus far minute in my remarks ; as the sequel will show, that there were just reasons for my early apprehensions.—In the mean time, the London was paid off, and her complement distributed to other ships.

March. The Valiant of seventy-four guns, Captain Pringle, having received four hundred men from the London, some of them are now come on shore, in typhus.

About this time, an infectious fever prevailed on board the Hebe frigate, Captain Alexander Hood. She sent some cases to Haslar, with symptoms of uncommon malignity. This ship was always remarkably leaky in her upper works ; and the moisture between decks, in bad weather, did not fail to affect the people. Lieutenant Minto of the marines received this fever, from visiting some of the privates in the wards at Haslar. Mr. Leggat the surgeon, was timely aware of the infection ; but it was not subdued without spreading. The frigate had been long in commission, which is a circumstance always favourable to our means of preventing fever ; but the season of the year was unfavourable *.

March

* " In March 1794, the real febrile infection was introduced into the ship by some men we received from a ship from the coast of Guinea. A number of our men died of it, at

March 10. This day ten men in fever, came from the Valiant. Some have also come from the Cæsar and Leviathan, part of the London's crew.— Among these come from the Valiant, is a boy that had been some time on board. He attended the surgeon's mates in their mess, and was frequently sent on errands, by his masters, to the sick birth, where he received the infection.

March 16. In the course of the week fifty people have been sent from the Valiant.

March 18. Fives cases of typhus received from the Cæsar.

April 1. Cases of fever continue to be sent from the Valiant, Cæsar, and Leviathan.

About this time, the Africa, of sixty-four guns, Captain Home, arrived from Plymouth, and sent some bad cases of fever to Haslar *. I took the liberty, from being well known to Captain Home, of mentioning the circumstance, and he had no suspicion that a fever of this kind was on board: but it was easily traced to eleven men, who had been discharged from the Cambridge receiving-ship,

at the hospital. It was some time before we got rid of the infection, although we kept fires constantly between decks, and smoaked the ship frequently with tobacco, wet with vinegar, brimstone, &c.

(Signed)

JOHN LEGGAT, Surgeon,"

Hebe, Jan. 1795."

[* The Africa did not belong to the Channel Fleet.

ship, at Plymouth, before the *Africa* sailed. Captain Home gave orders, instantly, for every man with the slightest symptoms of fever, to be separated and sent on shore. The people who were not sufficiently stopped, received additional cloathing; and the strictest attention to cleaning both the persons and cloathing of every man, was immediately put into execution: all the bedding was spread out to air, and fires put in every place, wherever moisture or foul air could be generated.

One of the flag-officers then at Spithead, having heard my opinion of the *Africa's* situation, and putting no great confidence in it, was pleased to order two surgeons to report to him their ideas of the condition of that ship. These gentlemen inspected the ship, and also her people at the hospital; but were of opinion, that the fever was of little consequence: they also told the admiral, that the treatment of those at Haslar, was very improper, and could not fail to kill more than it would cure. It is to be remarked, that the first cases, which were by far the worst, were now convalescent under my prescriptions. I suspect, that what they meant by an improper method of cure, was my allowing to a few, three pints of port wine, in the twenty-four hours. This opinion gave me no uneasiness; it plainly evinced, that these gentlemen were equally confined in their information and experience on the subject of typhus.

Captain

Captain Home, who had more confidence in my statement of the case, did not mind any additional trouble on his part, when the health of his ship's-company was at stake. He persevered in his means of clearing and preventing contagion; and in the space of six weeks, after sending near a hundred men to the hospital, had the satisfaction to see his labours crowned with success. Mr. Cudlip the surgeon, from his active humanity in the duties of his station, during this state of the Africa, became a sufferer, and obliged to quit his ship when she sailed, with the squadron under Rear Admiral Murray, for Halifax.

On the beginning of April, or towards the end of March, a few bad cases of fever came from the Robust and Coloffus; both of which had arrived lately from the Mediterranean, in good health. No particulars came to me, on the manner of infection, but it did not extend far. Captain Jenkins was then commanding officer of the Coloffus, and paid singular attention to my directions: there was no surgeon present. These people having come from a warm climate, complained, with justice, of the hulk they lived in; which was left in a very wet and dirty condition by the ship's company that had occupied it before.

It is worth while to remark, that during my attendance at Haslar, and paying some attention to the progress of infection in the tainted ships,

I observed that it constantly varied, in clear and rainy weather. After a few days of wind and rain, the cases of fever were always increased in proportion. The fact would seem to be accounted for in this manner: during hard gales or heavy rain, the people, when confined below, must breathe a more impure atmosphere; which also may concentrate the contagious effluvia: and if employed and exposed to the cold and wet weather on deck, these will act as debilitating powers, and favour the action of contagion on the body. This observation was not new to me, I had seen it before on more occasions than one.

April 9. This day I received the appointment of Physician to his Majesty's Fleet, under the command of Admiral Richard Earl Howe; dated at the Admiralty-Office, April 3, 1794.

The Fleet, at this time, consisted of thirty-two sail of the line, eight frigates, a sloop, a fireship, one cutter, two luggers, with the Charon Hospital ship, in which I was ordered to embark. On the sixteenth, I had visited the ships, and reported their state, as annexed, to the Commander in Chief *.

* State

* State of HEALTH on board his Majesty's Ships under the Command of ADMIRAL EARL HOWE, at Spithead, April 16th 1794.

S H I P S.	Number on the Sick List.	Objects for an Hospital.	Prevailing Diseases.	Confined to bed.
Queen Charlotte - - -	14	—	Slight Fever.	
Royal Sovereign - - -	31	—	Ven ^l Compl ^{ts} .	
Royal George - - -	25	—	Ditto.	
Barfleur - - -	20	—	—	
Impregnable - - -	30	4	—	3
Queen - - -	18	—	—	3
Glory - - -	40	1	—	2
Bellerophon - - -	21	1	—	2
* Hector - - -	19	—	Catarrhs.	1
Montague - - -	50	—	Venereals.	
Tremendous - - -	25	2 Surgical Cases.	—	2
Gibraltar - - -	13	—	—	
Valiant - - -	20	6	Typhus.	6
Ramillies - - -	17	—	—	
Audacious - - -	12	—	—	1
Brunswick - - -	26	—	Venereals.	2
Cæsar - - -	32	5	—	5
Alfred - - -	at St. Helens.	—	—	
Defence - - -	32	—	—	
* Ganges - - -	40	—	Venereals.	2
Leviathan - - -	45	—	Ditto.	1
Majestic - - -	12	—	Catarrh.	5
* Bellona - - -	11	2	—	1
Invincible - - -	16	—	—	
* Arrogant - - -	46	—	{ Measles and Catarrh.	14
Orion - - -	22	—		
Ruffel - - -	7	—	—	
Marlborough - - -	5	—	—	
* Theseus - - -	15	—	—	
* Alexander - - -	33	—	—	
Thunderer - - -	28	—	—	3
Culloden - - -	at St. St. Helens.	—	—	
	725	21	—	53

FRIGATES.

Phæton - - -	
Latona - - -	
* Hebe - - -	
Venus - - -	
Niger - - -	
* Pallas - - -	
Southampton - - -	
Pegasus - - -	
Charon, H. S. - - -	
Circe - - -	
Aquilon - - -	
Comet, F. S. - - -	
* Orestes brig - - -	
1 Cutter, and - - -	
* 2 Luggers - - -	

No Sick on Board.

Those marked * left the Fleet before the glorious 1st of June.

T. TROTTER, M. D.
PHYSICIAN.

The weather at this time, was mild, as is usual in the month of April. The Valiant was still infested with the fever that was brought on board by the crew of the London; but the cases were becoming milder; in some, it put on an intermittent form, which showed, that it was now on the decline. In the Leviathan, it was now compleatly extinguished. This ship received the marines of the London. In the Cæsar, so late as the fifteenth, I found five or six of the London's people, confined to bed with fever; they were sent immediately to the hospital; and at this period, it might be said to stop *.

The

* "There is a diminution of the fever this month, nor are the symptoms so malignant: it is still, in a great measure, confined to the people we received from the London; there being but few exceptions to the contrary; I believe not more than three or four of our old ships company have been attacked with it; and one or two of the *Raisable's*. A draught of forty or fifty men, from that ship, were put on board of us the morning we left Spithead, to compleat our complement. *

Out of ten of our people, returned from *Haslar*, cured of the fever, four have relapsed; three of whom were again sent to the hospital, with every symptom greatly aggravated. Several have been cured on board, as we have not always had opportunities of sending them out of the ship. I have generally treated them in the following manner: I gave an emetic
of

* Mr. Seeds does not seem to have known, that a typhus fever had but lately prevailed in the *Raisable*.

The Arrogant, with a new-raised crew, had just come from the Nore. The decks and beams of this ship were remarkable for their moisture; which seemed to exhale from the timber. The purser, an intelligent man, had been ill from rheumatism, which he ascribed entirely to this cause; and had for some time observed the damp vapour, on his bed-cloaths, every morning like a heavy dew. It had also affected the ship's company; and a kind of irregular intermittent was prevalent among

of ipecac. when they first complained; after which, they took diaphoretics, combined with pectorals; and they were occasionally ordered a scruple or half a dram of one of the neutral salts, with a few grains of rhubarb, as throughout the disease they complained of being constipated.—I found they could not bear evacuations, except of the most gentle kind; even emetic tartar, in the smallest dose as an emetic, ruffled them exceedingly. I continued the diaphoretics and pectorals, till the tightness across the breast, pleuretic stitches, and difficulty of breathing, were in a great measure removed; at this time the pulse became softer, and an expectoration was produced. Blisters, I found serviceable in relieving the rheumatic pains and stitches. The cure was then completed by tonics and opium. I have given in this stage of the complaint, brandy and water, as a substitute for wine: wine not being at present allowed to the sick*.

Cammomile tea, joined with the bark, I am inclined to think, answers better than bark alone, in this fever."

Cæsar.

Mr. SEED's Report for April, 1796.

* The Commander in Chief, about this time, had ordered the surgeons to demand wine from the pursers, when wanted.

T. T.

among the landmen on board. This uncommon dampness of the Arrogant's timbers, was probably very much owing to the spot where she lay in ordinary, which was furrounded with swamps. But, whether it was owing to this cause, or the ship being composed of green wood, it was an unpardonable omission, somewhere, to report her fit for commission before she had been fired, for a length of time sufficient to destroy the moisture. The measles also prevailed in the Arrogant, at this visit ; but were mild, and soon disappeared.

When consulted by the Admiral, on the propriety of taking the Valiant to sea, I gave it as my opinion, that in the present declining state of the contagion, she was fit for service. I added, that the fine weather, which we had a right to expect from the season of the year, and the employment and activity which the duty of the ship would give the people, would all tend to accelerate the extinction of the remaining contagion. I knew, besides, that much was to be trusted to the method in which Captain Pringle was accustomed to discipline his people, and the unwearied attention and ability of Mr. M'Callum, the surgeon. The Valiant, therefore, sailed with us. Some relapses of men that had been sent from the hospital, happened at this time. It was imputed to the spare diet which they had lived upon in a state of convalescence.

May

May 1. The Valiant has had no fresh attacks for three days ; four are now confined to bed, and these but slight cases.—The whole of the fleet may now be said to be in perfect health.

2. The fleet got under weigh, with a strong breeze at N. E.

4. The convoy, with the men of war under Rear-Admiral Montague, were ordered to separate.

13. This day one man in small-pox, and another in measles, both in a state of eruption, were sent on board the Charon from the Gibraltar. These diseases did not extend to any other person.—Six seamen, and the gunner's child, were inoculated, in consequence, on board the hospital ship ; all of whom had the disease in the mildest degree.

17. The fever list of the Valiant is at present ten ; but so gentle are the complaints, that none are confined to bed. One man died since leaving port : he was a landman, and came on board only the evening before the fleet sailed *.

* "State of HEALTH, on board his Majesty's Ship Valiant, from the 1st of May to the 1st of June, 1794.

DISEASES.	Since last Report,				Present Sick List.
	Taken ill.	Sent to the Hospital	Recovered.	Dead.	
Fever - - -	47	—	41	2	4
Flux.					
Catarrhal Complaints	12	—	9	—	3
Rheumatism -	4	—	3	—	1
Scurvy.					
Venereal Complaints	18	—	13	—	5
Ulcers - - -	10	—	7	—	3
Bruises, &c. -	6	—	4	—	2
Total - - -	97	—	77	2	18

REMARKS.

The fever that has for some time past prevailed among our people, has of late been diminished, and seems now nearly worn out. Those cases of it which have occurred latterly, have been slight, with a very general intermittent tendency. Ever since its first appearance, few other complaints, comparatively, have occurred; and these few have been of the catarrhal kind; in some degree combined with the fever; in general, however, easily cured, but equally infectious with the fever in its more distinct form.—We have had no appearance of scurvy, although some of our men had lately before we sailed, come off a long cruize, during which they had been afflicted with it. This, I hope, is owing to the very judicious supply of lemon juice and sugar.

June 1st, 1794.

(Signed) GEORGE M'CALLUM, Surgeon."

19. This day Earl Howe received intelligence that the French fleet was at sea; when the signal was made for the ships to prepare for action.

Our course was therefore shaped for the enemy's fleet, which was cruising, to protect their homeward-bound American convoy, a long way to the westward. During this pursuit, a number of vessels belonging to our Lisbon and Newfoundland trade were retaken, with two courvettes and a cutter; all of whom were immediately set on fire, and the people taken out.

27. Two French prisoners, in fever, were sent to the Charon from the Thunderer. One of them died next day.—The infection did not extend to any of the Thunderer's people: they came from a courvette, which was bearing dispatches to the French admiral*.

28. The enemy's fleet were seen to windward.

JUNE 1. The detail of this glorious battle, so honourable to the British navy, will fall to the share of some more able historian. We were left in possession of seven sail of the enemy's line, one of whom, the Vengeur, sunk the same evening.

FRENCH SHIPS TAKEN.

			<i>killed.</i>	<i>wounded.</i>
Le Sans Pareil	-	80	— 260	— 120
Le Juste	- - -	80	— 100	— 145
L' America	- - -	74	— 134	— 110
L' Achille	- - -	74	— 36	— 30
Le Northumberland	..	74	— 60	— 100
L' Impetueux	- - -	74	— 100	— 75
			690	580
Le Vengeur	- - -	-	320	sunk in her.

* Dr. Blair, in his letter of this date, mentions his opinion of

RETURN of the Killed and Wounded on board his Majesty's Ships, in the Actions with the French Fleet, on the 29th and 30th of May, and of the 1st of June, 1794.

SHIPS.	KILLED.		WOUNDED.		TOTAL.
	Seamen.	Marines.	Seamen.	Marines.	
Cæsar - -	18	0	37	0	55
Bellerophon - -	3	1	26	1	31
Leviathan - -	10	0	32	1	43
Sovereign - -	11	3	39	5	58
Marlborough - -	24	5	76	14	119
Defence - -	14	4	29	10	57
Impregnable - -	7	0	24	0	31
Tremendous - -	2	1	6	2	11
Barfleur - -	8	1	22	3	34
Culloden - -	2	0	5	0	7
Invincible - -	9	5	21	10	45
Gibraltar - -	1	1	12	0	14
Queen Charlotte	13	1	24	5	43
Brunswick - -	32	12	94	20	158
Valiant - -	1	1	5	4	11
Queen - -	30	6	57	10	103
Orion - -	5	0	20	4	29
Ramillies - -	2	0	7	0	9
Alfred - -	0	0	6	2	8
Russel - -	7	1	24	2	34
Royal George	18	2	63	9	92
Montagu - -	4	0	13	0	17
Majestic - -	3	0	4	1	8
Glory - -	13	0	31	8	52
Thunderer - -	0	0	0	0	0
Andacious - -	4	0	18	0	22
Phæton frigate	3	0	4	0	7
Total	224	34	699	109	1,098

Names

of these cases; and his reasons for a speedy removal to the hospital, to secure their own people from the contagion.

Names of OFFICERS Killed and Wounded.

K I L L E D.		
<i><u>Ships.</u></i>	<i><u>Officers.</u></i>	<i><u>Qualities.</u></i>
Royal Sovereign -	Mr. W. Ivey - -	Midshipman.
Marlborough - -	Abm. Nelson - -	Do.
Defence - - -	Wm. Webster	Master.
	John Fitzpatrick	Boatswain.
Impregnable - -	David Caird - -	Master.
Tremendous - -	Francis Rofs - -	First Lieut.
Queen Charlotte -	R. Rawlence - -	Seventh do.
	John Neville - -	Lieut. Queen's Reg.
Queen - - - -	W. Mitchell - -	Master.
Royal George - -	G. Heigham - -	Eight Lieut.
	John Hughes - -	Midshipman.
Montagu - - -	James Montagu, Esq.	Captain.
Glory - - - -	Mr. Geo. Metcalfe	Master.
	David Grieg - -	Midshipman.
Brunswick - - -	Alex. Saunders	Capt. 29th Regt.
	Thomas Dalton	Master's Mate.
	James Lucas - -	Midshipman.

WOUNDED, and unable to come to Quarters.

Bellerophon - -	T. Pasley, Esq. - -	R. Adm. of the White.
	— Smith, Esq. - -	Capt. Marines.
	Mr. Chapman - -	Boatswain.
Leviathan - - -	Glen - - -	Midshipman.
Royal Sovereign -	T. Greaves, Esq. - -	Adm. of the Blue.
	Mr. C. Money - -	Capt. Marines.
	S. Mitchel - -	Lieut. do.
Marlborough - -	Hon. G. Berkeley - -	Captain.
	Mr. A. Ruddock - -	Second Lieut.
	M. Seymour - -	Fifth Lieut.
	Fitzgerald - -	Midshipman.

WOUNDED,

WOUNDED, and unable to come to Quarters, *continued.*

<u><i>Ships.</i></u>	<u><i>Officers.</i></u>	<u><i>Qualities.</i></u>
Marlborough <i>continued</i>	Mr. Shoreland - -	Do.
	Linthorne - -	Do.
	Hon. M. Clarges * -	Do.
	Mr. M. Pardoe - -	Master's Mate.
Defence - - -	Mr. J. Elliot - -	Do.
	Boycolt - -	Ensign Queen's Reg.
Impregnable - -	W. Buller * - -	Lieutenant.
	Patterlo - -	Boatwain.
Barfleur - - - -	G. Bowyer, Esq.	R. Adm. of the White.
	Mr. W. Prowse - -	Sixth Lieut.
	Fogo - - -	Midshipman.
	Clemons - -	Do.
Queen Charlotte † -	J. Holland - -	Do.
Queen - - - -	J. Hutt, Esq. * - -	Captain.
	Mr. Dawes * - -	Second Lieut.
	Lawrie - -	Sixth do.
	G. Aimes - -	Acting do.
	Kinneer - -	Midshipman.
Ruffel - - - -	Stewart - -	Do.
	Kelly - - -	Do.
	Douglas - -	Boatwain.
Royal George - -	J. Ireland * - -	Second Lieut.
	J. Balmborough	Master.
	Boys - - -	Midshipman.
	Pearce - - -	Do.
Montagu - - - -	Hon. Mr. Bennet -	Do.
	Mr. J. Moore - -	Do.
Brunswick - - -	J. Harvey, Esq. * -	Captain.
	Mr. R. Bevan - -	Lieut.
	Hurdis - -	Midshipman.
	Harc. Vernon -	Ensign 29th Reg.
Culloden - - - -	Triff. Whitter -	Third Lieut.
Invincible - - -	W. Whithurst -	Midshipman.

Those marked * died of their wounds afterwards.

† Captain Sir A. S. Douglas was wounded on the forehead, but returned to the deck after being dressed by the surgeon: a small exfoliation of the frontal bone was the consequence.

SURGEONS of the Fleet on the 1st of June.

Queen Charlotte	- - - -	Mr. Wm. Murray.
Royal Sovereign	- - - -	Dr. Alexander Young.
Royal George	- - - -	Mr. Richard Shepherd.
Barfleur	- - - -	John Heath.
Impregnable	- - - -	Wm. Wallis.
Queen	- - - -	Alexander Browne.
Bellerophon	- - - -	Thomas Fargher.
Tremendous	- - - -	Alexander Dods.
Gibraltar	- - - -	Dr. George Smyth.
Valiant	- - - -	Mr. George M'Callum.
Ramillies	- - - -	John Plumptre.
Brunswick	- - - -	Robert Forrest.
Audacious	- - - -	Robert Mellville.
Alfred	- - - -	John Birtwhistle.
Defence	- - - -	Dr. James Malcolm.
Leviathan	- - - -	Mr. Charles Boveard.
Cæsar	- - - -	Thomas Seeds.
Invincible	- - - -	Thomas Kenning.
Orion	- - - -	William Pattison.
Ruffel	- - - -	Joseph Stephenfon.
Montagu	- - - -	Samuel M'Clure.
Majestic	- - - -	Leonard Gillespie.
Marlborough	- - - -	Thomas Romney.
Glory	- - - -	Peter Smith.
Culloden	- - - -	Robert Ramsay.
Thunderer	- - - -	Dr. Primrose Blair.
Phæton	- - - -	Mr. Andrew Baird.
Latona	- - - -	James Turkington.
Niger	- - - -	Robert Kirkwood.
Southampton	- - - -	George Michie.
Venus	- - - -	John Buchan.
Aquilon	- - - -	Robert Harris.
Pegasus	- - - -	William Fuller.
Charon, H. S.	- - - -	William J. Warner.
Comet, F. S.	- - - -	Robert Caruthers.
Incendiary, F. S.	- - - -	
King's Fisher, S.	- - - -	
Rattler and Ranger cutters	-	

June 8th. The Admiral having been informed that the French prizes were sickly, ordered me to visit them as soon as the situation of the Fleet would permit.

The number of killed and wounded in these ships was very great. The account, as given above, was what I obtained from the French surgeons, and reported it to the commander in chief. They were also sickly; and, from being dirty to an extreme degree, a contagious fever had carried off many. The *Sans Pareil* had particularly suffered. This ship sailed from Brest, in a squadron, six weeks ago, with a complement of a thousand men on board: many perished in the early part of the cruize, and a hundred ill of the fever were sent into a *courvette*, whose guns were taken out, for the better accommodation of the sick to be carried to port. It was told me, that the lower deck ports had never been opened from leaving the harbour till the day of action. The deaths in consequence were very great; but we could not come at the exact number. Lieutenant Jacob, of the *Majestic*, had the command at this time, whom I cautioned about the nature of the fever, that his people might be kept as much as possible from the infected. This worthy man fell a victim to his humanity, with two midshipmen.* They

* What a pity, that men endued with such noble feelings did not live to share that reward, by promotion, which this nice discharge of an officer's duty would have so justly conferred upon them!

superintended some of the French prisoners in cleaning the lower deck, where the sick and wounded lay; and there they received the fever, of which they died at Haslar Hospital. Captain Trowbridge, who had been taken by this squadron, in the *Castor*, with part of his company, were on board the *Sans Pareil*. I examined some of the *Castor's* men, who were infected: Captain Trowbridge was administering to them himself, with great concern for their fate, and attended me to their hammocks.

The Northumberland was the next in point of sickness; but the others were more or less infected with the typhus fever.* The whole were well supplied with medicines, surgeons, and assistants. The necessaries carried to sea for the use of the sick, consisted of many articles of comfort unknown in our navy: they had even live stock † on board for this purpose; which, when bestowed on our sick, must come from the tables of their officers.

June 9th. Nothing remarkable in the state of the weather happened during this memorable cruise.

A prisoner in the small-pox was this day sent to the hospital ship from the *Valiant*, as soon as discovered. No infection followed in the *Valiant*.

13th. This day we arrived at Spithead with our prizes; part of the Fleet, under Admirals Greaves

* The *Vengeur*, which sunk soon after the action, was also infested with a contagious fever.

† Sheep, goats, and poultry.

and Caldwell, having gone into Plymouth. The wounded men were landed immediately.

It deserves to be recorded to the immortal honour of the officers in this Fleet, that the stock of their messes, consisting of sheep and poultry, with all the delicacies which their tables afforded, was cheerfully resigned for the support and comfort of the wounded. But their goodness did not stop here; they learned that the diet of the hospital was deficient in some articles which a wounded sailor could wish for; and sums of money were sent to procure them. My heart warms with indescribable emotions, while I relate a fact that deserves to be recorded with the pen of an angel!*

Towards the end of June the weather became extremely hot, and the thermometer rose to 80 of Fahrenheit in the shade.

A few days after the arrival of the Fleet at Spithead, Mr. Mackie, Surgeon of the Southampton, informed me that a fever of a contagious nature

* While the officers were extending their bounty to the wounded seamen, reciprocal feelings, like an electrical shock, pervaded every corner of the country. A subscription was begun at Lloyd's coffee-house, by some public spirited Merchants, which was quickly imitated by all the great towns in England and Scotland, and soon filled, to the amount of *between twenty and thirty thousand pounds!* The Theatre Royal, Drury Lane, where the company performed *gratis*, is said to have contributed 1,800l.

The wounded officers and seamen, marines and soldiers, received large donations: and a vast sum was *funded* for the support of widows and orphans, under the benevolent direction of Mr. Devaynes and others.—Such are the blessed effects of a naval triumph!

nature seemed to spread among his people; and he suspected that it was communicated by their intercourse with the French prisoners. This gentleman being perfectly aware of the danger, had conducted himself with singular address and ability: the infected were carefully separated from others as soon as the slightest symptoms of fever appeared, and on the arrival in port they were sent to the hospital. By these timely precautions not more than fifty were infected; the latter cases were trifling compared with the first, of whom one or two died. Thus the Southampton may be said to be the first ship cleared while at Spit-head.

Being fully sensible of the danger to which the greatest part of our ships had been exposed, from a general contagion, I did not wait for reports coming to me from the surgeons on the progress of the infection; but made it my business to see the whole. In the *Majestic* and *Ramillies*, particularly, some bad cases appeared, with every symptom of malignity; also in the *Barfleur*, *Cæsar*, *Valiant*, *Bellerophon*, *Alfred*, and *Invincible*. I have formerly mentioned, that the *Majestic* had taken possession of the *Sans Pareil*, and that the communication between them rendered her crew more liable to the fever.

In the beginning of July the weather continued still sultry to an uncommon degree.

Another frigate, the *Circe*, had been very early infected at sea, by means of some of the prisoners

taken out of the courvette, before the action on the 1st of June; but in this ship it made but little progress: Mr. Dunn's report only mentions twelve; and these are not said to have been attended with much danger. From the nature of the fever being quickly detected, the *Circe's* people were soon secured against its future attacks.*

The infected ships, during the month of July, were employed in the means of stopping the contagion. Those officers who had confidence in fumigation, performed it every morning: the decks were kept clean, and the whole inside white-washed: constant attention was paid to the cleanliness of the people's cloaths, and the bedding was spread abroad every day to air. The seamen were ordered to keep themselves clean in their persons,

* "During the early part of the cruise there were few complaints of a serious nature. Several prisoners from a French courvette, and other prizes, were sent on board the *Circe*; two of which were soon attacked with symptoms indicating an alarming fever. Some of our best men became daily affected in a similar manner; want of appetite, nausea, a foul tongue, some degree of tension of the skin, with costiveness, were the most observable appearances. Emetics were administered early in these cases, and blood-letting avoided where there were no violent symptoms of inflammation. Purgatives were necessary to clear the intestines, and relaxation of the surface was kept up by antimonials, sometimes combined with opiates. Three or four days illness was sure to induce great debility. A free use of wine was highly relished by them all; and they soon gained their usual strength.

(Signed)

Circe, June 1794.

ROBERT DUNN, Surgeon."

persons, and to shift more frequently. Fires were kindled in pots in the hold, well, and bread-room; stoves in the orlop, cabletiers, and fore and after cockpits. Care was taken that the circulation of air through the wings should not be interrupted; and, besides the common windsails, two stunsails were fitted for the fore and main hatchway, so that every corner below was pure and compleatly perfused by the air; some of these sails were kept trimmed during the night, so as to counteract the effects of the heat when the ports were down. A quantity of vinegar in an iron pot was frequently, in the course of the day, converted into vapor, by plunging a red hot loggerhead into it, or sprinkled over the decks. Such were the method which our officers persisted in; besides, the cables, sails, cordage, with all kinds of stores, were brought upon deck during the day, and the store-rooms, in the mean time, were ventilated and white-washed, so that not a particle of impure air could lodge any where. The immediate separation of the infected was, however, what I most depended upon; and not even the slightest cases were allowed to remain in the ship. The surgeons were directed to order their mates to walk frequently round the deck; and to watch those men who, while sitting in their berths, appeared dejected or solitary. This was always my own practice in an infected ship; because seamen will sometimes withhold their

complaints for a day or two, under the idea that an incipient fever is only a common cold *.

Some officers, not without reason, were extremely alarmed at this general infection in the Fleet; and they apprehended accumulated danger from the very sultry weather. The state of the weather was, however, with me, a cause of consolation: and a few who watched my opinion on the subject, with some suspicion, did not fail to confess, in a very short time, that their apprehensions were removed.

The Valiant had been for some weeks clear of her former infection, when this fever made its appearance. It fell, however, into proper hands. Mr. M'Callum detected the first symptoms of it among the marines, who had been centinels over the prisoners under the half deck: other surgeons, with equal accuracy, discovered it first among the quarter-masters, or those who slept near the edge of the hatchways that led to the hold where the French were confined.

The Queen Charlotte was saved from this fever, by sending all her prisoners with the least symptom
of

* I have mentioned *white-washing*, among our preventive means: it is, I believe, a general practice, and supposed to be useful by attracting *carbonic acid gas*, from the atmosphere. In our *hygeine*, we, however, employ it as a part of cleanliness, and as giving to the decks a cheerful pleasant appearance: it will, in this manner, inspire agreeable sensations from light and delicacy, and may have its share in the scale of general stimulants, to fortify the body against debilitating powers.

of indisposition, to the number of seventeen, on board the *Charon*, at sea. One of these patients died next morning, with every symptom of malignity. How far every ship might have availed themselves of this salutary precaution, I cannot pretend to say; but it ought to be attended to in future; and an hospital ship provided, sufficiently large to accommodate the sick of a large Fleet, on similar emergencies.

The *Royal George* did not seem to suffer much from the infection. Mr. Shepherd, in his report for August, mentions thirty-three fevers, only ten of whom were sent to the hospital; they assumed a bilious remittent form, probably partaking of that type from the season.*

In the *Ruffel* also, in the month of August Report, Mr. Stephenson mentions a slight fever, that had not been known during the preceding month. Now, this ship and the *Royal George*,
were

* "During this month we have had more fevers than at any former period; mostly of the bilious remittent kind; which, in general, terminated favourably, by clearing the stomach and bowels of their crude and acrid contents, which produced a remission; when the bark, wine, and a restorative regimen, completed the cure.

The cases (10) sent to the hospitals were inclined to degenerate into the low ship fever.

(Signed)

Royal George, Aug. 1794. RICHARD SHEPHERD, Surgeon."

were probably infected, by one of our own ships, during the frequent communication, while in harbour.*

While we were employed in clearing the Channel Fleet of this fever, a vast mortality is said to have prevailed among the French prisoners, in the neighbourhood of Portsmouth and Plymouth. Not only the nurses and attendants on the prisoners, at Forton and Hilsea, but even the Middlesex Militia, who did the duty of guard over them, were affected; some of whom died. I have not been able to learn, what means were practised to check the ravages of this fatal distemper, among those men whom the fortune of war put into our hands. There was employment enough for me at Spithead; but I have been told, that three hundred and thirty-eight Frenchmen died at Forton alone, in less than four months.

From the arrival of the fleet, on the 11th of June, to the final extirpation of this fever, 800 cases were sent to Haslar Hospital, of whom forty died, which is one in twenty. This mortality was, in every ship's crew, confined to the earliest stage of infection: out of one hundred and forty-six, sent by the *Barfleur*, seven died the first fortnight: the last hundred sent, were slight, and soon recovered. A few were sent from the ships
of

* "The fever appeared of the slightest kind; but the ship being fitting for sea, they were sent to the hospital as soon as the symptoms appeared.

(Signed)

Russel, Aug. 31, 1794.

J. STEPHENSON, Surgeon.'

of the fleet at Plymouth, to that hospital, but I have not obtained the return. We suspect that a winter contagion would have produced a very different degree of mortality from what we see here; and also a more permanent disease.

Towards the end of July, our endeavours had been so far successful, that I did not hesitate to pronounce the tainted ships fit for sea. What cases appeared at this time, were either with distinct remissions, or the symptoms so moderate, as to yield to trifling remedies. In the *Glory* it was protracted from particular causes *. Sir G. K. Elphinstone hoisted his flag on board the *Barfleur*, and a draught of a hundred men was sent from one ship to the other. The brave crews of both ships thus parted with their officers, and with one another. Never did poet or painter delineate the pangs of separation in a more affecting manner, than was exhibited in this exchange of ships. There was a fault in not moving the whole. Of the hundred men to be sent from the *Barfleur*, to replace those of the *Glory*, were some ill of the fever, or convalescent at Haslar. The depression of spirits, on being told that they were to go to another ship, occasioned immediate relapses in some, while others, for a time, seemed to sink under it. A degree of contagion was, however,

* The *Glory* was fitted for the flag of Sir G. K. Elphinstone before the cruize, but this officer did not join the fleet at that time.

carried to the Glory, by this means: but never did the attachment of a British sailor to his ship-mate and officers, appear under more heroic tokens of friendship! It was truly worthy of the 1st of June! *

IT

* EXTRACTS OF REMARKS FROM SURGEON'S REPORTS.

" There was nothing particular appeared in the fever of this month, until the twenty-third; when we received some men belonging to the *Alfred*, who had been some time on board the *Juste* French prize, with a few belonging to our ship. Three of the *Alfred*'s men were taken ill the day after they came on board, and two of ours. It was evening when they complained: they each had an emetic, and next morning were sent to the hospital. The symptoms were chiefly great debility, with pain in the back, and redness of the eyes, with a wildness in their looks, and tremor of the tongue, &c.

(Signed)

Invincible, June 1794.

T. KENNING, Surgeon."

" Five cases of typhus have occurred during this month: in my opinion, they were caused from contagion, in consequence of having on board a number of French prisoners. They were sent to the hospital.

(Signed)

Glory, June 1794.

P. SMITH, Surgeon."

N. B. During the greater part of the time that the fever prevailed in the *Barfleur*, Mr. Heath, the Surgeon, was on shore, attending Admiral Boyer, who had lost a leg in the action; consequently no reports were sent to me. This ship sent more men to the hospital than any other. T. T.

" The

It having appeared to me, during the late operations of the fleet at sea, that the diet of the hospital ship was extremely deficient, in articles of

“ The Alfred had been remarkably healthy, previous to the French prisoners being sent on board; the fever was imported by them. Every means have been used to stop its progress; in which we have now, in a great measure, succeeded.

(Signed)

Alfred, July 1794.

JOHN BIRTWHISTLE, Surgeon.”

“ The fever has, for the last three or four days, appeared to abate, in the frequency of cases; and the symptoms have become more mild.

(Signed)

Ramillies, July 20th, 1794.

JOHN PLUMPTON, Surgeon.”

“ Towards the latter end of this month, the attack of the fever became less violent, and generally seized those men that had been on shore for some days: * but from a suspicion that the contagion was not entirely gone, I sent them to the hospital shortly after they complained.

(Signed)

Invincible, July 1794.

T. KENNING, Surgeon.”

* Mr. Kenning, with great discernment, alludes here to the excesses, which seamen are apt to commit when on shore. When there is infection in a ship, officers ought carefully to prevent intoxication, and to keep their men constantly under their eye. For this reason, no person should be suffered to go on shore; besides the hazard of carrying the disease to other ships.—Vide Mr. M’Callum’s Remarks, under the chap. Typhus. T. T.

of comfort for the sick, which induced me to apply for some addition; the Lords of the Admiralty were pleased to comply with my application. We were now enabled to carry with us
stock

"The fever which has for some time past been predominant, appears at this time to have nearly subsided. The symptoms in those at present attacked, are not near so violent as formerly, when it appeared under a very malignant form. The debility was also great on former attacks: the eyes were much flushed, the tongue black and crusty, with thirst, and in some cases with immediate delirium: the pulse in general was quick and feeble. The fever was also remarkable, by being attended with sore throat, * and considerable pain in the shin bones. No such symptoms at present appear. Every attention is paid to cleaning and airing the ship.

(Signed)

Bellerophon, June 1794.

J. B. HOUSEAL, Surgeon."

* *Quere!* Might not this unusual complaint of the throat, be the globus hystericus; a symptom which I have myself, very frequently observed in the incipient stage of typhus?

T. T.

"The Majesty's ship's company were tolerably healthy from the time of the Fleet leaving port, the 27th of April, until ten days after the action of the 1st of June, as the Sick List never exceeded in number thirty-five, during that period; and as there were seldom more than two or three sick confined to their hammocks at that time. A catarrhal fever, whose type was remittent, and character benign, was the epidemic. It seldom continued longer than three days, going off by sweat, or expectoration: in some the parotids
were

stock and vegetables, fruit, pickles, eggs, porter, &c. and to purchase milk, when in port.

August 16. This day I visited a squadron of Portuguese ships, consisting of five sail of the line, a frigate,

were considerably swelled; in others, the fauces were inflamed. In the scorbutic and pulmonic, it occasioned a troublesome cough and expectoration, which continued for some weeks, and which required blisters, expectorants, and in some, bark and opiates.

On the memorable 18 of June, we had not a man from his quarters, on account of sickness; but on that and the following days, having received upwards of two hundred French prisoners from the Sans Pareil, most of whom were highly scorbutic, and many of them had been attacked by an infectious fever, epidemic, on board that ship, for several weeks: a very great alteration soon took place in the health of our ship's company.

The causes of sickness among the people of the Sans Pareil, as supposed by the surgeon and officers, were attributed,

1st. To the ship's company being mostly composed of land-men, who neglected to keep themselves clean:

2dly, The vapor of bilge-water; the cocks for watering the well in French ships, being now suppressed:

3dly, Humidity of the ship: being newly constructed, and no means being used to obviate the ill consequences of humidity below, by means of fires, wind-fails, &c.

4thly, To the intemperature of the weather, which, during a two months cruize to the westward, they had experienced to be unsettled, dark, foggy, and humid.

a frigate, and two brigs, under the command of Rear-admiral De Valle, who were come to join the channel fleet. It did not appear to me, on walking round the different decks of these ships, that

The French prisoners confined in the hold, in calm, sultry, foggy weather, were soon attacked with fever, in considerable numbers. The origin of it, the subjects it attacked, the extreme debility, despondency, universal lassitude and pains, dejection of countenance, factor of the breath, irregularity of type, and the eruption of petechiæ, or marbled appearance on the skin, all shewed the malignant nature of the disease: which, with Sauvages, may be termed, *febris nautica*: with Huxham and others, *febris putrida, maligna, petechialis*: with Burserius de Kanefeld, (*Institutiones Medicinæ Practicæ*) who, in opposition to most of our English authors, and I think with justice, looks on it as an exanthematous fever, *sui generis; morbus petechialis*: and to which opinion the people accede, terming it the *purple fever*. *

The infected prisoners were removed, as soon as possible, on board the *Sans Pareil*, where they died in great numbers. About the 10th (of June) the disease began to make its appearance among the Majestic's ship's company: the approach of the *solstice*, and the *canicula*, seemed to have considerable influence on the spreading of the complaint; as, notwithstanding

* These spots are not cutaneous eruptions, they are not to be felt on sliding your finger over the surface; they are not a disease of the skin, but small effusions of venous blood, in the cellular texture, which are seen through the integuments: when a number of them run together like stripes, we call them *ribices*. Dr. Darwin says they are owing, as in scurvy, to diminished venous absorption. *Zoonomia*. T. T.

that they had many sick on board ; but in all of them I could perceive people loitering about in a state that did not indicate perfect health. None of them were confined to bed, yet there were
evidently

standing 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 within the last four days.

With regard to the treatment of this disease, in such patients as were kept on board ; bleeding was not indicated in any I have seen. A gentle emetic of ipecacuanha, or infusion of chamomile flowers, given in the beginning, had good effects, and followed by a sudorific opiate, as theriaca, at night, and wine and bark the succeeding days, appeared to check the progress of the complaint in its origin.

Keeping the belly open, by injections and tamarind decoction, seemed to answer very well. Neutral salts, as nitre joined with camphor, seemed to have salutary effects. Blisters, in the advanced stage of the complaint, when the head and breast were much affected, had evidently the best effects.—When the degree of fever was not high, and distinct remissions took place ; when the determination to the head and breast was not great, the tongue moist, and the belly not constipated, the bark, though it did not always arrest the fever in its course, was attended with good effects, by supporting the strength of the patient, and obviating a tendency to putrefaction : the same may be said of wine, prudently administered. Opium and antimony, except when used as a diaphoretic in the beginning, as is mentioned above, appeared to me to be attended with disadvantageous effects : the first occasioning, or increasing delirium, coma, extreme debility, constipation, &c. ;
and

evidently among their complaints, the milder degree of ship-fever. When I considered the nature of the climate to which these people were accustomed, and the change which they must soon experience,

and the latter debilitating the patient very much, bringing on diarrhœa, suppression of expectoration, constant nausea, &c.

The eruption of petechiæ, or marbled appearance on the skin, preceded by pain of the back and loins, oppression at the præcordia, sighings, pain and heaviness of the limbs, and irregular weak quick pulse, generally showed itself from the 4th to the 7th day.—The disease generally went off about the 14th or 17th day, most commonly by perspiration; whilst the appearance of *concoction* took place in all the excretions.

A copious expectoration proved *critical* to some of those who had been affected with pulmonic complaints: a diarrhœa appeared to be *critical* with others; but, in general, it was symptomatic, and attended with danger.

(Signed)

Majestic, July 20, 1794. LEONARD GILLESPIE, Surgeon."

"It will appear, by comparing the present month's statement of health with the preceding, that the infection, which was at that time prevalent, appears now to be totally obliterated; only eight being sent to the hospital this month, and these but little indisposed.

(Signed)

Bellerophon, July 1794. J. B. HOUSEAL, Surgeon."

"On my joining the *Glory*, I was informed by my predecessor, that she had been always very healthy; and, particularly,

rience, towards the fall of the year, in our channel service, I could not help telling Sir Roger Curtis, Captain of the fleet, that the first gale of wind, and wet weather, in the sailor's phrase, would *knock* the whole of them up.

August

larly, that she had escaped a fever, with which many of the ships had been infected, after returning from the late cruize. However, as she had received a number of men from a ship much afflicted with fever, there was every reason to expect, that she might soon become tainted with a similar disease. This, in fact, happened; and it has continued ever since. Although none have died on board, or at the hospital, as far as I have learned, it has nevertheless been very distressing, and continues to rage, notwithstanding the greatest attention to get it under. When it had the appearance of getting better, I imagine it gained fresh vigour, either from a man returned from the hospital with a high degree of fever upon him; or, from the apparel of the men brought out of the filthy bed-house at Haslar, which, I believe, has been often the source of contagion.*

(Signed)

Glory, August 1794.

GEORGE M'CALLUM, Surgeon."

* My benevolent friend had been five months in infected ships; and hence his cause of complaint. A governor, with three lieutenants, being now in that hospital, on a liberal allowance from government, it may be expected, that the cloaths and bedding will not only be frequently taken out of the house and aired, but that every species of apparel will be returned to the ships, with the men, all pure and well washed, as they ought to be. T. T.

August 22. This day the whole of the fleet dropped down to St. Helen's, consisting of thirty-four sail of the line, besides frigates.

While the fleet lay at St. Helen's, there were some cases of fever sent from the Royal Sovereign and Orion, to the hospital-ship. These ships had refitted at Plymouth, after the action of the 1st of June, and had been but a short time at Spithead. A seaman belonging to the Orion died. The whole of our patients were sent on shore, in order to keep the hospital clear for sea-service.

September 3. The fleet sailed with the wind at N. N. E. September 5th, fell in with the homeward-bound East India convoy, on a different tack, in the night. From the darkness of the night, some of our ships run foul of the Indiamen, one of whom was dismasted: this obliged the Admiral to bear up for Torbay.

September 7. The fleet sailed from Torbay.

From the 18th of September to the 22d, we experienced severe gales of wind from the westward. Many of our ships suffered; but the Portuguese squadron was in extreme distress, some of the ships having lost foremast and bowsprit. This induced the Admiral to return to Torbay.

September 23. This day I visited the ships of the Portuguese squadron, by Earl Howe's order,
and

and reported their situation to him in the evening. The purport of my report was nearly as follows: "They are all sickly, and a contagious fever is prevailing among them. Since the bad weather at sea, they have rapidly increased in the number of their sick."—There is so great a contrast between the appearance of one of these ships, and an English man of war, that to go from the one to the other, was like coming from a sepulchre to a banquet. Not only the men, but even the officers themselves, are accustomed to lie down in bed with their clothes on: the beds of the people are spread along the deck, and not slung in a hammock, as with us. At the time of my visit, much trouble seemed to have been taken to give their sick an appearance of delicacy, for they were all laid on new beds, with clean shirts on. But I well knew, that under such circumstances, and nasty habits, as laying upon deck, neither health or cleanliness could be preserved. Contagion must therefore spread among them, with uncommon rapidity. In a future part of this work, I shall mark some peculiarities of constitution, in the inhabitants of warm countries, that seem to favour the action of typhous infection, when they come to a northern latitude. On this account I hinted to the Admiral, that it would expedite the recovery of the squadron, to return immediately to their own country: but this was impracticable

at

at the time, from their disabled state. The *Gama*, the flag-ship, had one hundred and twenty fevers in her list; none had yet died, but there were many dangerously ill.

In the *Reine de Portugal*, commanded by the Marquis de Niza, an accomplished young nobleman, five had died. The list was increasing fast. I had opportunities of seeing some, with the first rigours upon them, attended with great apprehensions for their safety, and an extreme dejection of spirits. The other ships were more or less in the same situation. This squadron was ordered to Plymouth to refit, and purify themselves from a general infection.

It is worth while to remark, that this fever exactly corresponded with one which infested a squadron of her faithful Majesty's ships, which came to Spithead the preceding year; many of whom were sent to Haslar Hospital. *

September

Charon, September 23, 1796.

* " S I R,

In my report to Admiral Earl Howe, concerning the sickness prevailing in the squadron of her faithful Majesty's ships under your command, in Torbay, I have had occasion to state, that the fever is of a contagious nature, and likely to gain ground as the cold weather approaches. Many cases are, no doubt, slightly affected; but there are others with every symptom of malignity and danger.

" I have also stated, that according to your custom of service, the sick and sound are laid on deck; a practice highly improper,

September 27. The hospital-ship having received so much damage during the late heavy gales of wind, and her ports not being water-tight, it was deemed expedient to send her to Plymouth to refit. The whole sick of the fleet, amounting to seventy, were sent on board the Charon to be carried to the hospital. These consisted of a few cases of phthisis, one of small pox, some of chronic rheumatism, ulcered legs, and eight invalids, from the Barfleur.

At this time there was not a single fever in the fleet, that could be said to have originated from contagion, or the least remnant of that spread from the French ships. Thus ended an
H infection,

improper, as it exposes them to the moisture of the deck, must create filth, and generate and extend contagion.

“ I have strongly recommended a more liberal use of wine; but I know that your surgeons have very different ideas, from their theories of fever.

“ I am at a loss to recommend any methods of prevention under the circumstances of your ships; and have only hinted to the Commander in Chief, that the health of your people very much depends on the speedy return to a climate more adapted to their constitutions than the cold of our winter.

I have the honour to be,

S I R,

Your most obedient,

and very humble servant,

T. TROTTER.

To

REAR ADMIRAL DE VALLE, &c.

infection, the most general that was ever spread in a large armament; and which, under other situations of season and discipline, might have proved fatal to the channel fleet of Great Britain. The speedy extinction of it will reflect everlasting credit on the officers of those ships where it appeared; and their exertions will remain a fine model for their successors to imitate, under similar circumstances of service.

I have remarked, that a case of small pox was sent on board the *Charon*; but the ship's name, from whence he came, has been omitted in my Journal. It was in the eruptive stage, and the disease affected no others where he belonged. Having given orders to inquire whether our patients had all passed through the small pox, it was found that three never had the disease. In a former part, I mentioned that six people and a child had been inoculated in the *Charon*, during the summer cruize. These patients were now ordered to be inoculated as soon as matter could be procured from the pustules of the other man. This was, however, neglected by the Surgeon's mate: while at Plymouth Hospital, the small pox appeared in the natural way, of the confluent kind; and I am sorry to add, two out of the three died.

October. The Portuguese squadron having arrived in Hamoaze, to refit and purify, opportunities

tunities were now given me to learn still farther the issue of the contagion which appeared among them in Torbay.

The Europe, a third rate in ordinary, was allotted to them for an hospital, and fitted accordingly; but from the numbers daily taken ill, in all the ships of the squadron, she became so crowded, in the space of three weeks, that no room was left to receive more. It was during this distressing condition, that Admiral de Valle requested me to meet the Physician to Plymouth Hospital, on board the Europe, to examine the state of accommodation, as well as that of the people, and to report to the Lords Commissioners of Admiralty, the rapid extension of this prevailing fever, among the seamen of the squadron.

After waiting two hours beyond the appointed time for the physician of the hospital, I proposed Dr. Mein, of the Caton hospital ship, as an assistant on this necessary, though dangerous duty. To this the Doctor very cheerfully consented; it would, indeed, have been cruel to refuse attendance, as the safety and comfort of so many human beings depended much on our survey and statement of the case.

There were, at this time, on board the Europe, five hundred people, in different stages of the fever. The lower gun-deck had, at first, been the only part appropriated for the sick; but it could not

contain two hundred cradles without being crowded; other parts of the ship were therefore occupied. We found the sick sufficiently clean in their persons, and beds also: but, as I have formerly remarked, there was some doubt that this was always the case; and it could not be expected, that in so small a space, either diet or attendance could be complete. The orlop deck being full in every corner, from its very imperfect ventilation, was literally pestiferous. The smell was intolerable; we walked round the fore and after cockpits; but were not able to make many inquiries, or to attend to every particular; indeed, respiration could not be immediately accommodated to an atmosphere, not only deprived of much of its oxygene, but strongly charged with contagious matter. The moaning and ghastly looks of the whole; the skin fallow, livid, and black; *petechiæ & vibices*; tremors, *subfultus tendinum*, and in a few general convulsions; groans of the dying, and those in pain; raving of the delirious; tongue black, parched, and tremulous; the breath fœtid; respiration quick and laborious; the eyes sunk, fixed, glassy, moistened with tears; were among the prominent features of this hideous groupe of human misery! The convalescents were kept on the upper deck, but from being much exposed to cold and wet weather, many of them suffered relapses.

From this survey, the crowded state of the Europe was represented to the Admiralty Board: another ship was immediately ordered by their lordships to accommodate the sick of this unfortunate squadron, and one of their own ships was appropriated for convalescents alone. What proportion of deaths happened I have not been able to learn: but the mortality here, as in all similar situations which I have witnessed, was greatest among those seized at the early period of infection, when the disease appeared under the most malignant form. These ships had so far recovered about the middle of February, that they sailed for Lisbon; leaving behind, on board the Europe, near three hundred men, under the care of Dr. Mein.*

The

• REPORT TO THE ADMIRALTY.

“ S I R,

The commander in chief of the Portuguese Squadron, in Hamoaze, having requested me to survey his people on board the Europe; yesterday, accompanied by Dr. Mein, of the Caton hospital ship, I performed that duty.

“ Admiral de Valle, having requested us to report the condition of his sick, for the purpose of laying it before the Ambassador of his Court, in London; I am also desired to make known to you, for the information of the Lords Commissioners of Admiralty, the state of these people.

“ In addition to my report, made to Admiral Earl Howe, when ordered to inspect these ships at Torbay, I have only

The precautions which I chiefly recommended to Admiral de Valle and his officers, were the immediate separation of the infected; plenty of warm cloathing; no washing of decks, but in lieu of it, dry rubbing, or scraping; wind-sails for the orlop deck; fires to be kept constantly burning, for preserving their southern constitutions warm; *bunting* sails for the lower deck ports; the utmost attention to cleanliness, both of person and cloaths;

now to observe, that what I then suspected, has been too early verified; the fever having become progressively worse. From the number daily taken ill, the Europe is so crowded, in every corner, that much danger must arise from so many people, in a disease highly contagious, being confined in so small a space. Means cannot therefore be too soon devised for thinning their present quarters, and preparing other apartments for their accommodation.

“ The number of deaths is now considerable; and cases in the most dangerous stage of the fever, bear a very large proportion. We have recommended every method for prevention, usual in such situations: but so much in the present instance depends upon peculiarity of constitutions, discipline, and habits of the people, that we cannot flatter their Lordships with the prospect of a speedy extinction of the contagion.

I have the honour to be,

S I R,

Your most obedient,

And very humble servant,

To

PHILIP STEPHENS, Esq.

Admiralty Office.

T. TROTTER.

cloaths ; a pint of wine *per diem* ; no exposure to moisture ; and lastly, the utmost exertions in officers to keep the minds of the people engaged, so as to inspire confidence and cheerfulness, and to divert them from thinking on the danger of infection. These forms, I believe, were as strictly attended to, as the nature of the discipline would admit. The worthy officer who commanded the squadron, was most sensibly afflicted with the sufferings of his people, and was borne down with the calamity when I first met him at Plymouth : but I had the satisfaction of seeing him recover his spirits. From this time the general health of his ships became better.

The Charon having undergone what repairs were found necessary, returned to Torbay, on the 3d of November ; bringing with us what recovered men were fit to join their ships.*

We

* The day after I visited the Europe, being employed in preparing the report for the information of the Portuguese Ambassador, I was more or less affected with head-ach. As I was about to sit down to dinner, at three o'clock, a message came from Rear-Admiral Bourmaster, on board the Glory, in Casland Bay, desiring to see me, as he was very ill. I went on board the Glory immediately ; and, from being much fatigued at my return, went early to bed. About four in the morning I waked, extremely agitated, with sickness at stomach, shivering, &c. I now lived with Dr. Mein, on board the Caton, and desired the servant to call him. He agreed

We now received the sick of the Fleet, chiefly the diseases of the season, catarrhs, rheumatisms, &c. and with them on board we proceeded to Portsmouth. The Fleet returned to Spithead about the 24th of November.

The weather, during the months of October and November, was mild as to temperature, but thick and hazy, with much rain, and hard gales of wind from the south-west quarter; which obliged the Fleet to put into Torbay repeatedly for shelter.

There had been a total exemption from scurvy since we left Spithead; owing, in a great measure, to a general supply of sugar and lemon juice, distributed to the ships on leaving port in the end of August.

Early in December a severe frost set in, which continued, with frequent falls of snow, all the month.

with Mr. Worgaen, that an emetic would be proper, lest the attack should be from typhus contagion. I took some ipecacuanha wine, which excited sufficient vomiting; and felt no more of the complaint. Fatigue, and exposure to cold, were probably the cause of my indisposition.

— 1795. —

The frost continued equally severe all the month of January, and the thermometer fell frequently so low as 22° of Farenheit: some days it blowed extremely hard, with snow and hail, from the N. E. About this time it was reported that the French fleet had put to sea in great force, with the view of intercepting our outward-bound West India convoy. This report was soon confirmed by Sir Sidney Smith, in the Diamond frigate, going into Brest, and hailing a ship of the enemy's line, that had returned dismasted from their fleet to the westward.

Jan. 26th. The Fleet having assembled, Earl Howe sailed from Spithead, with thirty-three sail of the line, and ten frigates, &c.

The wind coming to the westward, when off Plymouth, the Fleet put into Torbay, on the 1st of February.

The Cumberland, of seventy-four guns, arrived at Spithead on the beginning of January, from the Nore, and newly fitted. Her sick list, which was one hundred and nine, surprized the Admiral, that he doubted of her ability to go to sea in such a season. On my first visit, the list had increased to one hundred and twenty; but I found
none

none of them confined to bed; and their complaints were all of the catarrhal kind. What tended, perhaps, in a great degree to aggravate the disease among this ship's company, was the receiving a great part of her complement from the *Vengeance*, just returned from the West Indies; and consequently the constitutions of her crew were more susceptible of cold. A few of the worst cases were sent on shore; but I did not find the symptoms, in general, run so high, as to make me hesitate a moment whether the *Cumberland* was in a condition for actual service. Captain Rowley was very active in procuring them what additional cloathing the weather indicated, and his people, for the cruize, did very well.

This catarrh had all the appearances which usually characterize it when epidemic. While the Fleet remained at Spithead, the only ship besides the *Cumberland* affected with disease, was the *Coloffus*. The number of her sick, on the weekly account, induced the Admiral to order me to report her situation. It was a prevailing catarrh. Some of her men were confined to bed, with a considerable degree of fever, and stricture about the breast: the worst of the whole were sent on shore to the hospital.

While the fleet remained in Torbay, the weather was very unsettled; sometimes a southwest
wind,

wind, with rain, at other times northwest, with snow; on the whole it was bleak, wet, and cold.

Before the 5th of February, the Catarrh was more or less general in every ship of the fleet. This epidemic, on former occasions, has been traced to have gradually spread itself from the shores of the Baltic, or the Low Countries, to all the southern and western provinces of Europe. The first ship affected in our fleet, the Cumberland, came from the eastward, the Nore, where also other ships at the same time complained. It is not improbable but a certain constitution of the atmosphere is necessary to produce it, and give it vigour, although it is afterwards spread from one person to another. Its general progress in the fleet, in so short a time, justifies this idea; for there were ships with the disease on board, where no communication with any other could be suspected.—In the year 1782, a similar catarrh prevailed in the Channel Fleet, then in the North Sea, under the command of Earl Howe. It spread with inconceivable rapidity over the whole. The fleet was obliged to return to port, and it was some time before the disease disappeared: a considerable number of deaths was the consequence. A squadron of eight sail of the line lay at that time in Torbay, under the command of Rear-admiral Kempenfeld. The influenza first made its appearance on board the Fortitude of
seventy-

seventy-four guns. Mr. M'Nair, the surgeon, informed me, that only a few men complained in the evening: but so quick was its progress throughout the ship's-company, that next morning when all hands were called to weigh the anchor, more than two hundred said they were sick, and could not come to the capstan. The Fortitude was therefore ordered to Plymouth, to send her people on shore: but the other ships that went to sea, were obliged to return, nearly as bad of the same disease, two days after.

When the catarrh was epidemic in 1782, I was surgeon of the Bustler sloop of war, at Plymouth: I was affected with the disease in a severe degree. In the present case I was also a sufferer, and had a relapse, from exposing myself too soon in the boat, to rain and cold weather, in Torbay.

February 14. The fleet sailed from Torbay. In two days the immense convoy for the West Indies, Lisbon, Mediterranean, &c. were able to get out of Hamoaze, when the Admiral made sail to the westward.—In the mean time the French fleet had returned to port in great distress; with the loss of five ships of the line, and other damages, from gales of wind.

February 20. Off Cape Finisterre.—The weather uncommonly mild and fine. Therm. 52°.

February 25. Arrived at Spithead.

The

The fleet was now almost free of the influenza; only one hundred and sixty men, in various diseases, after a month's absence, were sent on shore at Haslar. The number of deaths during this epidemic, was twenty-eight.

A fever, of the typhus kind, appeared among the gentlemen of the Invincible in Torbay, which extended to a number of cases. Yet it is singular, that it did not affect any of the seamen, although some of them attended their officers, who slept in the gun-room, and where communication with the ships-company was not prevented*.

March

"In the last week of January, two gentlemen in the cockpit were taken ill with a bad fever. The reason that I did not take notice of it in my report for that month, was, that it did not appear to me to be of much consequence; but on the 2d. inst. when the third was taken ill, I had not a doubt but it was contagious.

Every precaution was taken to keep the gentlemen separate from one another: the worst were put into the gun-room. The attack was insidious for some days. They complained of chills, nausea and head-ach: one had a severe pain over the left eye, which lasted for a few hours, and then shifted to the other, and so on alternately. They took emetics on complaining, and the bowels were kept regular; afterwards the pulv. antimon. and about the fifth or sixth day of their illness, they took bark and wine, with a full dose of opium at bedtime. In one case the opiate did not procure rest; he passed a better night with only wine. I did not find that a more early use of wine was in any case detrimental; it was given
night

March 1st. The following STATEMENT, taken from the monthly reports of the surgeons, will give a general idea what the fleet experienced from the catarrh in the space of six weeks ; from the 18th of January to the 28th of February. It ought to be remembered, that what are mentioned here, are only those, who from the degree of indisposition, were admitted into the sick list ; slighter cases are not taken notice of.

<i>Influenza.</i>		<i>Influenza.</i>		FRIGATES.
Orion - - -	480	Hector - - -	150	Melampus - 53
Hannibal - - -	314	Culloden - - -	90	St. Margarita 21
Bellerophon - -	104	Brunswick - -	180	La Nymphe 70
Cæsar - - -	130	Royal Sovereign	160	Hebe - 58
London - - -	272	Marlborough -	80	Astrea - 30
Barfleur - - -	450	Leviathan - - -	80	Thalia - 40
Queen Charlotte -	No	Venerable - - -	270	Aquilon - 64
Report from her Surgeon.		Invincible - - -	84	Crescent - 44
Impregnable - -	200	Robust - - -	20	
Zealous - - -	180	Cumberland - -	260	
Valiant - - -	234	Queen - - -	12	
Audacious - - -	130	Royal George - -	30	
Russel - 122 in port		Excellent - - -	20	
Tremendous - - -	60	Canada - - -	160	
Colossus - - -	213	Triumph - - -	80	
Prince of Wales	184	Gibraltar - - -	20	
		Thunderer - No re-		
		port from her Surgeon.		

While

night and day with the bark. In one a blister was evidently of service: the patient was inclined to delirium, when the blister was applied, and in the morning he was better, and recovered

While the fleet lay in Torbay, the Admiral was pleased to order a number of sheep to be given to every ship, in proportion to the sick list, no fresh beef being allowed. This supply came opportunely for our convalescents, who fared sumptuously from it, and soon recovered strength. The mild weather during the passage to Cape Finesterre, put an end to the epidemic.

March 6. In my general visit to the ships, after our arrival at Spithead, many recent facts were offered to my observation; which supported the former arguments I have employed against the charge of fifteen shillings for the cure of the venereal disease. These were of a nature too, that they could have been produced in evidence, had it been found necessary. In some of the ships were men who undertook to cure the disease in
all

covered slowly afterwards. In the other case, blisters gave uncommon pain, and the patient was worse all the next day. When he was sent to the hospital, on the twenty-third day of his illness there was no appearance of this fever among the ship's company.

(Signed)

Invincible, Feb. 28th. 1795. THOS. KENNING, Surgeon."

Mr. Kenning mentions fifteen cases of fever, in his report for this month; twelve of whom were cured on board, the other three were sent on shore to Dartmouth sick quarters, and there recovered. T. T.

all its stages, and had more than one or two patients under their care. In others, the boats crews were in the practice of bringing medicines from the shore to their shipmates. A medicine often fatal, even in the best hands, was a popular remedy with them. (Vid. "A Review of the Medical Establishment in the Navy. Bew, London, and Watts, Gosport, 1790.") This was no other than Hydrar. Muriat. Some consulted itinerant quacks, who flock to the sea-ports, and had paid largely for their advice while simple local complaints were converted into a confirmed lues. Several had withheld the knowledge of the disease from the surgeon, till the most excruciating and dangerous symptoms had supervened, and thus became objects for an hospital. On the whole, there were abundant proofs at hand, for a purpose, that I had long pressed with both head and heart. I therefore resolved to address the Commander in Chief, officially, on the business. My representation of the facts was received by Earl Howe and Sir Roger Curtis, with all that warmth of approbation, which the most affectionate concern for the comfort of our seamen could dictate, and for which the transactions of this fleet bear ample testimony. His lordship thought the subject of sufficient importance to engage the attention of the Lords Commissioners of Admiralty, and laid it before them. The Board of Admiralty, after making the necessary inquiries as to the
amount

amount of the sum, in the surgeons pay, were pleased to order an immediate stop to be put to the charge, and remunerated the surgeons by an allowance of money proportioned to the complement in different rates. This alteration has been received, by the liberal and scientific part of the list, with perfect satisfaction. To those on foreign stations, it is almost clear gain, for few or no venereal complaints prevail in the ships on East and West India service. Thus terminated a perquisite, illiberal from its institution, inhuman in its practice, and impolitic from its continuance. It forms an epoch in naval improvements; for hundreds of seamen, have annually fallen victims to its effects*.

March

* EXTRACT of a Remark, from Mr. NICOLSON'S Report for March, 1795.

“ Ever since I have been a surgeon in His Majesty's navy, I have observed men labouring under venereal complaints very backward in applying for cure; often till they cannot walk on deck in their watch. After tampering with themselves for a length of time, to evade a disgrace which they prefix to the disease, they are only fit for an hospital. They have also a dislike to have fifteen shillings appear against their names in a ship's-book, and every sinister means is made use of to escape the stigma. Hence a foundation is laid for a multiplicity of abuses; among others, complaints are feigned to make them objects for an hospital.

“ Now Sir, if venereal charges were altogether abolished, and some recompence made the surgeon by way of medicine, there can be no doubt but the men would come forward, to get cured, at the first appearance of the disease, and thereby

March 15. The weather still continued cold, and the winds for the most part easterly. The severity of the winter had been general in this country as well as on the continent : great numbers of cattle and sheep had perished in consequence, and vegetation was every where destroyed. The prices of provisions rose in proportion, and beef and mutton could scarcely be procured. The allowance of fresh meat to the fleet, was curtailed to one serving a week ; a disposition to scurvy became therefore general in our ships.

I was early aware, from the concurrence of these causes, that a scurvy must soon appear in the fleet, if not counteracted by other means. For these reasons, in order to keep the health of the people ready for emergency, I proposed some alterations in the diet.

1st. In lieu of butter and cheese, which of late have been with difficulty procured, and oatmeal,
let

a great many useful seamen would be preserved, and the surgeon's duty unencumbered by a perquisite, not very pleasant in its contribution as part of his pay.

(Signed)

Audacious.

E. NICOLSON, Surgeon."

July 12th 1796. At the time I am writing this ; the good derived from the abolition of the venereal fine, is uniformly testified by every surgeon in the fleet. The men have every where made their complaints sooner known, and there are few ships at Spithead whose sick list contains *six* venereal patients. T. T.

let cocoa and sugar be allowed for breakfast, as on West India stations. Or let sugar or molasses be mixed with the bargou, or oatmeal gruel, that the use of them may become general, by being made palatable. Query; why is oatmeal supplied if seamen refuse to eat it?—Rice and sugar have been lately substituted for butter and cheese, but the people dislike them.

2dly, Let the beer which is to be carried to sea, be made of double strength, with a larger quantity of hops to make it keep; and let two quarts be served instead of a gallon of the small beer. Which would make the expence equal, and not even occasion a single inconvenience in the forms of office.

3dly. Whenever the ships return to port, let them be served abundantly with vegetables, in the fresh beef broth. This is still a *desideratum* in the diet of seamen. The quantity ought to be specified, and not left to the discretion of a purser, or any other officer, to withhold them altogether when they grow dear. At this time there is not a cabbage brought to any ship at Spithead.

4thly. Let some of the cheaper pickles be supplied; such as red cabbages, walnuts, cucumbers, &c. and let them be served in allowance with salt meat. These are cheap articles, and fine correctors of salted diet. They are much to be preferred to sour krout; grateful to the taste, need no

washing or cooking, and quench thirst when water grows scarce.

5thly. Let lemon juice be supplied to the surgeons for the cure of scurvy only. Cases of scurvy are now appearing in the fleet, and were they supplied with lemon juice, the whole might be cured on board.

Such was the first representation I judged it necessary to make about the middle of March. It was referred by their Lordships to the Commissioners of victualling, for their report; and I was afterwards informed that the molasses were ordered: but they did not come in time for Lord Bridport's squadron to be supplied on the 11th of June; consequently the small squadrons which failed before that time reaped no advantage from them.

March 17. Vice-Admiral Colpoys failed with the London, Valiant, Hannibal, Coloffus, Robust, and two frigates. Some of the lemon juice that remained in the Charon, was given to these ships, for I knew full well that they would need it.

About this time a squadron failed for the Cape of Good Hope, under Sir G. K. Elphinstone. Some of his ships were taken from the Channel Fleet, and had been exposed to the general causes of scurvy, like others. On this account, as there was no time to have supplies of fruit from London, I recommended Sir George to order lemons
to

to be bought on the spot. This was immediately done, to the amount of fifty chests, at the sale of a cargo for the benefit of the underwriters *.

Some cases of scurvy soon appeared on board the *Minotaur* and *Invincible*; and fresh ones were daily added to other sick lists, which made a quick progress to the worst stage of the disease †. The honourable Captain Pakenham, with his usual generosity, sent six guineas to his first lieutenant, to be expended on fruit and vegetables, as the surgeon might think proper, as soon as he heard that the scurvy appeared among his people.

Finding the disease gaining ground in other ships; I also considered it my duty to represent the state of the fleet to the Commissioners of sick and hurt; and informed them, what appeared to me to be the causes of this general disposition to scurvy throughout the whole of our ships; viz. the severe cold of the winter, the curtailed allow-

* To this precaution we are, in a great measure indebted, for the health of the ships at the reduction of the Cape.

† “ The scurvy, within this last week, has made its appearance, in a severe degree, with those that have complained of it: It is really a melancholly reflection, that seamen should be attacked with scurvy at Spithead, when the means that would preserve them from that destructive malady, are so well understood. I fear that many of our ship’s company will shortly be laid up with it. As I have it not in my power to cure them on board, I must send all those that appear to be tainted to the hospital.”—Mr. KENNING’s *Report for March*.

ance of fresh meat, and the destruction of vegetation. At the same time I begged an immediate supply of lemon juice, or the fruit in its entire state, for the cure on board of those already complaining, and to prevent our ships companies from being *broke up*, by sending them to hospitals. Having given this information to the Commissioners, it was left to them to transmit this letter to the Admiralty, as they might think proper.

Most of the surgeons had a little lemon juice saved from the large supply in September last: this was given to the scorbutics while it lasted, and many were completely cured. When this was done, our men in scurvy were of course sent to the hospital.

April 16. A squadron under Rear-Admiral Waldegrave, consisting of the *Minotaur*, *Invincible*, *Excellent*, *Tremendous*, and *La Nymphe* and *Blonde*, were ordered to sea. The *Excellent* had many cases of scurvy, and a general disposition to the disease, prevailed throughout the whole of her crew. The lemon juice demanded from the sick and hurt board, had not yet arrived; and there was much hazard in this squadron going to sea, without a large supply of the vegetable acid. Having represented the state of the ships to Admiral Waldegrave, and his orders to go to sea not admitting of delay, under his authority

I pur-

I purchased fourteen or fifteen chests of lemons and oranges, which were all that could be procured in Portsmouth. These ships continued at sea seven weeks ; but the fruit which was carried from port was expended about the fifth week. Fortunately however, they fell in with a ship laden with lemons. The Admiral ordered a quantity to be purchased, sufficient for the safety of his people, during the remainder of his cruize. They returned to port on the 7th of June, without losing a single man in scurvy. The Admiral was pleased to order very particular accounts, concerning the administration and effect of the lemons, to be transmitted to me. Some very correct and well-detailed facts on the subjects, were in consequence sent: they will be found under the article scurvy *.——The weather during this cruizé

* “ *Minotaur, St. Helen's, June 9th, 1795.*

“ S I R,

“ After reading your treatise on naval hospitals, I can have little doubt of your making use of your utmost exertions, to promote any measure that can contribute to the health and comfort of our seamen. It is from this consideration that I now lay before you, copies of papers, the originals of which I have just transmitted to the Lords Commissioners of Admiralty; not doubting, if seconded by your efforts on this occasion, but that my statement will produce the desired effect.

“ Whilst I am on this subject, I think it my duty to add, that a few days after we began to serve *grog* to the people, the

cruise, as mentioned by Mr. Sibbald, surgeon of La Nymphe, “ was remarkably fine ; there happened to be, nearly during the whole cruise, a
“ constant

scurvy made a most rapid progress; and as this is by no means the first time that I have had occasion to make the same observation, I am thoroughly convinced, that could it be made convenient to government, to serve out a wholesome genuine wine (and such I apprehend might be found, without much difficulty, or any considerable expence) in *lieu* of spirits, that many lives might be saved, and the naval hospitals less crowded with scorbutic patients ; two-thirds of whom are lost to the service, either by desertion, or the accumulation of fresh diseases.

I am, SIR, your most obedient
humble servant,

To (Signed) W^M. WALDEGRAVE.²³
THOMAS TROTTER, Esq. &c.

A N S W E R.

Charon, June 10th, 1796.

“ SIR,

“ I am this day honoured with your obliging letter, inclosing Remarks, by the surgeons of your Squadron, on the effects of lemons in the treatment of scurvy.—What I have particularly observed in these communications, is an increase of the scorbutics, during the use of *grog*. This has been long known, but never before so clearly ascertained : but, besides confirming some ideas which I have entertained of the theory, it leads to much valuable practical improvement *. I shall make it

* Vid. Observations on Scurvy, second Edition, Longman, London.

“constant east wind, with heavy dews, every
“night.”

April 17. The squadron under Admiral Colpoys arrived at Spithead, after a month's cruize in the Channel; during which, he had taken La Gloire and La Gentile French frigates.

It has been mentioned, that this squadron was supplied with lemon juice from the Charon, from the idea I at that time entertained that they must soon need it. On their return to port the scurvy prevailed in every ship. But, by confining the administration of the lemon juice to the worst cases, no deaths happened at sea. The frigates, during this general scorbutic taint, did not seem to suffer in proportion to the ships of the line: some very bad cases were, however, sent to the hospital from the Astrea, in which ship Lord
Henry

my business to put some further queries to the surgeons, on the subject; and on drawing up a summary of the method, and success of treatment, of this singular disease, in the fleet, for the information of the Lords Commissioners of Admiralty, I shall not fail to enforce some regulations, which this occasion has suggested; not a little due to the humane attention which you have paid to the health of the seamen in your squadron.

I have the honour to be, SIR,

Your most obedient

humble Servant,

To

T. TROTTER.

The Hon. Rear-Admiral WALDEGRAVE.

Henry Poulett had so handsomely distinguished himself in the action with one of the frigates.

The Hannibal, one of Admiral Colpoys squadron, put into Plymouth, over-run with scurvy. This ship had not been long in commission; many of her crew were raw landmen, consequently more liable to be affected. After landing forty men at Plymouth hospital, Captain Markham did not find them recover so fast as he wished; and seeing that they got few or no vegetables, owing to some dispute with the gardener that had the contract, from pure compassion to their distress, this generous officer went to market, and purchased them abundance at his own expence. This prevented the remainder of the Hannibal's scorbutics from being sent to the hospital: they were either cured on board, or sent on shore in parties, to the different farm houses in the neighbourhood, where the country people allowed them to take herbs and vegetables from their gardens, till they recovered their health.

Another squadron, of four sail of the line, arrived from the North Sea, under the command of Rear-Admiral Harvey. These ships left Spit-head a few days after the arrival of the fleet from the winter cruize. They fared still worse than those under Admiral Colpoys. The Prince of Wales landed fifty men at Deal hospital, five of whom perished in the boat; and she brought a
number

number ill to Spithead. The Thunderer, one of the ships of this squadron, returned in perfect health: her crew had lately shared prize-money for the St. Jago register ship, captured when they were in the Edgar; by this means they had furnished themselves amply, for the cruise, with every delicacy, even to live stock. The Ruffel was one of Admiral Harvey's ships, and was affected like the Prince of Wales.

April 20. No effectual change in the victualling department having yet taken place in the fleet, I was under the necessity of making further statements on the business, and thought it best to apply through the Port Admiral, to the Lords Commissioners of Admiralty; Earl Howe, though still at Portsmouth, and his flag down, was so indisposed from gout, that he was no longer in the official situation of receiving reports. I had nothing new to relate more than what has already appeared: the disease was advancing rapidly; the hospital was filling with scorbutics, from the ships at Spithead as well as those that had returned from sea, and if assistance did not soon arrive, there was danger that the whole fleet might be rendered inactive *.

Their

* The directions which the Admiralty had given, in some parts, were not followed with that dispatch which our accumulating danger claimed. I was therefore induced to write

Their Lordships were pleased to order the fresh beef to be served to the fleet, in the usual quantity ; and the Commissioners of sick and hurt informed me, by letter dated the 29th of April, that they had sent off, on the 27th, fifteen chests of lemons, and the like number of oranges, for Portsmouth, to be distributed to the ships afflicted with scurvy, as I might think proper. They added, that more should be sent as soon as demanded.

Our wishes were now gratified. The surgeons no longer thought of sending their men on shore ; they found the cures quicker accomplished under their own care.

At

to Sir Peter Parker a second time. After waiting some days for their Lordships answer, Sir Peter's secretary told me, that the contractors *could not* get fresh beef, on which account the Admiral had not *thought proper* to transmit my letter to their Lordships. On informing Earl Howe of this business, he thought very differently, and by the first post sent my letter to the Admiralty. It is necessary to state all these facts as they happened. There is but one line of conduct to regulate the duty of an officer, *to be faithful to his post* ; and if misfortunes follow, he cannot be blamed. It will not be disputed by any one, who consults the authorities here produced, that the Channel Fleet was kept active by the measures I was pursuing, and the judicious practice of the surgeons, during this general and alarming calamity. My successors, in a similar situation, will benefit from the trouble which fell to my share,

At the same time the resident Commissioner of the sick and hurt, received orders from that board, to furnish the scorbutics of the fleet *with as much sallad as could be procured.*

May 2. The Leviathan, Hannibal, and Swiftsure, dropped down to St. Helen's, as it was expected, to accompany the West India convoy to a certain latitude, and return. The Hannibal, we have said before, put into Plymouth in great distress, from a general scurvy. But the usual allowance of beef not being altered at that port, and Capt. Markham having provided his people with abundance of vegetables, his crew were well recovered. This was not the case with the Leviathan; I therefore thought proper to supply them with lemons, and the expressed juice, in quantity for the cure of the disease, during the supposed short departure. They had, however, sealed orders to proceed to the West Indies; and after a tolerable passage to Cape Nichola Mole, in St. Domingo, they did not lose a man. Many cures were effected by the lemon; but a general taint now prevailed in all these ships, to a dangerous degree, which had been gaining ground all the passage. So small a space of the country being in possession of the British troops round the Mole, that relief for the ships could not be obtained in that district. The active humanity of
of

of Captain Duckworth, however, soon found resources. He freighted a small vessel to the island of Cuba, and received fruit and vegetables, from which his people were restored to health.

In this month the scurvy appeared in the Royal George, to the number of thirty cases; and Mr. Murray informed me, that a few were now seized in the Queen Charlotte, and a general disposition towards it in all. Mr. Browne, of the Queen, tells me in his report for this month, that a general tendency to scurvy prevailed among the crew. There is no saying what were the reasons that retarded the approach of the disease in these ships. The only circumstance of note is, that they had not been at sea while the others had. *

May 26. The Royal Sovereign, Mars, Triumph, Bellerophon, Brunswick, with the Phæton and Pallas frigates, sailed under the command of Vice-admiral Cornwallis. The Mars, a new commissioned ship from the Nore, was the only one in this squadron free from scurvy when they went to sea. The others had shared of the lemons, and

* "Many of the ship's company are slightly affected with scurvy, but not so far as to prevent them from doing duty: the above number (twenty-four in scurvy) is only such as are incapable of doing duty from that disease.

(Signed)

Sans Pareil, May 1796.

CHARLES BOWCARD, Surgeon."

and what fallad was sent us. But as the general taint among the crews had not been corrected, I supplied them from the Charon with a large allowance of fruit, and a quantity of juice in kegs. In the Triumph alone, as appears from Mr. Carthy's report for the month of June, one hundred and one cures were accomplished at sea! The condition of the Royal Sovereign and Brunswick, was not much better than the Triumph.

This cruize was memorable, for the famous retreat of the small squadron, on the 19th of June, from the enemy's fleet of twenty-nine sail; by courage and seamanship, that held up the naval character of Britain to the highest degree of admiration. It is only rivalled in the annals of the world, by a similar manœuvre, during the late war, under the same officer; or to go farther back, it may be justly compared to the retreat of the ten thousand under Xenophon!

Admiral Cornwallis came to Plymouth on the 24th of June, to refit. He sailed early in July, to relieve some of Lord Bridport's ships, off Bellisle.

During the month of May, all the ships which returned before, from different cruizes, to Spithead, were still increasing in the number of scorbutics. The London had, according to Mr. Smith's report,

port, ninety-nine under cure.* The Valiant, according to Dr. Thompson, still more; and the Coloffus, according to Mr. Ballentyne's, was sixty-eight. In the Barfleur, sixty; Prince of Wales, eighty; Robust, fifty; Ruffel, sixty-four; and the others more or less affected.

The fallad, which I had represented in my letter to the Admiralty, as the best vegetables for our relief, was supplied in too small quantity to eradicate the disease. I wanted it to be given in large allowance to the different messes of the seamen; and that the fresh beef broth should be full of greens, or other pot-herbs. The lemons we could only consider for the cure. I demanded, therefore, five thousand pounds for daily consumption: and walked over the markets and gardens, to inform myself if this could be obtained. Our supply, hitherto, had seldom exceeded *one hundred pounds* of lettuces, young onions, and mustard. †

Admiral

* "The scurvy is still prevalent among the ship's company, in a violent degree. There is scarce a day but two or three are added to the sick list, and unfit for duty; but soon yielding to the lemons, oranges, and fallading, now supplied.

(Signed)

London, May 1795.

JOHN SMITH, Surgeon."

† The reader may smile at the idea of a Physician to a Fleet, attending the stalls at a vegetable market, or preambulating

Admiral Lord Bridport came to Portsmouth about this time, to take the command of fourteen sail of the line. He had heard of the general scurvy, but supposed, from the orders given some time ago, by the Admiralty, that it was effectually overcome. His Lordship received my opinion on the subject with much attention, and entered earnestly into my manner of curing it. He desired the resident Commissioner of sick and wounded, to order the quantity which I deemed necessary, whether it could be procured at Portsmouth, Gosport, or elsewhere. It was of little moment whether the salad ought to be considered as a part of victualling, or medicine; the public service demanded instant relief. Had it been in my power to command it, it should have been brought from the Land's-end, in Cornwall, before the fleet had so long groaned under the affliction. We have heard of a Minister * ordering a train of ordnance across the country, from Woolwich to Portsmouth, to save time; in this manner would I have wheeled the product of every distant garden to Portsmouth, lest the tooth of a sailor

* The first Lord Chatham.

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should

bulating the country, to calculate the produce: but it never appeared to me below the dignity of the profession; nor did I consider it a mean talk to serve the salad with my own hands, from the Charon's quarter-deck.

should drop from his gums, by a tardy conveyance of his deliverer.*

Deliberat Roma, perit Sagantum.

June 1. We now received upwards of four thousand weight of sallad, daily. It was given in greatest quantity to the ships most affected: these were, the London, Prince of Wales, Valiant, Coloffus,

* TO THE COMMISSIONERS OF SICK AND WOUNDED SEAMEN.

Spithead, May 24, 1795.

GENTLEMEN,

I am duly honoured with your letter of the 22d instant: And beg leave to remark, that we, on the spot, are by no means of opinion that any supply of vegetables, yet ordered for the use of the Fleet, is likely to prevent the progress of scurvy among the seamen. For five days past, something above one hundred weight of sallad has been sent by Dr. Johnstone to the scorbutics, and distributed at the rate of *four oz. per man*. It appears that seven hundred cases have been cured by the fruit alone; not including the cures in ships at sea; and as fresh cases occur, they will be easily overcome, while we possess the lemon and orange. But means of prevention must be extended to *every man*, otherwise we can promise no security. The squadron of Rear-Admiral Colpoys returned to port with three hundred ill of scurvy. The Prince of Wales and Russel, under Rear-Admiral Harvey, have been equal sufferers; and had not the ships under Rear-Admiral Waldegrave, received fourteen thousand lemons and oranges, when they sailed, their situation must have been still worse. For these reasons I have sent to the squadron about to sail under Vice-Admiral Cornwallis, what fruit we could spare.

The

Coloffus, Robuft, and Ruffel. But the Royal George was becoming as bad as any of them, according to Dr. Higgin's report; ſhe was therefore confidered, in allowance, with the others.

June 10. Since the large allowance of fallad was ferved, the ſcurvy has continued to decline. The fudden change is wonderful. The ſquadron being

K 2

now

The gardens in this neighbourhood, I have found from my own inquiries, can fupply vegetables, equal to our wants, at a very moderate price; young onions and raddiſhes have been fold at this market for a halfpenny per bunch, for the laſt three weeks; theſe, with what lettuces, &c. may be procured, and ferved in certain proportions, to the *meſſes* of ſeamen, I am apt to think, would effectually correct this ſcorbutic taint in the ſpace of a fortnight. Not leſs than ten or twelve cart-load of vegetables were yeſterday morning brought to Portſmouth market, beſides the quantity ſent to Portſea, Goſport, and what might be got ſtill cheaper in the Iſle of Wight.

The Channel Fleet, being now ordered to aſſemble, I conſider it my duty to give you this information, leſt the Lords Commiſſioners of Admiralty ſhould expect our afflictions to be remedied through the directions of your Board.

I have the honour to be,

GENTLEMEN,

Your moſt obedient,

and very humble ſervant,

T. TROTTER.

now ordered to sea, the health of the men was considered equal to the expected cruize ; but it could not be supposed secure against the effects of a sea diet, where vegetables and fresh beef had no share. The Surgeons were served from the Charon with boxes of lemons, in proportion to the progress of scurvy lately marked among the people, and thirty gallons of lemon-juice, to be used when the fruit was expended. I reserved two hundred and fifty gallons in the hospital ship, lest any unforeseen length of time, or exigencies of service, might keep the fleet at sea beyond what we foresaw.

I will give the condition of the Colossus, in the beginning of this cruize, as an example of the state of the fleet : the Surgeons of the whole having confirmed what Mr. Ballentyne so emphatically expresses in his remarks. It appears that Mr. Ballentyne cured no fewer than one hundred and twenty, from the 1st to the 12th of June*, while the large allowance of sallad was issued.

*. " State

HEALTH OF THE FLEET, JUNE 1795. 133

• “ State of HEALTH, on board his Majesty’s Ship *Coloffus*,
from the 1st to the 30th of June, 1795.

DISEASES.	Since last Report,				Present Sick List.
	Taken ill.	Sent to the Hospital	Recovered.	Dead.	
Fever - - -	3	2	—	—	1
Flux - - -	1	—	—	—	1
Catarrhal Complaints	6	—	9	—	1
Scurvy - -	60	—	120		
Ulcers - - -	1	—	—	—	3
Venereal Complaints	4	—	2	—	4
Wounded Men, &c. June 23.	53	2	29	—	34
Total - - -	128	4	161	—	44

R E M A R K S.

“ The above statement is a proof of the good effects of fruit and vegetables in the cure, as well as the prevention of the scurvy. I have not had a patient in the list, for scorbutic symptoms, since the fleet left Spithead.

(Signed)

Coloffus, at Sea, June 30, 1795. J. BALLENTYNE, Surgeon.”

During the prevalence of this general disease in the fleet, after the liberal allowance of fruit came, and the quantity of fallad increased, no seaman was known to express the least regret at being kept on board for the cure: on the contrary, they were not a little delighted with the novelty of the business, and refinement in diet from an Admiralty order: the whole being served from the Charon, she was called the *Doctor's garden*.

From the middle of March to the 12th of June, upon comparing notes and remarks from the reports of surgeons, it appears that not less than three thousand cases, unfit for duty, had been cured, on board, by the fruit, or the preserved juice. About twice that number, with flighter symptoms, were relieved by the fruit, the juice, and the fallad. Thus were those men kept ready for service, our ships companies preserved entire, and desertion, and bad habits often contracted at hospitals, prevented.

June 12. This day the squadron under Admiral Lord Bridport sailed; consisting of the following ships: Royal George, Queen Charlotte, Queen, Prince of Wales, London, Prince George, Prince, Barfleur, Sans Pareil, Valiant, Colossus, Irresistible, Ruffel, Orion, Frigates, &c. with the Charon hospital ship.

June 23.

June 23. The squadron captured three sail of the enemy's line, off the Isle of Groa, with very little loss of men on our side.

SHIPS TAKEN.

Le Tigre - - - 74 guns.

L'Alexander - 74

Le Formidable 74

The service of our squadron, it now appeared, was to protect the expedition under the command of Sir J. B. Warren, against Quiberon. The Peninsula was soon taken possession of; but quickly retaken by the French, and the emigrant troops that were landed, to the number of five thousand men, were either put to the sword, or put to death by military execution, afterwards!

After the victory on the 1st of June, 1794, as mentioned before, many of our ships received a contagious fever from the French prisoners. On this occasion I did not find that any particular sickness prevailed in the captured ships; certainly nothing of the kind was communicated to our people.

In the early part of the cruize, a low fever appeared in the Prince. It was not attended with much mortality, nor was there any thing peculiar in its nature. Mr. Folds treated it with antimonials, in the first stage, and then gave bark, wine, and opium.

July 1. Two men in small-pox, were sent to the hospital ship, from the Orion. The man first affected, was convalescent, and had been near three weeks ill on board, by which means others were infected. The infection was brought to the Orion by a Quarter Master, from Haslar Hospital, at the time the ship sailed from Spithead.

July 6. This day, eleven men, ill of typhus fever, and ten in the small-pox, were received from the Orion. Two of the fever patients, had been in a state of delirium from the beginning; and the whole of them had a very bad appearance. This fever evidently spread from contagion. I wrote to Sir James Sumarez on the subject; who requested me to come on board the Orion. Upon having the whole of the sick, who were able to walk, upon deck, I found several in a state of convalescence, that had been ill of the fever. They were men lately entered, for the bounty given by the counties, according to the late act of Parliament. The infection had been acquired on board the Royal William receiving-ship, at Spithead; they told me, in the presence of their officers, that they conceived their diseases to have been caused by sleeping on the deck, the crowded state of that ship not allowing them room to hang up a hammock.

Every person on board with the fever, being now moved to the Charon, Sir James Sumarez
ordered

ordered a strict look out to be kept at others that might complain: and the Admiral gave instructions that the Orion should stay near the hospital ship, that the infected might be separated on the first symptoms of indisposition.

Sir James Sumarez had taken the command of the Orion, with a raw ship's company, only a day before we went to sea. The people's cloaths were now ordered to be aired abroad with their beds; their persons to be cleaned, and slops served to those in want. The ship was pure and clean in every corner; the common process of fires, &c. below, was attended to; and no fresh case of fever appeared afterwards.

Some of these patients had symptoms of considerable malignity; and three of the number died on the fifth day from being seized. No nurse or attendant in our hospital was infected: I attributed this solely to the extreme exact attention to cleanliness, both in the persons of the sick, their body, linen, and bedding: a boiler with water was kept in constant readiness to wash every article of cloathing as soon as it came from the beds of the sick, and a tub stood by for this purpose. Not even a handkerchief or night-cap was laid away till washed and aired.

Only one patient died in the small-pox; which were of a milder kind than usually met with in
adult

adult subjects. As it was likely that the disease must now extend itself to every one on board the *Orion*, who had never been infected, people of this description, to the number of fifteen, were called to the quarter deck, and admonished by the captain and myself, to submit to inoculation, as an easy and safe mode of getting over the disease. Some of their prejudices, however, were not easily overcome; they were of the religious kind, and they did not consider it right to bring a disorder upon themselves. We combated this objection with the usual arguments, that Providence had put into our power the means of escaping a dreadful distemper by a trifling operation, and that it was impious in human beings to neglect it. They felt our advice more sensibly when they were told, that we considered it our duty to instruct them for their welfare, and that our only motive was their safety, for they were not to be compelled to undergo inoculation; but act as they pleased. I added, that two or three general inoculations of seamen had taken place on board the *Charon*, not one of whom had ever been confined an hour to bed. Ten of the fifteen consented to be inoculated, and had the disease in its mildest degree; the other five were doubtful of having had it in their infancy, and were not infected.*

* At this time four men and boys were inoculated in the *Charon*, and did well.

July 9th. This day the wounded men of the Fleet, to the number of forty-five, were moved from their own ships to the Charon; among them was Captain Grindall, of the Irresistible, who was severely wounded in the breast, and shoulder, and arm.—This evening we parted with the Fleet, to proceed to England, under convoy of the Orion.

On this morning the squadron under Admiral Cornwallis joined Lord Bridport; consisting of the Royal Sovereign, Formidable, Triumph, Bellerophon, Invincible, and Brunswick: in consequence of this relief, the Prince of Wales, Queen Charlotte, Ruffel, and Colossus, returned home: the Prince and Barfleur parted a few days before with the prizes.

15th. This day put into Weymouth, and landed Captain Grindall at his own house; the harbour was lined by the inhabitants, and the Captain was heartily cheered on shore.

We purchased stock, fruit, and other refreshments for the sick and wounded.

16th. Arrived at Spithead, and landed the sick and wounded at Haslar.

The weather, during the early part of this cruize, was cold, with easterly winds; but very fine at the time we left the Fleet.

It

It appeared that a seaman belonging to the Queen Charlotte, who assisted the wounded men from the boat into the lower deck of the hospital ship, at sea, was soon after seized with the small-pox. The Orion's people lay near the port where he entered. The eruption appeared on this man the day after the Queen Charlotte arrived at Spithead: he was sent on shore immediately, and the disease spread no farther.

August 1st. The Charon was ordered to return to the Fleet. We were now supplied with a quantity of stock, vegetables, porter, &c. to be distributed to the ships for the use of the sick; articles which the length of the cruize, and the former sufferings of the seamen in scurvy, appeared to me to render necessary at sea.

August 5th. The Charon sailed under the protection of the Thunderer.

August 15th. Joined the Fleet off Groa.— This day I was employed in visiting the ships, and distributing the stock and other refreshments from the Charon.

State of HEALTH in his Majesty's Ships under
the Command of ADMIRAL LORD BRIDPORT,
August 17, 1795.

SHIPS.	Number on the Sick List	PREVAILING DISEASES.
Royal George -	45	Scurvy.
Sans Pareil - -	36	Scurvy, increasing rapidly.
Invincible - -	52	A low Fever and Scurvy.*
Valiant - - -	35	{ Obstinate Venereal Complaints, combined with Scurvy.
Formidable - -	22	Bad ulcers: Scurvy beginning.
Irrefistible - -	35	Scurvy, increasing fast.
London - - -	41	Slight Scurvies.
Brunswick - -	30	Scurvy, increasing.
Royal Sovereign	30	{ Inveterate Scurvy.—Eighty with symptoms, but doing duty.
Queen + - -	43	{ Scurvy and obstinate Venereal Complaints.
Triumph - - -	29	None.
Prince George -	53	{ Scurvy, increasing fast.—Some inveterate cases.
Bellerophon - -	24	Scurvy, beginning.

P. S. The Scurvy is also appearing in the Frigates, particularly in La Nymphe and the Thalia.

* Vide Mr. Kenning's Remarks on this Fever, under the article Typhus.

In the above report to Lord Bridport, the principal cause for animadversion was the re-appearance of the scurvy. It was only for the four-
teen

teen days preceding our return to the Fleet, that the disease had shown itself. The weather had for six weeks past been mild and warm. But the station of the Fleet, which was off Belleisle, or always within a few leagues of it, left the minds of the seamen in a state of inaction. The fate of the emigrants that were slaughtered on the peninsula of Quiberon, and the subsequent execution of the remainder, wrung every soul with pity and horror. I think it necessary to mention all these circumstances, as they might have a share in disposing the habits of our people to the disease in question.

It was now that the surgeons felt the value of the repeated supplies of lemon juice; and in this trip to the Fleet we had renewed our stock of it. The ships that were in want of other necessaries for the sick, received them from the Charon, and I recommended every where a supper of sowens, with sugar and wine, for the scorbutics. The mutton and vegetables were made into broth, and while they lasted our people fared sumptuously.

Although the scurvy had been checked from the large quantity of sallad served for the last ten days at Spithead, yet we were not so secure as to think it would not return during a long cruize. It is to be remembered, that most of the ships had now been ten weeks at sea. Had the sallad

been given sooner, or continued to be served longer, we should not have had so quick a return of the disease. There was also, at this time, on my part, some reason for regret, that the improvements in diet, which I had suggested so early as the month of March, had not been complied with. Even the molasses were neglected to be sent, when we first sailed; they would have made the oatmeal gruel palatable, and it is a gross mistake to think that seamen will take it without this addition: it is even cruel to think that they ought. There was another circumstance to be considered, the water was now growing scarce, and as there seemed no prospect of the ships being soon relieved, it was put to allowance.

20th. In this situation the sick lists of the different ships continued to vary and fluctuate; as a few scorbutics were cured, an increased number came into the list. The lemon juice retained its powers, and was every where effectual. Mr. Moffat, surgeon of the *Aquilon*, mentions in his report, that what he had kept for a length of time still cured the disease. This was part of the supply granted in September 1794; so that it had been near two years expressed from the fruit.*

This

* "The scorbutic complaints have uniformly yielded to lemon juice, notwithstanding its having been on board for near fifteen months, and, consequently, considerably impaired in its virtues.

(Signed)

Aquilon, July 24.

THOMAS MOFFAT, Surgeon."

This is an incontrovertible fact, that this valuable article may be preserved at sea for any voyage, and secure health to a ship's company, when every thing else shall fail.

The sick and infirm of the ships in the squadron were sent on board the Charon. They are chiefly chronic complaints. Eight cases of bad ulcers in the leg were sent from the Formidable, with a scorbutic appearance. No other case of scurvy has been received.

August 29th. The scurvy is still gaining ground. The remainder of our lemon juice has been distributed to the ships, and a hundred gallons, in reserve, are sent on board the Royal George. The London, and Prince George, have been dispatched to Plymouth, their water being nearly out.

Mr. Milligan, surgeon of the Megæra fireship, being moved into the Charon, the treatment of a number of scorbutics devolved on Captain Dickson and his officers. The disease went over the whole ship's company. But the cure of scurvy was now grown so familiar to our officers, that Captain Dickson prescribed the lemon juice to his people with the usual success, and recovered many.

This evening the Charon and Crescent frigate parted from the Fleet for England.

September 3d. Arrived at Spithead, and landed the sick at Haslar.

The

The Robust, which ship had sailed in June with Sir J. B. Warren, remained for three months with that squadron in Quiberon Bay, and was now at Spithead. As long as the fruit and lemon juice were served, the scurvy was kept under; but these being done in July, she landed sixty-nine at Haflar, in the last stage of the disease. Three died before the arrival in port*.

Admiral Harvey having sailed on the 31st of August, with the Prince of Wales, Queen Charlotte, Prince, Orion, Mars, Minotaur, Ruffel, Theseus, and Tremendous, to relieve the squadron under Lord Bridport, on the 19th of September his Lordship came to Spithead.

September 20th. The ships of this squadron had on board, at their arrival, the following number of scorbutic patients; who were reported to me

* "Two of the patients that died in scurvy had lately been much reduced by the flux; the other complained only two days before he died; which, I confess, was then rather unexpected. The cask of lemon juice you were so kind to give me, on the day we sailed from Spithead, was expended last month. The Captain Thornborough gave me a cask of porter, which I thought was serviceable; but notwithstanding that, and every thing I could possibly procure, had we remained out ten days longer, our condition would have been truly distressing, as most of the scorbutic patients were in the last stage of that dreadful disease.

(Signed) JAMES TURKINGTON, Surgeon."

Robust, Aug. 1795.

me by the surgeons, or surgeons' mates, at a general visit.

Royal George	-	-	-	160
Royal Sovereign	-	-	-	250
Queen	-	-	-	78
Sans Pareil	-	-	-	100
Invincible	-	-	-	260
Valiant	-	-	-	100*
Triumph	-	-	-	30
Bellerophon	-	-	-	30
Pallas	-	-	-	17
Megæra	-	-	-	60
				1,085

The Formidable put into Plymouth. Of the number mentioned above, one hundred and seventy of the worst were sent to the hospital.

September 22d. The Commissioners of sick and wounded having informed me at this time, when fitting the Charon for another trip to Quiberon, that their stock of lemon juice was low, and no more to be procured, I directed the surgeon of the Charon to purchase fifty bushels of apples for the use of Lord Bridport's ships. The Royal

* Dr. Thompson assures me, that not one of the Valiant's people that complained of scurvy during the late cruize, were among the number who had been ill at Spithead in April and May, and shared so abundantly of the lemons and salad.

Sovereign

Sovereign having sent no men to the hospital, a large allowance was given to that ship. An extra allowance of vegetables was put into the fresh beef broth.

September 29th. The quantity of apples was repeated. Even at this time there are scarce any visible remains of scurvy in the Fleet. The apples were very acceptable; the more so, because every sailor had been long used to the lemon juice.

The Prince George arrived from Plymouth last week, in perfect health, to receive the flag of Rear-Admiral Christian, intended for the West Indies. Mr. Harris, the surgeon, informs me, that he had cured all his scorbutics on board, but four that were in a bad condition. This he was enabled to do through the bounty of Mr. Unwin, the purser, who had supplied the ship with vegetables in great abundance. This gentleman reasoned like a man of feeling. 'He was in the receipt of a handsome income, he said, by victualling the ship's company, and thought he could not act justly if he forgot them in their distress.' May this example, in similar situations, be imitated! Mr. Sheppard, purser of the Vengeance, supplied the scorbutics of that ship in this manner; by which means I was enabled to cure them all on board*.

* Vide Medical and Chemical Essays; Jordan, London, 1795.

The London continued inactive at Plymouth; (her purser being only acting for the time, had it not in his power to increase the vegetables;) and landed upwards of a hundred men at the hospital, some of whom were never returned. For similar reasons, the Robust failed on the end of this month to join Admiral Harvey, and left sixty of her scorbutic people at Haslar.

September 30th. The Charon being again ordered to proceed to the squadron off Belleisle, a quantity of stock, apples, vegetables, porter, &c. has been received on board, for the use of the sick in their own ships, as well as in our hospital.

In the mean time the Lords Commissioners of Admiralty having observed the good effects of supplying the seamen with refreshments, had ordered bullocks and sheep to be sent from Cork and Plymouth, with potatoes, cabbages, and onions, for Admiral Harvey's ships.

September 30th. This day Earl Spencer, accompanied by Lord H. Seymour and Mr. Pybus, lords of admiralty, honoured the Charon hospital ship with a visit.

Next day their Lordships surveyed Haslar Hospital, and marked out the ground for erecting the houses for a governor, lieutenants, and other officers; about to be added to this institution, in consequence of a general inquiry, by two flag officers
and

and two captains of the Fleet, made in March 1794, at my representation.

October 3d. The hospital ship sailed from St. Helen's.

October 6th. Joined the squadron under Rear-Admiral Harvey off Belleisle; and distributed the stock, fruit, and vegetables, &c. among the ships.

The ships were all healthy.—The weather hitherto had been remarkably fine. During a squall of thunder and rain a few days before, the lightning had shattered the mizen-mast of the *Ruffel*, and killed the first lieutenant, while sitting at the wardroom table. She went to England immediately.

Received a man from the *Marlborough* in small-pox: care had been taken to separate him from the ship's company, and the disease, Mr. Kent informed me, spread no farther.

October 9th. The squadron anchored in Quiberon bay, between the little islands Hedic and Houat, during a hard gale of wind and thick weather from the westward. In this bay we found part of Sir John Borlase Warren's squadron, and a large fleet of transports and victuallers; the other frigates had sailed on an expedition against *Isle Dieu*.

October 18th. Received a patient in small-pox from the Queen Charlotte. This ship had now been nine weeks at sea, and there could be no suspicion of the infection having been received directly from any person under the disease. Mr. Murray, therefore, accounted for it in this manner: The husband of one of our nurses was a soldier on board the Queen Charlotte: and while the patient from the Marlborough in small-pox lay in the hospital, this woman had attended him, and carried the infection when she visited her husband about a week before the man sickened. The disease was of the confluent kind; he died on the fourth day. This fact ought to make us very circumspect wherever small-pox or other contagious diseases are raging.

The sick of the squadron, to the number of fifty, were sent to the hospital ship; which included a few from the ships under Sir J. B. Warren. They are chiefly diseases of the season, rheumatisms, pectoral complaints, and some fluxes from the Standard. The seamen on board the transports have suffered from the flux: many have perished, as much from the want of diet and necessaries, as medical assistance. Some have been relieved from our hospital by the Admiral's order.

From this date to the 3d of November was almost a continued gale of wind.

Nov. 3. The wind coming to N. N. E. the squadron failed from Quiberon bay. Next morning the transports got under weigh, and followed us.

Nov. 7. Received the remainder of the sick from the ships ; which makes the whole on board sixty-eight. Parted with Admiral Harvey, in company with two frigates and a fleet of transports, with troops.—Remnants of Pharsalia and mighty battles fought in vain !

Nov. 10. Put into Scilly, the wind blowing strong from the eastward.

Nov. 11. Mr. Millegan employed in procuring stock and vegetables for the sick in the hospital.

Nov. 12. Sailed from St. Mary's Sound, Scilly.

Nov. 16. Arrived at Spithead, and landed the sick at Haslar. The Charon was ordered to receive troops, and prepare for the West Indies, under R. A. Christian. The medical staff was ordered to another ship.

— 1796. —

Jan. 2. This day the squadron under Rear-Admiral Harvey arrived at Spithead, after an absence of eighteen weeks from England. On board the ships came passengers 3,000 soldiers, embarked from Isle Dieu, when evacuated.

This squadron had been repeatedly supplied with refreshments, from Plymouth and Cork,

while on the coast of France. The scurvy appeared in a number of cases, in all the ships, but was quickly cured by the lemon juice. Some deaths happened from the dysentery: this complaint probably originated from the scorbutic habit, with which it is so often combined. But some of the surgeons, not without reason, suspected that it was caused by bad water obtained from the small islands in Quiberon Bay. The wet weather might however produce it, with the cold of the season, without any other cause.

Jan. 10. The above squadron, with five sail of the line lately returned from sea, under Vice-Admiral Cornwallis, were ordered to be supplied with vegetables, besides the allowance of the purfers.

Feb. 1. No sickness of any kind in the ships of the Fleet.

The winter, hitherto, has been free of frost; but gales of wind from S. W. with rain still continue.

April. A general order has been given, from Admiralty, in consequence of a recent application from me, to supply every ship and squadron of the Fleet with the under-mentioned allowance of vegetables, for the first fortnight after returning from sea on meat days; which is at the rate of four days in the week, for mixing with the broth; it has been recommended to distribute the onions
to

to the messes, that the seamen may use them as they please :

For every hundred men of the complement,
and in proportion,

Cabbages or greens, in season - 50 lbs.

Onions - - - - 10 lbs.

N. B. Other vegetables are to be substituted by the Agent Victualler, when the above mentioned, cannot be procured.

April 14. An easterly wind has prevailed for some weeks : the weather cold, but not productive of any disease in our ships.

The duty of the Fleet being now done by small squadrons, and from the liberal allowance of vegetables to the seamen on returning from a cruize, we may date the extinction of the scurvy.

June 26. This day I was ordered by Vice-Admiral Colpoys, to visit the Niger frigate, where a contagious fever had lately made its appearance.

It first appeared among the marines, but latterly affected the seamen. Its origin could not be exactly traced ; but probably it was brought from a small vessel the Niger had captured on the coast of France, which had just landed some soldiers at Bayonne from Brest.

In fourteen days from the time this fever was first detected, forty-four people were sent on shore. This ship being under excellent discipline,

pline, I did not despair of seeing it quickly subdued; and the cases that were sent for the last four days were very slight indeed *. None died.

July

* " This fever made its appearance by vomiting and head-ach, which in some cases was soon followed by delirium. In others delirium was the first symptom.

June 19. Two marines complained: next morning they were sent to the hospital. The ship was washed, aired with windfalls, stoves placed in different places: cloathing and bedding all exposed to the air, &c.

21. Two more marines sent to the hospital. Fumigated with tobacco.

22. White-washed the ship, aired the cloathing, great part of which, with part of the bedding, washed this morning.

23. Four men sent to the hospital; two of them marines. Fumigated with gun-powder.

24. Five men sent to the hospital; four of them marines. Bedding, &c. aired. Fumigated with tar. Wine served from to-day till the 30th.

25. Eleven men sent to the hospital, five of them marines. Fumigated with tobacco.

26. Nine men sent to the hospital. Fumigated with tobacco; cloathing and beds aired every day *.

27. Fumigated with charcoal and brimstone. No person complained till after fumigation, when two men who went immediately below after the tarpaulins were unlaid, complained of head-ach, one was delirious: they were immediately sent on shore.

* These nine men were examined by me; the degree of stupor in some of them was considerable, with that peculiar look which indicates fatuity or imbecility of mind. I did not think any of them in danger. T. T.

28. Five

July 20. Mr. Burd surgeon of the Niger, informs me, that seven of his men returned from Haslar, have relapsed. The greater part of the cloaths of these people having been sent on board
unwashed

28. Five men complained in the night, very slightly affected.

29. Fumigated.

30. Five men sent to the hospital.

July 1. Fumigated with charcoal in the morning, and nitrous gas in the evening.

2. Every man was ordered below ; the scuttles close shut, tarpaulins laid over, &c. for half an hour, during which time, the nitrous gas was dissipated through the ship, according to the directions given in Dr. Smyth's Pamphlet. Very soon after it was begun to be used, a number of men were affected with coughing ; and before the half-hour was expired, the coughing became more general, and in many attended with head-ach, which did not leave them till after walking the deck in the free air for a considerable time.

July 3. Doctor Smyth's process was repeated, and attended with the same effects as yesterday : which in my opinion, from the irritation produced in the lungs, is a proof that it is in some degree unfavourable to respiration. When it was used after the fumigation with charcoal and brimstone, it somewhat removed the disagreeable smell produced by that process."—*Extract from Mr. BURD's Letter, transmitted for the information of Admiralty, by Capt. Foote.*

Niger, July 8th, 1796.

On the 27th, it was remarked that the attack of this fever became so slight as no longer to make it an object of much
attention

unwashed from the hospital, Captain Foote thought it proper that they should be cleaned immediately. The men therefore rose early to do this, and were soon after seized with convulsions and fever. It is doubtful with me whether this relapse ought to be attributed to sleeping again in beds or cloaths not thoroughly purified; or to the cold they might experience on rising so soon. It is however a certain proof, that it is an improper custom not to wash every piece of cloathing belonging to the seamen, while at an hospital.

Aug. 17. A Squadron of five sail of the line arrived at Spithead, after a cruize of thirteen weeks, off the Western Islands, under the command

attention. The season of the year being favourable, I look upon the speedy extinction to have been accomplished solely by the timely separation; the other methods practised, are nothing more than the routine of duty and cleanliness in a well-ordered ship.

The coughing and head-ach are the common effects of air being respired that is impure, and not sufficiently abounding with *oxygen*; they were therefore owing to the deficient stimulus of the atmosphere, and disappeared by going on deck, where the common air had a larger portion of *vital air*. The charcoal and sulphur were ordered to be tried by Dr. Johnstone, the resident Commissioner of sick and hurt; but these had no advantage over the gun-powder, which Captain Foote used. They both give out sulphurous gas: but I consider them both hurtful, not merely passive, but in direct opposition to the purposes of ventilation. See the article *CONTAGION*.

T. T.

mand of Rear-Admiral Lord H. Seymour. All of these ships suffered more or less from scurvy, during their time at sea, although his Lordship ordered them to be supplied with some refreshments from the islands. The *Theseus* sailed with a disposition to the disease among her people, owing to her being much in the Channel before; and Mr. Snipe, with infinite trouble on his part, kept it under by the citric acid, and a quantity of pickles which he had previously prepared with his own hands in harbour. Twenty four cases unable to do duty occurred in the *Juste*, and were cured by Mr. Kenning in his usual way.

The taint of scurvy prevailed still more in the *Triumph*. She had been much at sea in the early part of the spring; and Mr. Moffat in his report, remarks, that “the scorbutic cases, as usual, yielded to the lemon juice in every instance; and I may venture to assert, that had there not been so plentiful a supply of it, one third of the ship’s company, at our return would have been laid up with scurvy. So general was the tendency to it, that almost every case of confusion or ulceration was attacked with it, nor could their cure be accomplished without a few doses of the acid. The number stated above, (forty-six) are consequently not the whole who had taken the acid, but only such cases as were unconnected with other complaints
“and

“and unable to do duty.” Mr. Moffat also observes that some rheumatisms instead of being relieved by the warm latitudes, were rather aggravated by them. It is probable that the scurvy had much to do in these cases, for the distinction is often difficult; a trial of the citric acid would have decided the point.

Some deaths happened during this long cruize; but they were the common diseases of human nature, and not to be imputed to any thing peculiar to a sea life*. Mr. Nepecher reports the Orion to be perfectly well.

Sept. 1. Some very warm weather prevailed towards the end of last month. The ships lately returned from sea, have been effectually recruited by a large allowance of fresh vegetables.

Sept:

* “The death that appears in the report for June, occasioned by hydrothorax, was rather sudden. The patient appeared to have a complicated disease, perhaps with scurvy. For a few days he took the citric acid, without relief: afterwards, large doses of æther and tinct. opii occasionally relieved his breathing: he died on the 7th day after he complained. On dissection there was found in the right cavity of the thorax, a large quantity of very offensive white coloured fluid: the lobe of the lungs in that cavity appeared small and shrivelled up to the superior part of the cavity. In the left side, the lung was all dissolved to a small piece of soft membranous substance; the quantity of fluid was not less than four quarts. The heart and vessels had their natural healthy appearance; and the common quantity of fluid in the pericardium: the abdominal viscera were in good order. It was really extraordinary that
the

Sept. 20. Arrived at Spithead, the Queen Charlotte and London, under Admiral Colpoys, from Plymouth, the other ships having failed to join Admiral Gardner off Ushant. Mr. Smith in his report mentions the death of Lieutenant Bell, of a violent inflammation of the lower part of the abdomen, that resisted all remedies. The scurvy for the last two months, appeared in twenty-seven cases, which were cured on board the London, with Mr. Smith's usual attention and success.

Mr. Caird reports the Queen Charlotte to have been in perfect health since she left Spithead.

Sept. 22. Arrived the Thalia, Lord H. Powlett. Mr. Smith the surgeon reports her in good health. This ship left Sir A. Gardner on the 19th, all well.

Sept. 28. It appears that the small-pox have been brought on board the London by a child in its mother's arms. This method of communicating the small-pox infection to a ship's company, has been so frequent, that numbers of our seamen have on other occasions fallen victims to the disease. It certainly might be checked, by taking
care

the functions of life could be carried on to so great a length; one lobe of the lungs gone, and the other only half its proper size.

(Signed)

Juste, June.

T. KENNING, Surgeon."

care that no children of this description be admitted. Eleven cases have already been sent from the London to Haflar, as soon as the disease appeared : among these, is a young gentleman, who had been inoculated when very young, and though no eruption followed, the family apothecary assured the parents that the child was secure. This is a very delicate subject in medical practice, and much concerns the happiness of families : we have met with many instances of the kind, so that surgeons ought to be guarded, how they decide ; for in all doubtful cases, it should be a rule to inoculate the child again *.

In another part of this work, under the article SMALL-POX, I have proposed a general inoculation throughout the Fleet ; the disease being of so serious a nature, in service, from the number in every ship that never had it.

On the 21st of this month a contagious fever made its appearance in the Glory, among the marines. We could not trace it distinctly to its source, but it was probably brought on board by a draught that lately embarked. The symptoms
chiefly

* About this time the small-pox appeared in the Minotaur, just returned from the West Indies. The infection was communicated in the same manner as in the London.

were chiefly cold shivering at first, sickness at stomach, sunk countenance, considerable stupor, weak pulse, and general debility. Some cases at first were rather severe, but not fatal.

Mr. Carter the surgeon, being early aware of the nature of the fever, took the first opportunity of sending them on shore; by which precaution it did not show itself after the 29th. On visiting the *Glory*, I found every thing so much to my satisfaction, that it was not deemed necessary to trouble the Lords Commissioners of Admiralty on the subject. It was left to Sir George Home's choice, whether he would employ the usual fumigations, with the exception of not performing them when the people might be exposed on deck to very cold or moist weather: at the same time he was informed, that I had *no faith* whatever in this process. The only means used to subdue the contagion, were, immediate separation of the infected, additional fires below, shutting the windward ports, and keeping the decks dry, &c. It extended, in all, to thirty-four marines, and three seamen, who were probably hurt by hard drinking, having just received a large payment.

In the early part of the infection, there were cold easterly winds, with rain for two days; and it is not unlikely but the marines might be exposed as centinels.

It is not much to be wondered at, that in the space of a few days, a number of men should fall down, when we consider that they sleep so close to one another, and exposed to the breath of each other. From the manner of flinging the hammocks, in the highest part of the deck, they are also the more surrounded by the least oxygented part of the atmosphere : the portion which abounds most with *azote*, is always found to occupy the highest stratum.

What do the advocates for smoking and fumigating think of this speedy extinction of contagion ? Had the intelligent Captain of the *Glory* used the *gasses*, I should have scarcely been able to adduce it as a fresh fact, in support of my side of the question. I apprehend the same means in ships, equally well regulated, will always be successful : at least, it was found to be so, in the general infection after the first of June. Some officers who tried fumigation with great earnestness at that time, gave it up when they saw that I considered it as hurtful.

October 6. This day arrived at Spithead seven sail of the line, the *Niger* and *Migœra*, under Vice-Admiral Sir A. Gardner, Bart. from a cruize off Ushant.

The weather while this squadron was at sea, was moderate and fine; there were some cold easterly

easterly winds, for a few days, and gales of wind commenced on coming to port.

These ships are healthy after being seven weeks at sea. The melasses being now served to every ship, the officers and surgeons speak of it with commendation. It is served to the messes, and much relished by the people: with it the oatmeal gruel is sweetened: the biscuit by some is toasted till it acquires the taste of coffee, and when boiled and sweetened, makes an equally agreeable beverage: others prepare their peas in this manner. There has been very little scurvy during this cruize, which must have been prevented in a great measure, by these additional delicacies in the diet.

Some catarrhs occurred on board the Royal George; but Dr. Higgins found them yield readily to general remedies. The Royal George had seventeen venereal cases cured at sea.

In the Namur, Mr. Seeds cured twelve bad scorbutic ulcers, since he left port. Such a practice as this is vast gain to the service. He attributes his success to the citric acid, the molasses, and the kind attention of Captain Whithed, in sending provisions and porter from his table, to whatever object the surgeon found them useful.

In the Defiance, Mr. Glegg cured twenty venereal cases at sea. The ship's company were raw, yet only two cases of scurvy appeared. This

has been attributed to the method which Captain Jones inculcates for the use of the melasses.

The Niger has been ten weeks at sea: At leaving port, four relapses in fever happened, among men discharged from Haslar. Mr. Burd does not assign any cause for these returns: no infection spread from them.

The Royal Sovereign, to which ship Vice-Admiral Sir A. Gardner lately shifted his flag and ship's company, sent only one man to the hospital on coming to Spithead. Mr. Browne reports, that *thirty-four* venereal cases have been cured during the cruize; all of which had applied for relief in the early stage of the disease, and chiefly imputed to the charge no longer operating as a barrier.

In the Majestic, catarrhal complaints were frequent, as reported by Mr. James Dunn. This ship returned but lately from the West Indies. No scurvy appeared; the people have been long together, and in other respects were sufficiently seasoned for service.

Much valuable information comes from Mr. Leggat of the Colossus. This ship had been lately commissioned at Plymouth, and her complement composed entirely of raw Irish landmen, the worst crew that ever came into a man of war; a great part of them had been discharged from jails. During the time of sitting, the febrile infection
made

made its appearance three or four times. It only extended to a few cases at a time, and was kept under by sending the people to the hospital immediately. One man became ill, and quickly all the members of his mess. The ship in the mean time was well aired, and fires kept burning in different places.

Towards the conclusion of the cruize off Ushant, Mr. Leggat remarks, that the contagion appeared again. I do not think this ship is perfectly secure, even now, when we consider of what kind of subjects her complement consists, and a season approaching that will give activity to the disease. The scurvy has also made considerable progress in the *Colossus*, and must be expected to gain ground, should she go to sea immediately. She has, to prevent this, been ordered a double allowance of vegetables.

These helpless beings seem destined to feel the effect of every disease: during the cruize, near seventy cases of catarrh, unfit for duty, have been met with.

On board the *Fame*, the scurvy was scarcely known, till the arrival at Spithead; when it appeared in a number of cases; but was quickly subdued by the fresh provisions and vegetables.

October 10. A number of ships having arrived from the West Indies, or expected at this time, and also from other foreign stations, I was in-

duced to recommend to their Lordships, a supply of vegetables for their use, similar to the Channel Fleet. This was readily complied with; and their Lordships have been pleased to order, that I should exercise my discretion in these, and all other occasions, in directing the quantity. The probability of hostilities with Spain, when a number of new-commissioned ships would be filled with these people, rendered this measure still more necessary.

Nov. 10. I have mentioned above, my suspicions that the *Coloffus* was free from contagion; and had recommended when on board, the careful separation of the infected, with other usual precautions. Fumigation is now discarded from our ships. To the beginning of this month, from her arrival, thirty cases of typhus have been sent on shore: some with symptoms of great malignancy. For the last ten days none have appeared; and she may now be deemed safe: she is just ordered for foreign service.

Captain Grindall left the *Coloffus* at sea, from bad health. In a letter from Plymouth, he informs me, that two fever patients sent to the hospital there, died; another died in the Sound, and several while at sea: but the condition of this ship, when he took the command of her, was particular. The *Coloffus* was the flag ship of Rear-Admiral Pole, and sailed with the unfortunate

fortunate squadron, under the command of Sir H. C. Christian, which was obliged to return from contrary winds and severe weather, after being eight weeks at sea, in February. The lower deck-ports could not be opened during this time ; and from the motion of the ship, and water shipped in the gales, the provisions and other articles had been spread about the hold, to the quantity of forty or fifty ton, according to Captain Grindall's report, before the ballast was exposed. The consequence of this, was the production of an atmosphere in the hold and well, unusually foul : no doubt, owing to the fermentation of the provisions, and the decomposition of the moisture. The officers and seamen employed in clearing the hold, were grievously afflicted with swellings about the submaxillary glands, and violent ophthalmias ; and were obliged to be relieved by others during this duty : sometimes there was a necessity of standing fast, for some days, that the noxious vapour might be expelled. This account is interesting : but the fever certainly sprung from other causes, and was brought on board by the people.

It is a little singular, that the hold of the *Glory*, which was Admiral Christian's ship, was extremely foul, and had not been cleared, when the fever made its appearance there. I should have recommended the *Glory* to have been cleared,

had she not been under sailing orders : but even in her, the fever originated from contagion imported ; otherwise, it could not have been so completely overcome : the ships returned from sea, report the *Glory* in perfect health. But it is a part of our means for destroying infection, to clear and dry the hold ; and on that account, I have been more minute in this detail *.

Nov. 18th. This day the following ships arrived at Spithead, under the command of Rear-Admiral Sir R. Curtis, Bart. viz. *Formidable*, *Atlas*, *Cæsar*, *Mars*, *Triumph*, *Pompee*, *Orion*, *Irresistible* ; *Stag* and *Proserpine* frigates.

The Surgeons of the Fleet have received directions from the Commissioners of sick and wounded, to transmit to that Board a regular report of the medicine chest, from survey, with a view of some additional articles being supplied at the expence of government. I am sorry that this business should be done, piece-meal : why not, at once, supply every article, of both medicine and necessaries, change the mode of paying surgeons, and modify their half-pay accordingly ?

Nov. 20th. The ships just returned from sea are in perfect health, and have landed at the hospital, thirty people in different chronic complaints ; yet

* Admirals Christian and Pole took with them, into other ships, their own people ; so that the *Glory* and *Colossus* were filled up with raw men.

yet some of them had been fourteen weeks from Spithead. The surgeons, in their reports transmitted to me, speak in terms of the highest commendation, of the attention of officers, in every thing that relates to health. During this cruize, very few cases of scurvy have appeared, as our preventive means seem to have attained nearly all the perfection of which they are capable. We now hope, that the allowance of molasses will be increased, and made permanent. The state of this Squadron affords a striking contrast to the condition of the ships under Lord Bridport, when off Belleisle, in the summer of 1795; and is the best voucher for the utility of the measures, which I proposed at that time.

On reviewing the occurrences of this Fleet, it must be a pleasing reflection to Government, to be convinced that the late encouragement given to surgeons, has been extended to men, who merit every thing for their abilities, attention, and fidelity: the best testimony of these qualifications, is the health of their ships, and an empty hospital.

The naval character has been long renowned for the *heroic virtues*: the transactions of our ships will demonstrate, that it has attained the highest station in those that are *amiable*. Great Britain, thus defended by her Fleet, and the health of her
seamen

seamen preserved by the benevolence of her councils, will continue to wield the trident of the ocean, and engross the commerce of the world. War itself assumes a new aspect: those diseases formerly the scourge of a sea-life, are prevented or overcome; even Contagion, that has so often spread terror and dismay, has, by a system of duty, made familiar to officers, become no longer terrible! With these reflections, I must close my detail for the present.

MEDICINA NAUTICA.

CONTAGION.

THIS subject is one of the first magnitude, that falls to the discussion of a Physician. By it, the operations of fleets and armies are overthrown on a sudden, and the best concerted plans rendered abortive. Every fact that relates to it, becomes valuable, insomuch as it assists our vigilance and discernment to detect it when concealed, or suppress it when apparent. The preceding part of this work, though comprehending only the naval transactions of a short space, has afforded an ample proof of what serious consequences may be expected from the introduction of infection into a ship: when passed over with indifference, we have seen it run the hazard of disabling a large part of our fleet for a length of time. But to treat it with levity and neglect, is criminal in the highest degree; the lives of human beings are the victims of this obstinate folly. Ignorance itself is unpardonable on this subject;

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for

for every physician and surgeon employed in the naval or military department, ought to make themselves acquainted with all that has been written on *CONTAGION*, and keep a register of their own observations, in order to familiarize the knowledge of it to others.

It is of great practical importance to trace infection to its source, the means that have conveyed it, and the causes that have given it activity. Though on an unpleasant business, a mind accustomed to enquire after truth, will sometimes find no small degree of curiosity and amusement. Some of my own adventures have now and then been romantic, if not hazardous, for the purpose of putting questions to a patient, or to clear a doubt. It is only from being minute and exact, that we can arrive at sufficient information; and whoever may attach himself to the investigation, will constantly meet with something to encourage his perseverance, and enliven his researches.

The field for observation, which has been employed by my studies, has not been confined to a naval life, and acquaintance with the hospitals only; but an extensive practice in a country situation, and a few remarks made in a large town.

What I have to offer, may be considered as an abridgement of general facts, rather than a methodical arrangement of them.

I would

I would define Contagion, to be a something propagated from diseased bodies, or from substances that have been in contact with them, producing a similar disease in other persons.

The latter part of this definition includes what have been called *fomites*, whether we consider them as wearing apparel, bedding, or other articles that have been imbued with human effluvia, of persons labouring under infectious diseases. I have made use of the word *something*, as contagion becomes only familiar to our senses, as a something impregnating, or conveyed in the exhalations which proceed from bodies under actual diseases, or what have been in contact with them *.

There are causes and circumstances which favour the propagation of contagion in the diseased subject, and increase its virulence when generated.

There are also causes and circumstances which favour its reception in the healthy body.

That there is a state of body, in a contagious disease, where certain causes and circumstances contribute to increase the quantity, as well as the virulence of contagious matter, appears to me very obvious. A more aggravated degree of malignity, as it is called, will generate a greater quantity of infection, and as it may be confined in a larger or smaller space, it will be less or more

* I wish to be understood as speaking of Typhus Contagion alone, unless otherwise expressed.

noxious. The expression, Malignity, often used in speaking of this subject, ought to be explained. I would call a fever malignant, when with the symptoms of debility, there is a cadaverous smell arising from the body, an unusual foetor of the breath, stools, and other excretions, the tongue black and parched, the eye dusky or yellow, the countenance bloated and dejected, and the skin fallow. In approaching a sick bed of this kind, a person not much accustomed to such visits, will be very liable to receive the infection; and the unpleasant smell will be much sooner perceived, than by the physician, or other attendants.

Variolous Contagion, we can well suppose to be more rapidly spread from a patient with a large number of pustules, than from one with only a few; so also the confluent kind will be more hazardous than the distinct, and by whatever means the one is converted into the other. It may be objected to this, that pus taken from the confluent kind, will, by inoculation, produce the distinct sort; so may it likewise by the natural method: but this does not do away the argument, that the one species generates more contagious matter than the other. The virulence of variolous infection, like that of typhus, will be increased, in proportion to the space in which it is diffused, whether in the atmosphere, or in matter taken from a pustule. By diluting the first
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with a large proportion of air, it gradually loses its power of communicating disease. The other becomes inert by exsiccation, to a certain degree; but when softened by water at blood heat, so as to be applied beneath the cuticle, it regains its activity, unless too much diluted, when it loses it altogether. This virulence of contagion, is, therefore, nothing more, than the exhalations of the sick, dissolved in a smaller portion of atmosphere.

We draw the conclusion, that a malignant typhus is more apt to generate contagion, because we see that slight cases of the same disease, and with mild symptoms, do not extend to others, although no means of prevention have been used; and in situations too, where there were a strong pre-disposition to assist its action.

There is also a period of the disease itself, that is incapable of generating infection sufficient to produce the fever in others. We are assured of this fact, from a timely separation having prevented the further progress; and by this means alone, I apprehend, we eradicate contagion in ships or any where else. We cannot draw any line of certainty, at what time it may cease to be safe in permitting people to associate with a patient; it will depend most on the nature of the symptoms, whether they are mild or malignant.

In the small pox, the disease seems incapable of infecting another person, before the second or third day of the eruption. This has enabled us to remove

remove patients into the hospital and hospital-ship, after the disease was ascertained, so as to secure others from being affected. We have seen this in the Gibraltar, Valiant, Queen Charlotte, &c. In measles, however, this does not seem to hold good. The disease may be propagated at the most early stage of eruption; and if I was to be allowed a conjecture on the subject, I would say, that the contagion is the offspring of the catarrh which accompanies the measles.

Substances imbued with the exhalations from infected bodies, if not exposed to the air, have their powers of communicating disease increased; or in other words, the infection from *fomites*, is said to become more virulent than it was when first separated from the body.

I am of opinion with others, that the exhalations or excretions of the sick, are the vehicles of contagion. It is these which impregnate the atmosphere with noxious matter: they affect in like manner, bed-cloaths or apparel, and every thing that can imbibe them, when in contact with the diseased body. When bed-cloaths, or body-linen, but particularly silk or woollen cloth *, have been exposed to these exhalations, and then heaped together for a length of time, the noxious effluvia are, as it were, multiplied, and will more certainly infect others, than they did at first.

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* Being animal matter, and more easily liable to decomposition.

The bales of goods which brought the plague to Marseilles, and affected the people that opened them so suddenly, had their virulence increased by not being duly ventilated. When the jail fever contagion was brought into court by the prisoners at the Oxford affizes, and more lately at the Old Bailey, the fever was propagated from the cloathing of the prisoners : no doubt, from being confined in impure, ill-aired cells, this infection became more virulent. The highly concentrated state of the contagion in the bales of goods, could only have been brought to that state of virulence, from the closeness of the package ; it cannot be supposed that any human beings could have put them together otherwise. The nurses of hospitals know well, as Dr. Lind tells us, that there is most danger of catching a fever, when they pile heaps of bed-cloaths or body-linen together, for a few days, before it is carried to the wash-house. The washerwomen at Haslar have also told me the same thing. They know when a dangerous fever is in the hospital, from the bad smell of the cloathes ; this makes them air them abroad, till the smell is gone, and then they can wash them with safety. But if it happened, from the hurry, that this could not be done, or if it was neglected by design, many of them have been seized with the sickness. The porters and people employed in cleaning and fumigating the blankets and beds at Haslar, are well

acquainted with this fact, and they measure the danger by the badness of the smell. This ought to instruct every body to stand to windward of these infected substances, when they are opened; as the current of air would then carry it the other way. In one of the courts of justice, the people who stood between the prisoners and a window into which the wind blew, escaped the infection, while those on the other side were sufferers.

In the summer of 1793, while the *Orestes* brig, commanded by Lord Augustus Fitzroy, lay at Plymouth, she was anchored very near and to leeward of an army transport, which had on board a very malignant fever among the soldiers. While the soldiers were moved on deck, to go on shore to the hospital, the crew of the *Orestes*, from curiosity, walked on deck, to look at them. Such was the concentrated state of the contagion, among the cloathing and bedding of these troops, on coming from below, that eighteen people belonging to the brig, were quickly seized with the same fever; the infection of which had been conveyed by the current of wind. It did not, however, extend much farther in the *Orestes*, from the attention of her Commander. But this ought to be a caution for ships to keep clear of those that have fevers on board, as a virulent contagion may be conveyed for a considerable distance.

Dr. Lind is inclined to think, that washing the bed-linen in hot water, even when first shifted, is attended with much risk; and that the noxious matter may be volatilized by the heat of the water, and affect the woman. For this reason he has recourse to his favourite process, *fumigation*, to insure the washerwoman. The heat of his fumigating furnace, would no doubt dry the linen, and exhale any moisture: but our practice in the Charon, was to plunge every thing, as it came from the bed, into a tub of hot water kept ready on purpose. The linen was washed and dried immediately after. We had in that hospital many malignant cases of typhus, and some deaths, yet no infection was ever spread there.

Let us now inquire how infectious matter becomes more virulent, and liable to spread disease, when confined, as in beds, cloathing, or bale goods, &c. denominated *fomites*.

This fact being well known, did not fail to excite the attention of physicians to solve the mystery. The most plausible reason that could be assigned, was the generation of animalcula; the cotton or woollen cloathing was said to serve as a nest for the corpuscles to multiply; and thus the contagion was thought to increase sevenfold. We shall afterwards see that this notion entirely regulated the different methods that have been used to destroy contagion, and check the fevers

which were spread by it. This mode of accounting for the fact, was certainly a bold effort of the imagination; but I do not think it can be called any thing else; for these little animals have never been seen even with a microscope; and I cannot help concluding, that like some other animals which we have heard of, they are fabulous. The substances we are now speaking of, being more or less tainted by the excretions of the sick, it will facilitate our inquiry to know the nature of these excretions. Now the fœtor of the breath, perspirable matter, &c. evidently demonstrate that they differ from the healthy state. The smell, to our senses, comes very near to what is called *sulphurated-hydrogenous gas*. Some of the fluids within the body would seem to be, in some degree, in a state of actual decomposition; unless we can suppose the mucous glands of the lungs secreting a fluid, that taints the expired air in this manner. The decomposition of the fat, which sometimes disappears very suddenly in fevers, may give some ground for the supposition, that a large proportion of these exhalations are composed of hydrogenous gas. But whether we can go thus far or not, what is separated from the body, it is plain, is more disposed to decomposition, than when the body is in health. Now this process will still go on, whether exposed to the atmosphere or not, with this difference, that, by exposing substances which have imbibed

imbibed the exhalations of the diseased to a free air, the noxious gasses will be dissipated as quickly as they are evolved: while on the other hand, by laying the cloathes in a heap, packing them firm in a chest, or making up cloth into bales, the gasses are concentrated into a small space; *qua data porta ruunt*, and woe to the man who first inspires them!

This appears to me, to be a better explanation of this business, that substances tainted by the bodies of the sick, are more liable to communicate disease than the bodies themselves. Now this does not hold out an idea, that the powers of contagion are multiplied, as by generation; for that would be to say, that these gasses are *themselves*, what we call the matter of infection. I would only go so far as to assert, that they are the vehicles of it, till more certain experience shall determine farther.

It has been long supposed that contagion may be engendered in particular situations; and typhus fever is said to be often the consequence of this. When a number of people are confined in a small space, ill-ventilated, damp, and dark, to which may be added, neglect of cleanliness, both in person and cloathes, with low diet, and depression of spirits, a jail fever often follows. When the human body is exposed to air not sufficiently oxygenated, the faculties of mind, as well as the powers of the body, lose their proper vigour. The body, in this

case, assists in sowing the seeds of disease for its own destruction. The deficiency of the due stimulus, leaves the body in a state of debility and torpor: the blood loses its florid colour, and the muscular fibre its power of contraction. By these means the secretory organs no longer separate a healthy excretion, and the air is further injured by a foetid breath and perspiration. If intemperance in the use of spirituous liquors, is a part of the habit of living, it joins its effect to that of other hurtful causes; and hard labour, and a watery aliment, bring the subject to the degree of typhus debility.

Such is the history of human misery in many of the great towns of England. And now that I am upon the subject, it would be a sin to pass without unfolding it a little more. During the short time that I attended the dispensary of Newcastle, just at the beginning of the war, I was sent for to a poor man, in a miserable and low part of the town, called Sandgate. He was ill with what is called a spotted fever. He lay in a large garret room, on a bed without curtains, round which were standing six children, the oldest not more than nine years old. I asked the usual questions concerning his case, and whether he had any person to assist him? He answered in a tone of voice, that bespoke the deepest affliction, that his wife was gone out, for the first time, since she recovered from the fever,

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(the children had been ill first) to sell the last gear they had to spare, to *buy meal for the children!* He worked on the quay, and his wages were one shilling and two-pence per diem, for the year. This man walked to my lodgings in a fortnight, the first day he returned to work; for he said that he could not afford to lay by any longer.

When I practised as a surgeon and apothecary, after my return from Africa, at the end of the late war, in a small town in Northumberland, with an extensive country business, some scenes similar to what have been just related, came under my view. Two servants, of two opulent farmers, applied to me for relief. The first had seven children, who took the fever, one by one, till the whole became sick. His wages were one shilling per diem. His master was a rich man, and well knew the wretched condition of this family. He thought himself charitable, by allowing them to pull turnips from his field, *for food*: thus they fared as well as his oxen and sheep!

The other servant was a shepherd; but his herding, as the saying is, was a poor one. The first and second of six children, were able to work a little, till they got a fever in a severe winter, and down they fell, one after another; the father and mother at last. They wanted to sell the cow, which they thought would buy necessaries while they were ill, and pay the doctor: and by this time warm weather would come, and the oldest would be able to work. To

prevent this, a small subscription was obtained from some charitable ladies in the neighbourhood; by which means the comforts of wine and diet came within their reach. In the mean time, the master heard that a sum of money had been raised for the relief of the family. His heart opened—a rotten sheep was found dead in a furrow; he desired the shepherd to use it for his children, but to take care *to return the skin!* * Hear this relation, ye legislators, and fix the *minimum* of labour!—These cases are a few of many scenes of disease and poverty, which have fallen to my attendance.

The situation of the African negroes, confined during the middle passage, in the slave-rooms of a guineaman, has been mentioned by Dr. Lind. The confinement of so many wretched creatures, in a small space, deservedly attracted the animadversion of a physician investigating the sources and progress of Contagion. But contagious fevers we find are not their diseases. We can well believe, that if the negroes were cloathed, that filth and uncleanness might generate infection; the excessive quantity of perspirable matter emitted from the surface, in a high degree of heat, would soon accumulate, and adhering to linen or woollen cloth, might at last propagate the forms of disease. But this matter being daily washed from their skins, and the rooms kept clean, nothing offensive, or of

* What a contrast to the benevolence of our officers!

animal origin, is allowed to undergo the final decomposition, which it would do, in nasty and unventilated cloathing. Thus also the poor inhabitants of warm countries are free from the diseases of those in colder regions. Indeed, we much doubt, if a genuine typhus has been ever seen within the tropics: it has not been often seen. A Liverpool ship, called The Hankey, by being crowded with people, at Bulam, on the coast of Africa, was infected by a contagious fever, of which many died. Dr. Chisholm dates the origin of a fever at Grenada, from this ship. But his description does not correspond with our jail fever.

Does marsh effluvium differ from contagion, or in what properties do they resemble one another?

It has been argued by physicians of the first authority, that intermittent fevers arise from the miasmata of marshes, and continued fevers, from human effluvia. This is no doubt a very general rule, but it admits of many exceptions. I have seen a family, where the father was labouring under an obstinate tertian, while the mother and some of the children were ill, in bed, with a typhus. Yet the remote causes, as near as we could trace them, were the same in all. They proceeded, in the month of February, from a cold damp house, and deficiency of diet. Nay, I have constantly remarked in those ships, where contagion prevailed, that many cases of regular intermittents, and remittents, occasionally appeared. When they increased

creased in proportion, to the number of the continued type, and the latter becoming milder in its attack, I consider it as an infallible sign that the power of the infection was on the decline, and would be speedily subdued.

I shall now give some instances, where continued and intermittent forms, appeared promiscuously during the progress of one contagion. On the 12th of February 1793, I joined the *Vengeance* of 74 guns, at Spithead, fitting to receive the broad pendant of Captain Charles Thompson, for the Leeward Island station: and also to carry out five gentlemen, deputies from the French Islands to the British Ministry.

The *Vengeance* had been a guardship at Chatham, and was ready to proceed to Portsmouth, in the beginning of January, fully manned. At this time she received four hundred men from different vessels, to carry to the fleet: of this number, came two hundred from the *Nemesis* frigate, at the Nore; and among them, two men ill of the jail fever, one of whom soon died. The passage to Spithead was long, and the weather rainy and boisterous. During this time, the infection, from the two fever patients, had made a great progress; for here was every thing that could render it active, a crowded ship, new-raised men, badly clothed, sleeping on deck, a cold season, &c. Sixty cases were sent to Haslar on
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the arrival at Portsmouth ; some had been cured on board ; and when I joined the ship, there were eleven people confined to their hammocks with this fever.

The disease was hitherto almost confined to the new-raised men, who were Irish landmen, dirty and ragged to a proverb, the very dregs of jails in the metropolis. Men of this description, such as are often to be met with in ships, are the victims of all general sickness. They possess neither the courage of an Englishman or Scotsman under disease. They sink from despondency when really ill ; while at other times, with a servile low cunning, they are constantly pestering us with trifling or pretended complaints.

The usual precautions of purifying the ship were immediately put in execution, and additional cloathing was ordered to those in want of it ; at the same time care was taken to enforce personal cleanliness where it was necessary. Every man, with the first symptoms of indisposition, was carefully watched, and sent on shore.

About the beginning of March, the infection seemed to be on the decline ; which appeared from the attacks being less severe : some cases of the remittent and intermittent type, were now observed. Trusting to a mild season approaching, and the voyage we were bound, to warm latitudes, I considered the ship's company in condition for sea. The Captain transmitted this opinion officially
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to the Admiralty ; and we were ordered to depart, without delay.

On Sunday March the 10th, we failed from Spithead with a convoy. The sick list consisted of seventeen venereal patients, and seven in fever, some of them regular tertians ; and to these may be added a few with bad ulcers, who were kept on board, being valuable seamen *.

The weather was cold ; the wind at N. E. and the thermometer at noon, 44° of Farenheit.

On the thirteenth we arrived at the Cove of Cork, with two fresh cases of fever. During our stay here, the list continued to fluctuate ; some were every morning discharged to duty, and others added in the course of the day ; in both the continued and intermittent forms.

March the 23d, failed from Cork, with orders to join a squadron under Rear-Admiral Gardner, destined for the West Indies ; it having been reported that the French had dispatched six ships of the line, to these seas. From this time to the 31st, we cruized off Scilly, without meeting Admiral Gardner ; when the Captain thought proper to bear up for Spithead. The wind for the first

* It was some time before a fever of this kind was suspected on board the *Nemesis*, after she had sent her supernumeraries to the *Vengeance*. She was now come to Spithead, and obliged to go into harbour, having sent nearly her whole complement to the hospital.

fix days was tempestuous at N. E. and very cold, but shifted on the 31st to S. W. The attacks of fever, since leaving Cork, had been more numerous than on the preceding week. They were both of the continued and intermittent types; in all seventeen.

On Tuesday the 2d of April, arrived at Spit-head.

While in port, the list varied occasionally, but cases of fever still appeared. On the 16th of April sailed again. On the 28th anchored in the Cove of Cork; and sailed for the West Indies on the 2d of May, with a large convoy. Thermometer 49° . Sick list twenty-three; eleven of these, fevers and agues.

May 6. Some fever patients returned to duty; two others added to the list. Therm. 59° .

May. 10. Lat. $45,21^{\circ}$. Therm. 60° . Fevers doing well.

May 15. Lat. $32,36^{\circ}$. Therm. 62 . Only two fevers added to the list since the 10th. Both cases with regular remissions.

May 17. At Madeira. Therm. 66° . No fevers confined to bed.

The ulcers, from great attention to dressing and diet, getting fast well.

May 25. Lat. $25,25$. Therm. 69 . Only three very slight attacks of fever since the 17th.

Sick

SICK LIST.

Convalescent	-	6
Fever	- - -	3
Venereals	- -	3
Ulcers, &c.	-	9
21		

May 27. Lat. 23. 34. Therm. 74. Crossed the tropic in the afternoon, when the sailors performed the usual ceremonies. Neptune in his car was drawn round the deck by six tritons.

May 31. Lat. 20, 14. Therm. 72. Sick list thirteen.

June 4. Lat. 15. Therm. 76. This day a man died, who had the fever six weeks ago: but seemed to sink under mental affliction.

No Fevers.

June 11. Anchored in Carlisle Bay, Barbadoes. Therm. 82. Sick list ten. But neither a feverish patient, or venereal, or ulcer, of the number.

Had we been fortunate enough to proceed on our voyage when we first left Spithead, the contagious fever had probably disappeared long before it did. It was curious to observe how quickly it declined as we approached the warm latitudes. The treatment of this fever, and particularly the agues, will be given under their respective articles.

This

This ship, the Vengeance, returned home in October, in perfect health, except what she suffered, in a passage of nine weeks, from scurvy.

Some time in the months of October or November 1793, the army under the command of Lord Moira, embarked; for the purpose, as it was supposed, of making a descent on the coast of France, to assist the loyalists. Part of these troops had been originally intended for an expedition against the West India Islands, under Sir Charles Grey. But the destination being changed, and the passage expected to be short, being only the small distance from the Isle of Wight to the coast of France; it was thought that two transports could safely contain what were in three. Health on this occasion, and season of the year, seems to have been little attended to. This army proceeded to Guernsey, not being able to land on the French coast: some of the transports were driven from their anchors in gales of wind; and the whole returned to England in the end of December, very sickly. The weather was boisterous and wet all the time; which, with the crowded state of the vessels, soon spread fevers and dysenteries among the soldiers. The accommodations at the Isle of Wight, being unequal to the number of sick, a great part of the worst cases were sent to the Royal Hospital at Haslar, where I

was

was now appointed Physician. Whether the infection had been carried on board at the time of embarkation, I was not able to learn: the soldiers themselves, imputed their illness to the crowded dirty transports, and the confinement during bad weather. Many of them had not taken either medicine or food that was fit for their situation; for some of the ships had neither surgeon or mate. There were a larger number of bad cases in typhus, ague, and dysentery, than come usually to a naval hospital at one time. From the same transport, and in the same regiment, were brought people ill of the three diseases just mentioned: and the general remote causes, from every enquiry that I was able to make, appeared to be the same in all. A few of the agues long resisted the powers of medicine.

We have now seen in the Vengeance, the contagion of typhus, brought on board by two men, extend throughout a ship's company: and in the space of four months, in different subjects produce continued remittent and intermittent forms of fever. In Lord Moira's transports, something of the same kind occurred, with the addition of dysentery. To these I might add other facts in confirmation; from almost every ship which I have attended under a general contagion. Vide Mr. M'Callum's Report in the General Abstract, for May 1794.

Marsh

Marsh miasma arises chiefly from stagnant water; or its decomposition, occasioned by animal or vegetable putrefaction: for water suffers no alteration, unless substances are thrown into it, which facilitate the separation of its principles. The marsh effluvium, like contagion, acts more powerfully, in proportion to the quantity of atmosphere in which it is held. Hence its influence is directed by the current of wind; and the nearer you approach the spot where it is generated, the more certainly will the body be affected. Thus, houses near stagnant pools, by the opening of windows, have had their inhabitants seized with agues; and camps, to leeward of marshes, have suffered in a similar manner; or escaped by moving to another direction.

Hydrogenous gas being copiously evolved during the decomposition of water, would make us suppose that it is a principal ingredient in this noxious effluvium. If vegetable matter has assisted the process, of course a portion of carbonic acid gas will be added: but there are some vegetables which contain azote, and when they are immersed in standing water, it is well known that the smell becomes uncommonly offensive. Such are the water of putrid cabbages, and the ponds where flax has been steeped to effect the separation of its rind. I have frequently known this

water prove deleterious to cattle. Animal substances must therefore be more hurtful than vegetables. Salt water, in contact with vegetable matter, when confined in pools, becomes sooner offensive than fresh water; but it would be difficult to follow these ingredients through all the different forms of combination. These facts, however, strengthen the supposition, that hydrogenous gas is the chief agent in marsh effluvium. I would call it nothing more than supposition, because the ultimate decision is not to be obtained; it becomes too subtle for our senses.

What has been called the insensible perspiration, which arises from the surface, and the lungs, we have a right to believe carries with it in solution a portion of the variolous matter, which charges the atmosphere with the contagion of small-pox; even in such quantities as to impregnate the cloathing of attendants and visitors; by which means it has been frequently carried to families and villages many miles distant from its source. Different diseases generate their specific contagions by different methods; as elephantiasis, lepra, lues venerea, pfora, &c. Even the rabies canina has its organ of poison, for the saliva becomes the vehicle of infection.

The petechiæ, vibices, or miliary eruptions, and apthæ, which are common in malignant fever, form no part of the character: sometimes a few
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of them appear, and at other times nothing of the kind can be observed. We know of nothing that can propagate this fever, but exhalations from the body. But a patient in typhus was sent from the Venerable to the hospital ship, with a fœtor about him, that exceeded any thing of the kind which ever came within my knowledge. After being washed and shifted, it still continued; and was perceived at a considerable distance. He died in a few days; yet nobody was infected from him, either in his own ship, or our hospital. There was probably some peculiarity of constitution here.

We shall now take notice of those causes and circumstances which favour the reception of contagion in the healthy body. This includes both external agents, and what has been called predisposition.

The most prominent features in the character of the typhus contagion, are its generally appearing in a cold climate or season, and disappearing as summer advances. This has been long observed; but particularly mentioned by Dr. Blane. There may be many exceptions to the general rule; but the fact seems fully established. My observations have all been to this effect; that the infection of typhus is most apt to prevail in cold weather; and if it should appear in summer, it is more easily subdued.

Among the poor, in large towns and cities, who live in low, dark, and damp houses, it begins in the months of October and November; and disappears in April and May. Among the indigent labourers in country situations, where I have met with it, from the same causes, its beginning and termination vary little from this form. Even in ships, it proceeds, more or less, in that manner. We have constantly remarked, that the number taken ill in a given time, depended very much on the state of the weather. A few rainy days, in succession, never failed to increase the sick list. The people sent to Haslar from the London, complained of the weather to which they were exposed in returning the ship's stores: no particular disease was known in the Gibraltar, till she encountered strong gales of wind, with rain, in attempting to join the Fleet. The fever patients in the Vengeance were uniformly more numerous, exactly in correspondence with the weather being wet and stormy: we also observed this in the Valiant. The army under Lord Moira, when embarked at Southampton and the Isle of Wight, were thought fit for actual service: but the weather no sooner became wet and boisterous, than the sickness, typhus, and dysentery, spread in proportion.

When I first visited the Portuguese squadron at Spithead, there was not a man confined to bed;

bed; but I saw in each ship a few sickly-looking men walking about, evidently with slight symptoms of typhus. It was now summer, and the weather uncommonly warm in England. It did not require much foreknowledge to predict, that these people were not equal to sea-duty in our Channel. We left St. Helen's in the beginning of September; and, on the 1st of October, there were upwards of four hundred cases of fever among them.

Now, as cold weather, and a winter season, favour the action of typhus infection; we know that warm weather, and a summer season, assist in its extinction.

The fever which was spread from the French prisoners to our seamen, after the battle on the 1st of June, appeared in the first attacks about the 8th and 10th of the same month. There were, perhaps, never any instance of contagion becoming so general in a short time. Most of the French prizes had a number ill of the fever, particularly the *Sans Pareil*, *Northumberland*, and *Vengeur*, which ship sunk a few hours after the action; from the last the *Alfred* was infected. More than two thirds of our Fleet were by these means exposed to the contagion. The heat was greater at this time than ever I remember to have known it: this alarmed many for the safety of the Fleet. To the extreme heat, however, I at-

tributed, in a great measure, the speedy extinction of the fever: under other circumstances of season and temperature, I think our situation might have been very different.

In the cruize with Lord Bridport, off Belleisle, in the beginning of July, a fever of this kind appeared on board the *Orion*; which was first known by eleven men being sent to the hospital ship. I traced the contagion to men, who had come from the *Royal William* receiving-ship, a few days before the *Orion* sailed, as mentioned in the general abstract. The weather was very cold in the first part of our time at sea; and I think that fostered the infection: but the summer heat was now considerable. Every man with the least symptom being moved on board the *Charon*, not a single case appeared afterwards: three of these died. I could not help believing, that the warm season had a considerable share in aiding our endeavours on this occasion; because the *Orion* had a new ship's company, and not quite brought to due order and discipline.

The fever which appeared in the *Niger* frigate, affords another example of warm weather favouring the expulsion of fever. Captain Foote, who watched over the health of his people with the concern of a father, thought of nothing but being obliged to move every article out of his ship, to eradicate the disease. There occurred a few warm days about this time, which did not allay his fears.

fears. Knowing that the Niger was under the first order and discipline, I felt no alarm; but desired them to continue the separation of the diseased, as soon as a fresh attack was known. This, with other attentions on the side of the officers, and Mr. Burd, the surgeon, cleared her in a week, after sending forty-four men on shore.

The voyage of the Vengeance to the southward, may be justly cited as one of the strongest proofs we can draw; and by referring to it, I shall proceed to something else.

We shall now speak of the state of the body, that seems to favour the reception of contagion.

Authors seem to have agreed, that there is a period of life, in which fevers are more frequent than at another. After the age of forty-five, the chance is in favour of the constitution escaping diseases of this class. The reign of health and strength, therefore, appears to be endowed with something that renders the body so easily susceptible of contagion. This is that sensibility of the nervous system, which prevails in youth, and is gradually obliterated as we approach to old age. It is connected with certain external signs of character: such as a blooming florid complexion; ruddiness of the whole skin; arterial plethora, and muscular strength.

It is, however, to be observed, that it is in particular conditions of body, in the youthful constitution,

tution, that especially renders it liable to be affected by contagion, more at one time than at another. This is that state of debility, that succeeds to all præternatural excitement; such as fatigue after labour; the languor which follows debauch, as hard drinking and excessive venery; cold after being over heated; approaching the sick-bed with an empty stomach, fear of being infected, &c. We can only reason on these predisposing causes, as leaving the body in a state to be acted upon by the contagion. But the condition of people after intoxication, is a more general remark than any other; and when it is combined with other debilitating pleasures, is still worse. Many of Dr. Cullen's pupils will remember his facetious application of this fact. The Doctor said, when he was called to visit a student confined with a typhus fever, he knew very well how it was got. "My young gentleman," said he, "after getting drunk, and passing the night in houses of *a certain description*, comes the next day, debilitated with debauch, into the clinical ward, where he is exposed to the contagion."—The last season I had the honour to attend my venerable Preceptor, at the very time of the lecture he was giving on this subject, three gentlemen of my own acquaintance lay ill of the fever. After some irregularities of the preceding night, they all received the contagion at the bed-side of a hand-

a handsome servant girl, that lay dangerously ill in the infirmary; whose youth and beauty made them pay her particular attention at their visits.— Dr. Cullen would add, “that he generally found new married people among the number infected, when fevers prevailed in a neighbourhood.”

While the Fleet were infected in the summer of 1794, a part of the prize money was paid about the beginning of July. It was particularly hurtful to the seamen, and tended in a great degree to multiply the cases of fever.*

These conditions of body may also be applied to the action of marsh miasma. Hence sleeping on the ground in a state of intoxication, has been fatal to many in low damp situations; but the thoughtless sailor and soldier are the most frequent

* “At last report, I had the satisfaction to remark, that the fever, which so long harassed our people, had very nearly, if not entirely, disappeared; and, previously to the late battle, we had become tolerably healthy. Since that period, however, a fever equally virulent, or even more so, has appeared in our ship, and still continues to rage. There can be no doubt, that we owe this fresh importation to the French prisoners we received after the action of the 1st of June; as I observed several of them affected with it, a day or two after they came on board; whom I have no doubt had been ill some days before I saw them. At this time our people were apparently free from it; and I mentioned to Captain Pringle my fears of the consequence. Notwithstanding every thing was done to prevent, as much as possible, all communication, I am
sorry

quent victims of this indiscretion; hence the fatal diseases which destroy them in the East and West Indies.

The withdrawing of any accustomed stimulus from the body, also favours the action of contagion, and the effluvium of marshes. Thus, a sailor thinks he will escape a fever as long as his tobacco lasts, and dreads the end of it. An empty stomach is hurtful when exposed to either disease. Bleeding and purging are hurtful; they act by leaving the body rather in an absorbing than perspiring state.

The application of cold to the body; whether from the surrounding atmosphere, or from cold water, or wet cloathing, and whatever gives the sensation of chillness to the surface, favour, in an especial

sorry to observe, my prediction has been too much confirmed. It has unquestionably been much aggravated by the intemperance of the men. This, indeed, particularly since the payment of the prize money, has been carried to a degree of excess, which I had never before seen; and exceeds even credibility. When frequent intoxication happens in a healthy ship, it does not produce any lasting bad effect; but if it occurs where the contagion of fever is present, it is a never-failing cause of an increase of the disease. From what I have observed, I believe it to be the most powerful remote cause; and I have no doubt, that the difficulty in conquering the contagion, at so favourable a season of the year, is in a great measure to be ascribed to excessive intemperance.

(Signed)

Valiant, July 20, 1794.

Geo. M'CALLUM, Surgeon."

especial manner, the action of contagion and marsh miasma.

I have often remarked in the wards of Haslar, during cold weather, that weakly patients, just recovered from fever, frequently relapsed, by getting up, though they did not go out of doors. The allowance of coals at that time was too small for a large ward: besides, the body thus debilitated, was very sensible of cold air. We also see instances of relapse by a person going too soon out of doors, or a sailor, on board, exposing himself too soon on deck. The convalescent among the Portuguese, on board the *Europe*, by being exposed to the cold under the half deck, where they lodged, were very subject to relapses.

But I have known cases, of seamen while washing decks, seized with the rigors and shivering, which usher in the attack of typhus, after being exposed to the contagion in a sick birth. One of the most obstinate intermittents which occurred in the *Vengeance*, began in a landman, during the operation of scrubbing in a tub of cold water: this had been ordered by way of punishment for dirtiness. Now I apprehend the cold, in these cases, accelerated that accession of fever, which, for it, might have been delayed for a length of time.

We have a right to suppose, that typhus is a disease peculiar to cold countries, and that it is seldom found when the heat rises above 72° of Faren-

Farenheit. If this is a fact, it will happen that the inhabitants of warm climates will be very liable to receive the infection when they come to northern latitudes; and more so than the natives of these latitudes. It seems very generally admitted by physicians, who have written on diseases peculiar to certain regions or districts, that strangers are more apt to be affected than the resident inhabitants. The Yellow Fever of the West Indies, and the Remittents of India, with the Dysentery of both, are most fatal to Europeans newly arrived. The ague counties of England are destructive to visitors. It is proverbial of the farmers, in the unwholesome marshes, marrying wives from distant parts, as a species of traffic to accumulate wealth; because they know that a stranger cannot live long in these fens.

When a student at Edinburgh, I have often remarked the frequency of typhus fever among gentlemen from the south; but particularly those from the southern provinces of America. During the last winter I studied there, from my intimacy with some gentlemen from that country, I could not help taking notice of the frequent occurrences. Mr. Quin died that season, 1784-5; Doctors Gibbon and Lyon, with some others, recovered with difficulty.

A Portuguese squadron came to Spithead in 1793; and became so sickly, that they were obliged to land their men at Haslar Hospital: many

of them died with symptoms of great malignity. The fate of the Squadron which we have already mentioned, was still worse; yet both left Lisbon in their usual health. We know that natives of Africa are very liable to our fevers; in ships they are commonly amongst the first sufferers.

We can, therefore, easily suppose that the inhabitant of a warm country, accustomed to the stimulus of the sun's heat, from 75° to 85° of Farenheit, by changing to a northern latitude, will be more liable to diseases which originate from deficient excitement. By withdrawing the customary stimuli, the body is left in a condition more easily to be acted on by other impressions; hence the effect of contagion: in other words, they have all that has been called pre-disposition to favour its action*.

What are called the active passions, or something that strongly engages the attention, have been reckoned among the preservatives against in-

* It may be in the recollection of some of my Readers, that the combined Fleet of French and Spaniards, when off Plymouth, in summer 1779, which was my first cruize at sea, were over-run with a contagious fever, which made them leave the Channel. It is probable, that every Spanish Fleet will share this fate on our coasts. But there are not more than four months in the year, that they could venture up Channel; and at a time when we are dreading *invasion*, it may be useful to make the most of this fact.

fection. We have always thought it of consequence to engage the minds of a ship's company when exposed to a fever, and when it cannot be done by the necessary duty, something else should be substituted. To this head ought to be referred some of the means of prevention which have been devised at different times, such as charms, amulets, &c. The vinegar of the four thieves has probably been of use in this manner.

It is in the absence of stronger impressions that fear seems to favour the action of contagion; hence imaginary fears of taking the fever are sometimes converted into reality. I have seen these apprehensions so strong, that men have been sent from ships as if under the immediate attack of the disease, because they answered every question put to them, concerning the symptoms, in the affirmative. The consequence of this was, that they were put into a fever ward at the hospital, and there got the genuine complaint.

We have been informed that persons labouring under a fit of the gout escaped the plague; and we have a right to conclude, that it would have the same effect in this fever. But typhus itself will suspend some affections of the body. I have known the virulent gonorrhœa disappear for a fortnight, and return with the same violent discharge, and *ardor urinae*, as when the fever first came on.

I will

I will mention an occurrence, which came within my own observation, and which shewed that ready recollection that so eminently distinguished the medical practice of the late Dr. Cullen. In the house where I lodged in Edinburgh, my friend, Dr. Gibbons, lay ill of a fever, and was attended by Dr. Cullen. The mistress of the house, having overheard that part of our conversation which related to the manner in which Dr. Gibbons had received the infection, was immediately impressed with the idea that she would soon be seized likewise. Her fears operated so strongly, that she said, next morning, she had now got the fever, and determined to consult Dr. Cullen. Watching the Doctor with great earnestness, as he came out of the sick chamber, she put her wrist to his hand, and begged him to feel her pulse, for she was very ill indeed. The Doctor, with much seeming indifference, walked past, and did not even bid her a good morning. Such treatment, to a lady just seized with a contagious fever, was beyond all endurance. She instantly reddened, and grew angry, exclaimed with great vehemence against courtly physicians, and muttered something about large fees, &c. However, during this increased excitement from the supposed affront, the fever vanished. It broke the chain of ideas that revited the imagination, and
like

like a faithful Archæus, saw the spot which was disordered, and corrected it. Dr. Cullen, on visiting his patient next morning, with his usual complaisance, asked the lady how her fever went on? but she was now aware of what the Doctor had intended, and confessed that she was cured of her apprehensions.

I think I have seen means, similar to this conduct of Dr. Cullen, employed with much seeming success, on the first suspicion of infection, among timid people.

It has been long a general remark in our Navy, whenever contagion appears, that its earliest and most certain attacks are among the raw landmen. These, as being strangers to the modes and habits of a sea-life, are for some time awkward and dispirited, and do not at once get into the method of keeping themselves perfectly clean. It was observed in the *Vengeance*, that new men who came to fill up the places of those that went to the hospital, were generally but a few days on board till some of them would complain. Draughts of this kind were received in the ship three or four times, while she lay at Spithead; and always with a repetition of this circumstance, though much attention was paid to cleanliness. The same thing happened in the *Valiant*, and it seemed to prolong the infection.

When

When infection has been received into a ship, sometime in commission, although the usual proportion of landmen is on board, it has been found to be easily checked, and sooner expelled, than otherwise.

We have more than once seen a fever appear among the marines, who are berthed together, without affecting a single seaman for some time; and if timely attention was directed to the means of prevention, it might be overcome at the first.

In January 1790, the *Gorgon*, of forty-four guns, arrived at Portsmouth, with a number of troops on board, from Chatham, called The New South Wales Rangers, under the command of Colonel Grose; to which place the ship was bound. While she lay in the harbour, a fever prevailed among the soldiers, and several died. Accounts were brought to Admiral Roddam, the Commander in Chief, that the mortality was considerable, and the disease very dangerous. He ordered me to visit the *Gorgon*, and report to him the condition of the troops, and the nature of the sickness. I found fifteen or sixteen men ill of a typhus fever, and one or two with symptoms of immediate dissolution. Upon careful investigation, and inquiries put to the convalescents that were walking about, I found that the fever had been brought into the barracks at Chatham,

where they were embodied, by two deserters from the guards, who came from the Savoy prison, and entered into the corps, on condition of pardon. Had these circumstances been attended to at first, this infection might have gone no further. The sick lay in the great cabin of a hulk, along side the Gorgon, which I requested the Admiral to order to be moved to some distance. This being done, every person with the first symptoms of indisposition were separated, and all communication was prevented. The Lords Commissioners of Admiralty, on receiving my report, were pleased to order me to superintend the people; and every thing necessary to the comfort and recovery of the soldiers, which I thought proper to prescribe, was complied with. In a fortnight from this time, no fresh attacks were known; a few died, but the whole afterwards did well. What I am about to draw from this fever in the Gorgon, is the circumstance of the seamen in the ship being totally exempt from it: not one of them having had the slightest sign of infection. Now the troops lived in the lower deck; and when the ports were shut at night, the exhalations from below naturally ascended through the gratings, among the sailors.

In the *Vengeance*, very few of the able seamen were affected. But her condition was particular; she had on board not only her own complement of landmen, but a number she was carrying round to
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the Fleet. The infected were also some time in the ship; and so late as the 12th of February, when I joined her, eleven were ill in the sick birth; this, with the season of the year, tended to prolong the contagion.

When the Valiant received near four hundred of the London's complement, she had on board two hundred in perfect health; yet to the London's people was the infection for a long time confined. On the day before she sailed with the Channel Fleet, a landman came on board as a volunteer. The attacks of fever, for some time past, had been very gentle; yet this man received the infection in a few days, and died at sea. He had been brought up to a country life, and by being a stranger here, and not under the impressions of accustomed stimuli, soon fell a victim to the contagion.

In the Cæsar and Leviathan, our remark was fully verified. The former ship received from the London about seventy men; and the latter the whole of her marines. The Cæsar had on board the crew of the Ganges, who had been all turned over, after being twelve months in commission. The Leviathan had been in the Mediterranean, and her people were healthy and seasoned: both ships were under excellent discipline. In the Cæsar the fever did not extend above thirty cases; these, according to Mr. Seed's report, were almost

confined to the men of the London. Of the Leviathan's, those sent to Haslar, were chiefly marines, and but few seamen. Yet these ships were quickly cleared, even although the Cæsar kept some on board for cure.

This circumstance, of ships well disciplined, and long seasoned to service, being so easily cleared and secured from contagion, was certainly one of the great causes of so many ships in the Fleet being quickly free of the fever communicated from the French prisoners.

In a former part of this work, I have mentioned, that while at Haslar, some very bad cases of typhus were sent from the Coloffus and Robust, in Portsmouth Harbour, both of which had lately returned from Toulon. Yet the infection made little progress, and was quickly overcome. I do not think, that a ship's company, just raised and mixed, strangers to their officers and one another, and under no established discipline, could have escaped on these terms of health. It was, moreover, the winter season, and by coming lately from a warmer climate, they were the more susceptible of typhus contagion.

How CONTAGION is taken into the Body.

It is a point generally admitted among Physicians, that the atmosphere is the *medium* of Contagion, whether it arises directly from the sick person, or from cloathes and other articles that have been impregnated with the noxious matter. We have mentioned certain conditions, by which this matter may be rendered more powerful in its operation, by being collected, or more concentrated; and also certain conditions of the sound body, that favour its reception more at one time than at another.

On approaching the sick bed of a patient labouring under a malignant typhus, if the room is small, and not well ventilated, the smell which we have formerly mentioned, becomes very sensible. If the patient suddenly starts up in bed, or hastily throws the bed-cloaths from him, it is still more perceptible. To people not accustomed to visits of this nature, the air becomes particularly offensive; a disagreeable taste is excited in the mouth, and frequent spitting takes place: unpleasant ideas at the same time are formed, and associated with the recollection of the ghastly looks of the sick man, which cling, as it were, to the memory. If the mind attends feelingly to these sensations, they lead to others which evidently show the effects of contagion; the change of air does not seem to alter the nature of the smell; and the taste of the

mouth is rather more disagreeable, with dryness, even to a slight degree of nausea, and some efforts to vomit. A languor, lowness of spirits, inaptitude to motion, apprehension of evil, drawing near the fire, and drooping the head, with a sense of heaviness of the eyes and forehead, follow next. A creeping sensation is felt over the skin, which becomes paler and dryer than usual: the coldness increases, with now and then a slight shivering: there is also a degree of anxiety, with pains of the small of the back, and limbs, or stitches in the side and breast, as they are often called. The coldness on the surface and shivering, sometimes stop for a while; or are alternated with a transient glow of warmth, which soon vanishes, when the rigours and shaking or trembling recur with more violence: even to make the patient grasp at something to support him, lest he fall down. The countenance now appears more dejected and dull, and the features shrink, the face is sometimes suffused with tears, and now a confusion of thoughts takes place. The heart is occasionally affected with palpitation; and the pulse fluttering and feeble. Women fall into hysteric fits; and I have even seen men who had the affection of the *globus hystericus*, as exquisite as in the fair sex. I have also seen epileptic paroxysms at the accession of typhus.

Contagion can be often traced from its source, to its first reception into the body, in this manner,
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till the fever appears in its full form and character. From cloathing and other substances imbued with the exhalations from a fever subject, the same train of symptoms follow. Seamen are very often infected in the act of tying the bedding and cloathes of their sick mess-mates, when they go on shore to hospitals.

The period for the fever, or symptoms of infection, making their appearance, varies according to the concentrated state of the contagious matter; or the causes and circumstances which favour its action. We have just traced it from the most early effect; but at other times, days and even weeks are necessary to produce these appearances in the body.

The disagreeable taste of the mouth, the spitting, nausea and vomiting being such early symptoms, have induced some to conclude, that the infectious matter is received by the saliva, taken into the stomach, and from thence by the circulation conveyed to the body at large. This way, however, does not appear to me to be the mode of its action: for by throwing out the saliva, we should be secure against it; which we know not to be the case. The effects of the poison are sometimes so sudden, as to give no time for this circuitous mode of operation. While the people were unpacking the bale-goods at Marseilles, they were affected instantly: we have seen delirium in many persons, the first symptom

of typhus ; we must therefore suppose, that it acts immediately on the powers of life. We can see no objection, why it is not communicated to the nervous system through the lungs, independent of any chemical change, which an impure atmosphere may effect in the blood. As the air conveys the hurtful quality, it is surely more reasonable to think that it acts by the organs of respiration, than by the stomach or lacteals. The sickness, and anorexia, appear to me symptoms of mere consent of parts, which constitute a share of the phenomena of fever, and only secondary.

A certain quantity of infectious matter, it would appear, is necessary to affect the body with disease. But I consider the symptoms of fever, as motions of our sensitive system ; excited by impressions of the noxious power, that are prejudicial to health, and not as efforts of a *vis medicatrix naturæ* ; they are only signs, that the present state differs from the customary tenor of our habits and propensities. Now the phenomena of fever, being attendants on very different conditions of body, we have a right to conclude that they are *always* symptomatic.

If the impressions made on our system by the contagious matter, whether breathed or swallowed, have not been sufficiently strong, they induce, either a trifling indisposition, or none. But if they have been strong enough to produce disease ; and if the means made use of to overcome them in
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limine, have not had the desired effect ; it beomes a difficult matter to eradicate them afterwards. They seem to occupy the whole attention of the body ; their presence constitutes the length of the fever. If they wholly suppress the accustomed actions and habits which we exercise, it is *death*. But if the accustomed motions and actions, which by length of time had been confirmed into habit, should gradually recover their former energy, then the diseased state declines in proportion, till the body at last returns to the vigorous enjoyment of all its appetites, which is *health*. We know nothing of what has usually been called a crisis; and far less of concoction and evacuation of morbid matter.

Treatment of Infected Persons.

IF after a person has been exposed to contagion, few or more of the symptoms which have been enumerated take place, there will be reason to expect a fever as the consequence.

It would seem to be the practice of the best physicians, to prescribe for the state of the patient, not with a view to expel the contagious matter from the stomach or body, but to counteract its effects. The bad taste of the mouth, the want of appetite, and sickness at stomach, very naturally indicate an emetic ; and this has been

been the most general practice. About fifteen grains of ipecacuenha, joined to some of the milder antimonial preparations, will answer the purpose : or, the following formula :

R Tinct. ipecac. - - ʒi.

Vin. Antimon. - - ʒiij.

Ft. Haustus.

The best time of exhibition is towards the evening. The patient ought to be put to bed ; and at bed-time, let him take the following bolus or draught :

R Pulv. Antimon. - - - gr. v.

Opii purif. - - - - - gr. i.

Confect. Aromat. - - Ft. Bolus ;

Hora somni fumendus : Or

R Vin. Antimon. - - - ʒij.

Tinct. Opii. - - - gr. xxvij.

Aq. Cinnam. - - - ʒi.

Ft. Haustus ; h. f. f.

A few glasses of wine made into negus, stronger or weaker according to the person's habits of drinking, or warm wine and spices, may be taken afterwards ; and then let him be left to his repose.

In the morning, if the bowels are open so much the better ; but otherwise, a gentle dose of the tartarized infusion of senna, will be useful. Though it may be necessary to keep the patient quiet ; yet his mind should be so employed and amused,

as to divert him from all unpleasant feelings. The air of the room should be pure, but it is necessary at the same time, now, and throughout his illness, that it should be sufficiently warm. I think it ought never to be below 60° of Fahrenheit, or above 68; and often changed. If the weather out of doors permits going abroad, I would recommend it.

It is at this period of typhus only, that preparations of antimony appear to be useful. I know not how they act; I consider them as less active stimulants, when given in small doses. The pulvis antimonialis ought therefore to be continued, to the quantity of four or five grains, three or four times a day; and the opiate combined with the last dose at bed-time: wine may be given in proportion to the debility and desire for it, so as to support the pulse; which should be carefully watched, as by it, we must regulate the stimulant plan, without carrying it to excess, or inducing that debility we wish to avoid. When our patient is thought to be free of all complaints but weakness, let moderate doses of cinchona be given, and let him keep warm, use exercise, amusement, and a diet nourishing and stimulant.

How to subdue Contagion.

IF pneumatic chemistry has assisted us in explaining the nature of contagion, and the manner it is conveyed from one person to another; it also teaches us how to weaken its power, so as to be no longer dreaded.

The great experience which the late Dr. Lind had on this subject, in an hospital, better calculated to afford information than any other in Europe, justly entitled his opinions to be heard with confidence, and practised universally. On a branch of medicine, however, always traced with difficulty, and scarcely to be known but by its effects, conjecture sometimes obtruded instead of proof, and hasty conclusion in the place of demonstration; hence we find this celebrated physician assuming a fanciful hypothesis for his theory, and on which he builds the whole superstructure of his practice. The following paragraph may be taken as his text: he says, "The clearest
"idea we can conceive of the manner in which
"this infection is communicated, is to suppose,
"there is in all infected places, adhering to certain substances, an envenomed *nidus*, or source
"of effluvia, *corpuscules* or whatsoever infection may
"be supposed to consist, and that as the air is more
"or less confined, becomes more or less strongly
"impregnated with them *." In some parts of

* Papers on Infection.

his valuable papers on fever and infection, the Doctor appears to be satisfied that *animalcula* had nothing to do with the propagation of contagion; but here he relapses into the old doctrine, and supports it in new terms, and an improved nomenclature. He looked upon infected cloathing to be this envenomed *nidus*, where a new generation of *corpuscles* were multiplied, which gave to the noxious matter an increased virulence, and became more certainly productive of the disease, than when it first issued from the body. That this was his meaning, is abundantly confirmed by all his rules for expelling and purifying contagion. Every substance which he prescribes is with the direct intention to destroy animal life; hence the heat of an oven, fumigations with brimstone, gunpowder, tobacco smoke, boiling vinegar, &c. are his executioners. It was not only to purify cloathes, bedding, and other substances, that these fumigations were applied, but the wards of the sick in hospitals, and the decks of ships, became also subjects for the process.

Heat I consider as one of the most powerful correctors of contagion; it rarifies foul air, or what may be spoiled by respiration in crowded apartments: applied to substances imbued with animal miasma, it will dissipate that, or convert it into an inert mass, so as to be harmless. Wherever there is moisture, it will dry it; and above all,
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it is useful, as a general stimulus to the body, keeping it warm, and thus fortifying it against cold, which so evidently tends to dispose it to receive infection.

Of some of the substances used in the fumigating process, I have nothing to say in praise. I do not think that they are harmless only, but hurtful. Under the high authority of Dr. Lind's name, they are thought to be the only safe and certain means of expelling infection, and have been long practised in our ships *. When this is to be done in an infected ship, but it is often performed in health as a preventive, the people's cloathes, bags, and hammocks, are all hung up or spread abroad in the lower deck, in order to be perfectly impregnated with the fumes; the scuttles and ports are closely barred in, and the tarpaulins closely laid over, that nothing may escape. Gun-powder, brimstone, &c. are then burnt below in quantity sufficient to pervade every corner. This is sometimes so compleat, as to kill cats, rats, and mice, or other vermin in the ship. During this process, which is occasionally continued daily for two or three hours, the ship's company is kept aloft; not always in the most temperate weather.

* In the *Colloquia Maritima*, published in 1688, I find that fumigations were employed to correct foul air: see quotations from this book, under the article *YELLOW FEVER*.

Some officers have a high opinion of the fumigations; yet I have been often asked, in infected ships, how it came that the fever was still spreading, though they persisted so carefully in smoaking? The truth was, other means became secondary considerations; so great was the faith in the burning brimstone, that little attention was paid to the early separation of the diseased. But this was not all; the people being exposed to the cold on deck, in a state of inaction, were evidently hurt by it. Immediately after the process was finished, fresh cases made their complaints known, and it seemed to hasten the rigours and shivering. I have seen this practice of smoaking continued without intermission for weeks; and when I could not be prejudiced against it, have found the contagion go through its regular course, and at last die away of itself. In the winter season, when there is danger of the seamen suffering from the inclemency of the weather, I have constantly forbid it. I know no condition of a well-regulated ship, that can stand in need of these vapours.

When a fever of this kind breaks out in a ship at sea, particularly in bad weather, she must of necessity quit the sea: but a sick birth should be immediately fitted for the infected, as far as possible from the others, and all communication strictly prevented. A man of war admits of few conveniencies in such a case; but the Captain,

under such circumstances, should have it in his power to order fops and bedding, when wanted, from the stock of the purser, that the sick may be often shifted; and soap should be allowed, to keep every thing clean that belongs to them. Much might be done by attention to cleanliness, in both cloathes and person, and it would be a great means of checking infection on the earliest discovery. Some steady old men, who run little risk of receiving the disease, should be appointed attendants on the sick, and furnished with every thing necessary; such as a few coarse cloths for wiping the patients after being washed every morning; spare night-caps, after the hair has been cut, and shirts and frocks made into sheets*.

On suspicious sickly men coming into a ship, the surgeon ought to examine them attentively; about the places they came from; whether any fevers or other disorders prevailed in the neighbourhood, and also in what vessels they were conveyed from the out-ports to the ship. An in-

* I have been told, that the new Medical Board of the Navy, have it in contemplation to supply every ship with a certain quantity of bedding. I would recommend the mattresses to be covered with leather, or canvas painted, so as to exclude moisture from the hair within; by which means they would neither imbibe infection, or be difficult to be cleaned. This method of constructing mattresses would be a great improvement in all hospitals. With these articles we must expect soap, coarse towels, &c.

fectcd subject ought to be sent out of the ship with all speed, and every thing belonging with him. There is no certainty in any means of expelling contagion, but removing the infected. The slightest case should not be left on board for some time, till there is an assurance that the strength of it is subdued. I have seen a man kept in the ship, because he was thought to have the fever in a milder degree, and being a useful man, which has prolonged the infection for weeks. There ought, therefore, to be no deviation from this rule. In the present improved discipline of our Navy, I have never found it a very difficult business to eradicate an infectious disease, provided my directions were duly complied with. The system of duty in our ships at this moment, is so perfect in all its branches, that I have nothing to add. The whole preservative means are comprised in, the immediate removal of the sick, cleanliness in person and cloathing; fires, to keep the people, in the winter season, warm; avoiding cold and moisture, fatigue and intoxication, and keeping the ship dry, and properly ventilated. In an infected ship, an active and sensible officer will be employed in airing his people's bedding and cloathes; distributing orders to the inferior officers, to see that their divisions of the seamen are clean in their persons, that their dirty things are washed twice a week, and that they have cloathes sufficient to keep them warm. If the weather is cold, we

shall see him ordering the decks to be dry rubbed with sand, or scrapers, and washing with water laid aside; his men will not be allowed to go aloft when it rains, or into boats when it blows hard. To give the decks a cleanly appearance, they will be well white-washed fore and aft, above and below: and lastly, to combine in his method the advantages of pure air with warmth, the ports will be opened to leeward, and only the scuttles to windward; or the whole fitted with sashes of bunting, and stoves lighted in every part that can do good. To all these means of preserving health, amusements will be found to keep the minds of the people in action; violins, and other instruments of music, being common in most of the King's ships, are usually employed in the evening, and the seamen and landmen are seen joined in the dance*. A physician of a fleet, who may visit
a ship

* It has often occurred to me, that a band of music would be extremely useful in a ship, even as a preservative of health. In the last ship where I was surgeon, the Vengeance, Captain C. Thompson, and the Officers, purchased musical instruments; and five or six men, who were performers, made into a tolerable band. The people were regularly piped to dancing every evening: and I always thought it but justice to allow it a share of credit in the extinction of the typhoid contagion. To a set of human beings, confined for months together within the gloomy walls of a ship, the exhilarating powers of music could not fail to produce the most salutary effects. Our immortal Shakespeare very justly thought that man fit *for crimes*, who could not be touched with the concord of *soft sounds*.

In

a ship under the command of an officer of this description, though armed with a diploma, and with the chemistry of the elements at his fingers ends, will find that very little has been left for him to do; whether his doctrine of prophylactics, be the *vinegar of the four thieves*, or the fumigations of modern physicians, under the scientific appellations of Sulphurous Gas, Muriatic Acid Gas, or Nitrous Gas.

“Spithead, July 2, 1796.

“SIR,

“THE subject of a contagious Fever, on board the Niger frigate, at Spithead, having attracted the attention of the Lords Commissioners of Admiralty, to order a particular process for the purification of the ship; I have to request you will be pleased to communicate these remarks to their Lordships, as I consider the welfare of the Navy deeply interested in the discussion.

In like manner I would pronounce a physician strongly fettered in the craft of *technicals*, that excludes from his *Hygiene*, the exciting influence of melodious notes, or the agile movements on the “*light fantastic toe*.” I am myself passionately fond of both; and nothing gives me more pleasure than to see it extended to the seamen.—This naturally makes me ask, why a regiment is allowed a band more than a ship of the line?—Give your Tars, O my countrymen! their amusements; and while you enjoy your’s on shore, remember who they are that give them security!

“ Immediately on being informed of the Niger’s situation, I could not help thinking that the fever had been brought from some of the vessels, which were lately boarded on the coast of France. Captain Foote since tells me, that some bedding had come to the Niger from a brig that had been employed in carrying troops from Brest to Bayonne.

“ In reporting the condition of the Niger to Vice-Admiral Colpoys, I considered it necessary that she should be detained, till the disposition of the contagion should be sufficiently known, or so far subdued, as not to endanger the lives of the people. From the cases that were examined, I dreaded no mortality; and from the compleat mode of discipline established under Captain Foote and his officers, with the careful separation of the infected, I did not doubt of the speedy extinction of the fever. They had judiciously practised every means that have been found most successful: and a concern for the health of his people, truly paternal, has directed Captain Foote’s endeavours on this occasion.

“ A pamphlet containing Dr. Smyth’s address to Earl Spencer, has just been put into my hands. I now conceive it to be my duty to make some observations on the manner in which it seems to have engaged their Lordship’s attention*.

“ There

* “ An Account of the Experiment made at the desire of the Lords Commissioners of the Admiralty, on board the Union.

“ There can be but one opinion, that pure air is fittest for animal life : therefore the correction and expulsion of a tainted atmosphere in ships, have always employed a sensible officer. Fires are occasionally put into the holds and wells, to dislodge *carbonic acid gas*, or in plain English, fixed air. Another foul air, our officers are in the habit of expelling, is *azote* or *mephitic air* : this is performed by opening ports and scuttles, unlaying gratings, and putting down wind-sails. The fixed air of the well, is produced by the decomposition of water and vegetable matter, as the timbers of the ship. The azote is of animal origin, and abounds, whenever the air is polluted, by breathing animals ; as, between the decks of a ship. It derives its name from being fatal to animated nature. Now this azote is the base of nitrous acid : they only differ in the degrees of combination with oxygene, or what was formerly called dephlogisticated air : and in proportion to the quantity it attracts of this principle, it is called Azote, Azotic Gas, Nitrous Gas, Nitrous Acid, Nitric Acid. In short, Dr. Smyth's Preventive, is the very substance that every intelligent officer is hourly employed to drive from the decks of his Majesty's ships.

“ In

Union hospital ship, to determine the effect of Nitrous Acid, in destroying Contagion ; by J. E. Smyth, M. D. F. R. S. &c. *Johnson, London, 1796.*”

“ In Doctor Smyth’s process, when the nitrous acid is converted into gas, it loses a portion of pure air ; it is now an elastic fluid, under the title of Nitrous Air, or Gas ; in this state it will remain for some time, till it again, by chemical attraction, recovers its pure air : which it will do sooner in proportion to the purity of the atmosphere, when by its specific gravity it will fall to the deck, Nitrous Acid ; or to be more intelligible, it is turned to *aqua fortis* ; for the nitrous gas is nothing else but the fumes of *aqua fortis*. Azote, the base of the nitrous gas, which I am now speaking of, being of an animal nature, is produced in greatest quantity, during the putrefaction or decomposition of animal matter : by exposure to the air it passes from azote, through all the degrees, till it becomes nitric acid ; when by throwing pot-ashes to it, it becomes salt-petre ; witness the gun-powder system of the French democracy, where all animal substances have been put in requisition for the formation of nitre. Had Captain Foote, of the Niger, instead of duly ventilating his ship, with a change of air, shut every port and scuttle, laid the tarpaulins closely over, and ordered every man below, an atmosphere of azotic and nitrous gas would have been formed, in such quantity, that would have suffocated his whole crew in the space of a few hours.

“ If what I have asserted be matter of fact, how improper must it be to introduce this lethal vapour

vapour between a ship's decks, that ought to be occupied with pure atmospheric air. The conclusion to be drawn from it, does not rest on my authority; it is well known to every chemist.

“The idea that has given birth to these experiments, is evidently a remnant of the exploded doctrine, that contagion originated from *animalcula*. Hence a distorted philosophy ordered us to burn brimstone, and fire gun-powder in our ships: its Protean form, under the nitrous gas, is equally repugnant to chemical truths, as it was before. If such has not been their origin, there is an unpardonable negligence in chemical subjects, in a work avowedly held out as confirmed by trial and experiment.

Their Lordships have been told, that the bad smell disappears from the use of the gas: but any other substance, as the smoke of tobacco, or asa-fœtida, that gives a stronger impression to the olfactory nerves, will do the same thing.—But then it will be said, the success on board the Union hospital ship, proves its utility. I flatly deny, that this appears from the narrative itself; there is a deception, from first to last, in the business. Among whatever body of men contagion makes its appearance, there will always be found some more susceptible of it than others. Those who are most disposed from particular causes to receive infection, will be first seized; it

will then extend to others; and there will, at last, be found some who escape it altogether. Even the plague itself proceeds in this manner. Now, if any *charm*, *nostrum*, or pretended preventive, be introduced at the stage of infection, as happened in the hospital ship, Union, it will gain a credit it never merited; and the exemption from the disease ought to be explained by a very different mode of reasoning. This has been the tenor of all prophylactic processes, from the vinegar of the four thieves, to the present invention. I might produce a numerous train of facts to support further arguments; but they cannot be made sufficiently intelligible to those inaccustomed with medical and chemical disputation. They will appear when the Medical Records of the Channel Fleet are published, with a mass of evidence, on the subject of Contagion, greater than has usually fallen to one observer. If success ought to give preference to modes of practice, I might appeal to the sudden extinction of the fever, spread from the French prisoners after the memorable 1st of June 1794, to two thirds of our ships; and in more than thirty other ships that have been cleared under my directions at different times.

“ It ought to be remembered, that in a clean and well-aired ship, contagion can lodge no where but in the bodies, cloaths, or bedding of the people.

people. When we purify, by washing and airing all these articles, or remove them, the sources of contagion are destroyed. Nay, whatever renders the air more unfit for respiration, must also dispose the body more to receive infection; because it weakens the powers of life. I even consider the most agreeable aromatic odours superfluous, because they may deceive our senses of smell, with respect to the state of the atmosphere; which, when pure, and frequently changed, admits of no foreign aid. By these means, the exhalations from infected bodies become diluted by so large a portion of air, as no longer to convey disease*.

“ Having said so much, I consider myself bound to explain any obscurity which may appear, should

* Air flues, or pipes, might certainly be constructed, on some plan, to facilitate the escape of the foul air from the decks where the people sleep. When five or six hundred men lay on one deck, the space cannot be always sufficiently ventilated by the hatches; for if it happens to rain, these are occasionally covered with tarpaulins; so that the pure part below must be rapidly consumed. Now the most noxious portion of the air, from specific levity, occupies the highest stratum where the hammocks are slung: small tubes, to communicate with the air aloft, would therefore conduct the tainted atmosphere upwards, as quickly as it was collected; and would admit a fresh draught for a more healthy respiration.—All hospitals, and places where a number of people crowd together, such as assembly-rooms and theatres, ought to be furnished with these conductors for the escape of azotic gas.

their

their Lordships think proper to submit my opinions to any authorities competent to decide. They will forgive my intrusion on this business, while it remains a part of my duty to infuse into our system of health, every discovery which the auxiliary branches of medical science may publish; while, at the same time, I ought to take care that nothing noxious may enter either the air or diet of a seaman*.

I have the honour to be,

S I R,

Your faithful humble servant,

TO EVAN NEPEAN, Esq.

T. Trotter.”

Admiralty.”

The Lords Commissioners of Admiralty were pleased to order their secretary to transmit the above letter to the Commissioners for sick and wounded,

* I am obliged to Mr. Burd, surgeon of the Niger, for the copy of my original letter; which he took as it was about to be sent to the post; otherwise, I should not have been able to give it a place here, having had no time to transcribe it.— It was my wish, that the Lords Commissioners of Admiralty should be acquainted with my opinion, of this process for destroying contagion, before the health of the Niger's people could be ascertained. By this I must beg leave to acquit myself of any misconstruction or pre-possession of Dr. Smyth's form.

wounded, for their report; which is contained in the following letter to Mr. Nepean, a copy of which was transmitted to me.

“ Office for Sick and Wounded Seamen,
July 11, 1796.

“ S I R,

“ We have received your letter of the 5th instant, inclosing one which you had received from Dr. Trotter, physician to the Fleet, and signifying the directions of the Right Hon. the Lords Commissioners of Admiralty, that we should consider and report to you, for their information, our opinion on the several matters stated by the Doctor, on the subject to which it relates.

“ We observe what we conceive to be inaccuracies in several parts of the Doctor's reasoning, some of which we shall point out to their Lordships. He alledges, that the azote, as it is called by the French chemists, or phlogisticated air, as it is called by the English philosophers, differs from the nitrous gas, and nitrous acid; only in degree; whereas the former is understood to be intirely without vital air, which is one of the component parts of nitrous gas and nitrous acid, and by giving them the properties of acids, renders them essentially different from the pure azote. We might farther remark, that this azote is so far from being deadly, or even noxious, except in its
most

most concentrated state, that near three fourths of the air *which we breathe* is composed of it; and that it is not correct to assert, that the azote is derived from the living animal body. For it is considered as proved, in chemical philosophy, that the chief changes which common air undergoes, when it is converted into the above mentioned azote, by the respiration of animals, arises, not from any addition it receives from animal effluvia, but from the absorption by the lungs of vital air; which is the other principle component of the atmosphere, and which, when abstracted from common air, by breathing, leaves in a state unfit to support animal life. But we judge it unnecessary to detain their Lordships with further details of this kind, as we apprehend this question is to be decided, rather by plain experience, than by scientific deduction.

“ We agree with Dr. Trotter, as to the great importance of attention to ventilation on board his Majesty’s ships, together with personal cleanliness, which will, without doubt, prevent a possibility of the generation of infection. But, for the speedy destruction of infection already generated, we are of opinion, that something more than ventilation is requisite; and that the use of fire and fumigations with sulphur, is the most effectual mode of annihilating infection.

“ With

“ With respect to the noxious quality of the fumes of nitrous acid, proposed to be employed to destroy infection, by Dr. J. C. Smyth, we can produce unquestionable authority that these fumes, when drawn into the lungs, undiluted with common air, are highly noxious. But in the diffused state, in which they have been used by their Lordship’s orders, it does not appear, that any considerable inconvenience was experienced from them: and whether any bad effect would arise from these fumes, even when diluted, being applied to the lungs for a length of time, is a fact concerning which we have not yet had sufficient experience to decide.

“ As to the nitrous fumes, in the manner directed to be employed by Dr. Smyth, being adequate to the destruction of infection, which fact is controverted in such strong terms by Dr. Trotter, we have already intimated to their Lordships our opinion, that the trial on board the *Union* is not, alone, of weight sufficient to determine this matter; especially as the mortality among the Russians, and the sick among the attendants at Deal, where the usual modes of prevention were practised, was less than in the *Union*, where nitrous fumigation was put in practice.

“ Besides the farther trials ordered to be made by their Lordships, we have directed one to be made at the Mill Prison, at Plymouth, and shall
continue

continue to embrace such fit opportunities as may offer, of bringing this matter to an unequivocal decision.

(Signed) *R. Blair.*

TO EVAN NEPEAN, Esq;

Gil. Blane."

Dr. Smyth's process for destroying contagion, having been introduced into a ship in the Fleet, it was not left for me to remain any longer a passive spectator of the business; otherwise I might have saved myself an unwelcome criticism. It happened, however, that the fever in the Niger had been completely subdued before the use of the nitrous gas; the credit of which was solely due to the attention of Captain Foote, his surgeon, and officers. Captain Foote was not a little hurt when the resident Commissioner of the sick and wounded came on board this ship, to detect the foul air which had caused the fever. This gentleman was conducted into every corner of the Niger by the Captain; but the atmosphere proved to be sweet to the very keelson; she was, indeed, a ship in that kind of order, where a physician would always wish to fix his field for experiment; for what depended upon the exertions of officers and men, would certainly be executed; and so it proved with the expulsion of this contagion.

In addressing the Admiralty on the subject, with a desire to render my language familiar, I have been apparently betrayed into some seeming inaccuracy, as mentioned by the Commissioners of sick and wounded. I wished to impress their Lordships with the idea, that this process was really introducing an atmosphere into our ships, which we are constantly endeavouring to expel. There is no great difference between azotic gas and nitrous gas; and I contend, that the latter, however diluted by common air, is in direct opposition to the purposes we intend by a free ventilation. The formation of nitrous acid, is a process constantly going on in nature; and whether we subtract the oxygene, the vital air, or add nitrous gas, it is plain that we render the medium in which we breathe less fit to support life: hence I used the common word, *pollution*. Nay, a captain of a man of war would be acting up to the principle laid down, if he neglected all attention to opening ports and trimming windsails, to keep the gas in the decks as long as possible. The definition of this gas is, that "*it extinguishes light and destroys animals.*" Now, to say this becomes harmless, when in a diffused state, is no argument in favour of its virtues; when respired for a length of time, it may have all the bad effects that a single inspiration would have when it is undiluted. If a person takes a small draught
out

out of a quart of water, in which thirty grains of arsenic have been dissolved, he may feel no inconvenience; but if he drinks more, or a little now and then, death may ensue.

There is one part of this question, that the advocates for this gas, or any other gas, as correctors of an infected atmosphere, have altogether overlooked. The disease that generates this infection, is the very offspring of an impure air: the very symptoms characteristic of it, show the deficiency of vital air in the body, muscular debility, pale or bloated looks, and hæmorrhages of a darker blood. Some physicians of eminence, at the head of them Dr. Beddoes, the celebrated chemical philosopher, contend, that the cure depends upon restoring this lost principle; and we all know how grateful a pure draught of air is to a typhus patient. Now while we attempt to preserve health, let us not forget our duty to the sick. But in the ardent pursuit after these factitious airs, to correct contagion round the bed of a fever patient, they seem to think of nothing else. Dr. Smyth, and his experimenters on board the *Union*, seem to have been satisfied, if the sick men in bed did not cough from the irritation of the gas: nay, while one of them congratulates the Doctor on the immortal honour he will derive from his invention, and he in return, recommends him to the first Lord of the Admiralty, both are confident that
the

the diseased people received from it much benefit. It appears from the report of the Commissioners of sick and wounded, that they are prosecuting a final determination, on the effects of the nitrous gas. I do not think that it remains to be decided, but is already done, by the united experiments of all chemists. They too, I find, from the opinion they have given of fumigations of sulphur, are supporters of the old theory. If there had not been a pre-conceived idea of the nature of contagion, how otherwise would physicians have ever thought of such agents as they have employed. Gun-powder and brimstone burnt by charcoal, give out gasses much resembling one another. The famous Morveau changed it for muriatic acid gas * : and Dr. Smyth now contends for the superior efficacy of the nitrous gas. The medicine has been changed, but the theory remains the same ; and what is a little strange, they keep it in the back ground †.

Notwith-

* Morveau, the celebrated chemist : the last accounts which we have heard of him, was his employment as a naturalist, capering after Bounaparte's army, in Italy. He has probably been more successful in his new office ; a singular appendage to an army !

† Supposing, for a moment, that the exhalations of diseased subjects, which convey infection, were *hydrogene*, whether combined with *sulphurous*, *phosphorous*, or *carbonic acid gas* ; nitrous gas,

Notwithstanding the long and extended practice of fumigation in our ships, and at the hospitals, it does not appear to me, that there are any clear and decisive testimony of certainty as to its effects. The good effects of heat, I readily admit. But heat is combined with the fumigation, in purifying cloathes and bedding at our hospitals. Probably, the heat is sometimes not great enough, from inattention in the labourers ; because during the period of my four months in office at Haflar,

gas, according to elective attraction, would combine with the oxygene ; which it always does, and returns to its former state, nitrous acid, while the infectious matter would remain the same. The experimenters on board the Union ought to have told us, the precise condition of pre-disposition, in all those people who had the fever from the infected Russians : their ages, constitutions, in what part of the hospital they did their duty, whether they attended the worst patients, and also whether those who escaped had not peculiarities of sex, age, temperament, &c. that resisted the contagion. In the extensive practice which I have had in the Fleet, had it been my intention to try any *preventive*, how easily might similar proofs have been laid before the public, to confirm my supposed superior method, when it appears that a practice made familiar to officers, is all the *mighty magic I have used*. I am not a little surpris'd that Dr. Smyth, in compiling his report, entirely overlooked the judicious alterations proposed by Mr. Menzies : to which every reader, acquainted with medicine, will readily bestow more praise, than to the nitrous gas.—I sincerely wish that it may be the last effort of this kind, to draw the attention of our Public Boards from more valuable regulations to subdue Contagion.

sixteen cases of typhus occurred, that could be traced to the bedding, in chronic wards, which had been formerly in those of fever patients. But I have always thought it a fair conclusion, that two-thirds of our people, who relapse after returning to their ships, owe this second illness to imperfectly-cleaned cloathes and bedding. In the last infected ship of the Fleet, the men returned with their cloathes all dirty. The Captain ordered them to be washed ; the men rose early to perform it, when seven were seized with convulsions and relapses so badly, as to be sent on shore a second time. Although I attributed the relapses of these men, to cold or fatigue, yet it justifies my general objections to this mode of purification ; and I long to see more attention paid to the cleanliness of our seamen's apparel, than has hitherto been done.

The following quotation shows that Dr. Lind himself, was not altogether satisfied with simple fumigations. He says, " But in prisons, ships, " or places, where the people cannot be moved, " and consequently a *sufficient* degree of heat cannot be raised ; the application of fire and smoke, " to remove infection, may prove *ineffectual*. I " am confirmed in this assertion, by repeated " instances of infection in ships, both at sea and " when lying at Spithead, where every method " failed of putting a stop to it, as long as the

“men remained on board *.” It was to answer the desideratum mentioned here, that Dr. Smyth flew to the nitrous gas. Now this quotation exactly agrees with the observations of officers, who complained to me of the progress of contagion, after all the care and perseverance in the fumigating process. The plain reason was, that these officers had so much faith in the practice of smoaking, that other precautions were very secondary considerations. Now when the people were moved, large fires and a greater degree of heat and smoke would be diffused through an empty ship; and this was thought to be certain purification. In the mean time the fever would be dying a natural death elsewhere, among the ship’s company; and after some weeks, when extinguished of its own accord, the people would return to their own vessel, where the fumigations are said to have worked wonders, though the ship could have no share in prolonging infection. It is thus, by overlooking collateral evidence, that error and misrepresentation are perpetuated.

Having, in these remarks, given my sentiments against the theory of animalcules, corpuscles, or if you chuse, living atoms, as well as the different noxious gasses employed to destroy them; I will

* Papers on Infection.

go farther, lest the question should be evaded by introducing another doctrine. The articles proposed for the correction of contagion, being all substances prone to combination, I would ask the advocates for their use, the following questions :

Is there a chemical union between the gasses, and the exhalations of diseased bodies, as propagators of infection ?

Is contagion itself a substance, subject to the laws of chemical attraction * ?

If one of these queries cannot be answered in the affirmative, the whole business must be left to conjecture, or future experiment.

During the diffusion of the nitrous gas, between decks, on board the Niger, it excited *general coughing and head-ache*, which did not go off till the people had been some time exposed to the free air. What degree of dilution do they intend to fix in order to render it respirable ? Now if such unpleasant feelings were produced among people in health, is there not a degree of unpardonable levity, in carrying on this process, under the very cradle of a man sick of a fever, whose

* The chemical Reader, will be pleased to recollect, that these gasses have not been combined with oxygene, sufficient to give them the character of acids : they do not alter the vegetable tinctures, &c.

cause, no one dare deny, is very often a deficiency of vital air*.

Vinegar having been long in use to sprinkle about the floors of sick chambers, giving out a very grateful flavour, seems to have been the reason for our practice in sick berths in ships, to convert it rapidly into vapour, by plunging a large ball of red hot iron at once into a bucket full. A very neat apparatus for this purpose was some time

* It is curious to observe the different opinions of ingenious men, on the nature of Contagion. I now allude to a new idea on the subject, which I have just found in an article of the Appendix to the xxth vol. of the Monthly Review for August last, p. 490. The work is entitled "An Inaugural Dissertation on the Chemical and Medical History of Septon, Azote or Nitrogene, &c. by Winthorp Saltonstall, New York, 1796." The doctrine, it appears, is taken from Dr. Mitchell, professor of chemistry in the Columbia College. He denies that any of the gaseous fluids have to do with the matter of contagion, except the "combinations of *Septon* (azote) with the acidifying principle, and to manifest itself in the septous oxyd, and the *vapours of the nitric acid itself*." Thus Dr. Smyth's preventive, the *nitrous gas*, that has been said to bear off the bays from all competitors, is here convicted of being the *guilty agent itself*!! Many able arguments are adduced in support of this explanation of contagious miasma, which bespeak an intimate acquaintance with chemistry. The Review has not quoted any means for correcting this kind of infectious gas; but I suppose that would be done by admitting factitious oxygene, or the pure atmospheric air, till the azote was saturated and changed

time ago laid before some of the public boards, and introduced into our hospitals and ships. It consists of a furnace or lanthorn, in which is a lamp; and over it, a little earthen pipkin, in which the vinegar is contained, and by the heat of the lamp, slowly evaporated. The smell of the vapour is very agreeable; but I would say no more for it. It ought to be trusted, like lavender water, on the handkerchief of a belle or a beau. The author of this apparatus, like other projectors, has his theory, which he has been frank enough to publish. He speaks of the emanations
from

to ponderous nitric acid, when it would seek the bottom. Thus a subject that has long evaded human researches, will continue to give birth to new speculations. and is still involved in uncertainty.

Ask where's the North; at York it's on the Tweed;
In Scotland, at the Orcades; and there,
At Nova Zembla, or the Lord knows where.

POPE.

While these ingenious philosophers are pleasing themselves and their readers with their arguments, on discovering the nature of Contagion; it will be my duty to furnish my gallant friends at Spithead with a pure atmosphere to breathe, as the best preventive and security: putting no reliance on flimsy doctrines or agents, that are held out to correct the poison. When a more perfect plan shall appear, I shall be one of the first to embrace it; in the mean time, I may be allowed to wield my little stock of chemical knowledge, in defence of my practice; for it has been—SUCCESSFUL.

from the body being of an alkaline nature; and of course his vaporific plan, is to neutralize them. But vinegar itself, evaporated by the common heat of the atmosphere, would seem to give out vital air: in a room where this is going on, there is a manifest change in the state of the atmosphere; a degree of exhilaration of spirits is felt also, and if this is the case, it may answer some of the purposes of ventilation.

I am now very well pleased that this discussion has taken place, because I think our service must be benefitted by it. There is some novelty in it, and may give birth to new ideas, and future reflections, on subjects nearly connected with the health and lives of many of our fellow creatures. It also shows, that in our medical arrangements in the navy, our system is incomplete. Mr. Menzies, in his report to Dr. Smyth, gives a sorry account of the Union hospital ship: it was not only imperfectly fitted for the convenience of the sick, but ready to propagate disease to the healthy. It was very wrong to crowd so many people in a malignant fever into a small space that seems to have been improperly ventilated, and badly attended on the side of the nurses.

If it is found necessary in medical practice, in order to make attendants careful in their duty to the sick, to keep up their confidence in the preservative means against infection; I see no necessity

necessity for having recourse to deception, or the pious fraud of a placebo. Let the nurses of hospitals who attend patients in infectious fevers, be impressed with the idea, that if they shift the sick man often, in bed-cloathes and body-linen ; keep him clean in his person, by frequent ablution, and change the air of the ward very frequently ; that it will not only recover the patient, but will infallibly prevent other persons from being infected. Truth that soon decides doubts, will quickly assure every nurse, that this is the only certain method of prevention ; and it is the only guide that ought to regulate the conduct of a physician.

IN Mr. Kenning's diary, subjoined to the artificial Typhus, we have a very distinct view of the first appearance, the progress, and extinction, of Contagion, all in the space of seven weeks. The ship was at sea, so that there could be no certainty of separation ; but it was summer, which was favourable, and it only spread to about fifty-four cases, including a woman, who received the infection from her husband. About the fourth week, he remarks, that the general symptoms were so slight as scarcely to confine the patient ; and after the sixth week, no fresh cases appear. The winter season,

season, would probably have forced this ship to quit the sea, with a similar contagion on board.

It is of vast importance to service, to judge with decision, on the state of infected ships, as by that means our Admiralty may know what they are to count *an effective force*. In the spring of the year, or in summer, after three weeks from the appearance of the fever, and where the early separation has been duly attended to, I would not hesitate on emergency, to declare these ships in condition for sea ; because at this time the cases would be slight, and I would expect much good from the approaching warm weather, and probably some advantage would be gained by rousing the minds and bodies of the people to action. In the winter season, however, we must be more cautious : the attacks are not only more frequent, but relapses also ; and then, when you go to sea, you have not that strong nourishing fresh meat, which is required for convalescents from a low fever. If the ship is going to the warm latitudes, after separating the bad cases, as we did in the *Vengeance*, the course to the southward will effect what we expect from summer in other situations ; but there is a hazard of meeting foul winds before you gain the warm latitudes, and these with rain, might throw you back as bad as at first. In giving opinions of this kind, a physician must be previously acquainted with the discipline
of

of the ship, her officers, and it is fit, also, that he should know something of the surgeon ; otherwise his prognostications may be turned against his professional reputation, by his directions not having been understood, or purposely, or ignorantly disobeyed. The service also may be defeated by rash and unguarded opinions on these occasions.

MEDICINA NAUTICA.

TYPHUS.

UNDER the name **TYPHUS**, I mean to describe, what has been called Hospital, Jail, Camp, Ship, Low, Slow, Nervous, Putrid, and Petechial **FEVER**. Any difference that has given rise to these names, in the nature of the fever, seems to have been more owing to the peculiarities of constitution, situation, climate, season, habits of life, &c. of the patient, than any real difference in the character of the disease itself. We have seen often, among a number of men living together, the same infection produce a fever, with all the variety of symptoms, with which authors have described fevers under these appellations : such is our apology for the general term **TYPHUS**.

It is very certain that this fever is generally spread by contagion ; but it is equally certain, that it frequently arises in places where there could be no suspicion of communication with infected persons or cloathing. Such is the low fever

fever that is met with in great towns, among poor people, in low, dark, dirty, ill-aired and damp houses, towards the fall of the year, and particularly in times of scarcity, or during long and rigorous winters. Fevers that have arisen in this manner, become equally infectious, as if they had spread originally from persons labouring under actual disease, in other situations. The same causes we have no doubt, have at different times produced fevers in ships and transports. There are very few of our men of war, that are under that kind of discipline now-a-days, that endangers the engendering of contagion; if there are any, they must be confined to some of the worst regulated guardships. In transports however, under the present establishment, and notwithstanding many improvements, we have no doubt but contagious fevers often appear from the causes just mentioned. These vessels are too small, and generally crowded; soldiers with a number of women and children, the whole unaccustomed to sea. If bad weather occurs for a length of time, during their passage, or even in port, when they are obliged to live constantly below, from falls of rain; diseases of this kind soon make their appearance, and spread by infection.

In the tenders employed to collect men from the out-ports for the Navy, whether volunteers or impress,

imprest, this fever is very common. These vessels being partly fitted as a prison, for security, are not the best calculated for health. At the beginning of a war, the idle and profligate are either impressed, or come to the regulating officer to enter; all descriptions are therefore mixed together in the same deck. Many of them bring, from their hiding places, the seeds of contagious diseases in their cloathes, which are speedily extended to others. No method has yet been practised to cloathe these people; and they often sleep for weeks upon the boards without a bed: this, joined with the crowded state of the tender, never fails to render them sickly, if the passage happens to be long, and the weather bad.

Receiving ships, on their present establishment, are also very liable to foster the powers of contagion. We trace infectious fevers more frequently to them, than to all other sources; witness the account given by some of the Orion's people. Besides the new-raised men sent from tenders, all recovered men from hospitals are sent hither till their ships return to port, or till they are otherwise disposed of. No regular discipline is likely to be preserved for the security of health, among people of such different orders and descriptions; the seeds of contagion are therefore spread among them, before they are detected.

I have

I have already narrated the first train of symptoms that indicate infection; but they vary in different constitutions, both in their manner and time of appearance. Slight symptoms of indisp^osition, scarcely noticed by either the patient or his friends, are sometimes the harbingers of this fever. A langour, and inaptitude to motion, rather than pain of the extremities; being more sensible than usual to external cold; heaviness of the eyes and forehead, rather than head-ach; yawning, dejection of spirits; sleep disturbed, and not refreshing; appetite impaired; and disagreeable taste and smell; are among the most early symptoms of typhus.

At other times, the attack is more rapid and violent; with great depression of spirits, even to fainting; vertigo, palpitation of heart, convulsions and delirium. The hysteric affections, or *globus*, as it is called, and fits of epilepsy, are frequent; but I have not observed that they prognosticated a more dangerous disease.

The *globus hystericus*, was a very common symptom, among the Irish landmen, in the Ven^geance, and alarmed some of them with the dread of instant suffocation.

The sensation of cold, on the surface of the body, in some cases continues for a length of time; but in others wears off in a few hours, and is alternated with heats, that seldom produce moisture

moisture on the skin, and sweating. The skin itself soon acquires a fallow hue, and is dry and shrivelled. The sensation of cold is not however a constant attendant of the accession ; I have seen many, where no rigour was perceptible.

When the feeling of coldness on the skin is in a greater degree than usual, the shivering and shaking of the body seem to be in proportion ; the colour disappears from the countenance, and the cheeks and lips are pale or livid. These succussions of the body indicate the vast loss of muscular power : every muscle is more or less agitated by this particular kind of tremour, as if each fibre that composed them acted for itself, and no longer subservient to voluntary motion.

The appearance of the tongue is various ; sometimes it is moist, and other times parched and foul, with, or without thirst. The breath is frequently so disagreeable, that the patient conceits the bad smell to rise from something else : the discharge of mucus from the nostrils is now and then totally stopped. A brackish taste is felt in the mouth ; or what has been distinguished by the taste of copper : there is a constant nausea and uneasiness at stomach, that approaches to vomiting. With these symptoms, there is an oppression about the breast, with a difficult respiration, anxiety, and sighing.

Acute

Acute pains resembling rheumatism, are felt in the limbs, loins, shoulders, and breast.

The eyes are dull, or inflamed, the pupil dilated, suffused with tears; and the whole countenance exhibits the look of affliction in both body and mind.

The pulse, at the beginning of this fever, in the space of a few hours, will occasionally vary considerably. It is weak, quick, tremulous, and intermitting; but at other intervals, more strong, full, equal and regular. The muscular action of the arterial system partakes of the general debility; indicated by this irregular and variable pulsation at the wrist, palpitation of the heart, and throbbing of the temporal arteries.

When those rigours or chills, alternated with heat, and succussions of the body which usher in the fever, have disappeared and subsided, the patient is left in a state, more or less approaching to stupor; and from which the disease has derived the name of *typhus*.

Some anomalous symptoms are occasional attendants of this fever; such are, catarrhal complaints, and some others indicating pulmonic inflammation. The difficulty of breathing has been so considerable, and tightness across the breast, with acute pain, that venesection has been unguardedly practised, and repeated even to the

third time, but with manifest disadvantage. I have frequently been taken to the bed-side of the patient, and informed that he was labouring under peripneumony, when a very few questions, and the appearance of the sick man, soon gave me a different opinion of the disease.

The fever with which the London was infected, had many symptoms resembling those of pulmonic inflammation; and it certainly, in a number of cases, was taken for pleurisy. Catarrhal complaints are also liable to deceive us: the effects of contagion are often taken for a common cold at first, because the indisposition succeeds to the exposure to weather, by which means the opportunity is lost, of putting a stop to the disease in its earliest stage. But it is only in the hands of inexperienced, ignorant, or inattentive observers, that a fever of a contagious nature can slide on without being detected. For the same reasons, I have seen patients with petechiæ upon them, sent to Haflar with the ticket marked, measles: a case or two, from the same error, were also sent on board the Charon hospital ship.

In some bad cases of the typhus, which occurred among our people, after communication with the French prisoners, there seemed to be a greater quantity of the biliary secretion, than what was usually met with, in fevers which appeared in the winter season. The weather was extremely

tremely hot at that time ; and probably the system of the *vena portarum*, partook of that peculiarity which affects it in warm seasons and tropical countries. But this not being always the case, I can give no reason for the appearance of jaundice, under other circumstances of the weather : I have often seen the eyes and skin, with the urine, as deeply tinged by the bile, in typhus, as I have remarked it in the yellow fever of the West Indies.

The fever among the worst cases which I examined in the Portuguese ships, was distinguished more by the tremulous motion of the tongue, *subfultus tendinum*, *dysphagia*, and *singultus*, than is usually met with among our seamen.

The symptoms which I have so far described, and which generally appear in the first three or four days, I would call *the first stage of Typhus* : because this distinction will lead to very important regulations in the practice.

The *second stage* of this fever, or what I would call *the stage of Stupor*, is that state in which the patient is left, after the rigours, &c. have totally subsided, without any particular pain of any part.

It is marked by almost universal muscular debility, and little desire of exerting it. There seems at times, such a want of attention to sensitive motions, or external impressions, that the patient would perish, from inanition, were he not urged

to take nourishment. He commonly lies on his back; starts up when spoke to, as if surprized, and requires some time to recollect himself before he can give distinct answers to what has been asked. The sleep is disturbed with dreams, and not unfrequently, suddenly terminated, when the countenance exhibits strong signs of horror and agitation. Muttering is also common in sleep; and the appearance of being busily employed in particular affairs. In people endued with greater sensibility of the nervous system, signs of grief are expressed, by weeping, sobbing, palpitation, and sometimes convulsions. The taste is altogether obliterated, and the fur on the tongue becomes brown and black: the tongue is also tremulous, often dry; eruptions, turning into little scabs, appear about the lips; they are frequently included among signs of convalescence.

During this extreme degree of debility, the frequency of the pulse is sometimes so considerable, as not even to be counted.

The spots on the skin, petechiæ and vibices, which so frequently attend typhus, appear at different periods of the disease. I have never considered them of so much importance as some writers have done: they occur occasionally in very mild cases, and are wanting in others of the greatest danger.

Sir John Pringle, in his *Diseases of the Army*, mentions an unpleasant sensation on the end of his finger, which continued for some minutes after feeling the pulse of the patient. He was at first inclined to refer this to the force of imagination, but found that others made the same remark. Some authors have repeated this feeling in their account of the symptoms, but whether only copying, or confirmed by their own observation, does not clearly appear. For my own part, nothing of the kind ever occurred to me. Surely nurses or attendants, in moving and lifting the sick, would sometimes take notice of this circumstance: it, however, has never been told from their evidence. It appears to me to have originated from associating the dread of infection with the touch of the diseased subject, and is altogether fanciful. When visiting fever-patients, whether in the hospital-wards, or in the sick-births of ships, it has been my custom to feel the pulse of many, that I did not expect to learn any thing from, and to pass others where I knew it to be of no consequence. What I have most cautiously avoided, is breathing immediately over the patient. But even that precaution will be often in vain: I have met with many sick, who start up in bed, as soon as I approached, seemingly in surprise, and throw the bed-cloathes from them, or put their mouths close to mine. I cannot however forbear mentioning

a practice with some medical attendants, whether physicians or others, of keeping at a distance from the patient while they examine him, or ask him questions. But a typhus patient is sometimes so low, that to hear him speak distinctly, it is necessary to lay the ear to his mouth. If there are physicians who think otherwise, I envy them not their peace of mind. But a medical attendant, who approaches the sick-bed of his patient, in this manner a dupe to his fears, and the slave of his apprehensions, appears more like a recorder of Newgate, about to pass sentence of death on a criminal, than a man who bears the commission of Providence, and the stamp of sympathy, to administer the duties of his profession, for the comfort and relief of a fellow-creature.

I will now describe some of those symptoms which more especially indicate danger. The first is early delirium, the pupil of the eye dilated and insensible: delirium may be reckoned only an increased degree or variety of stupor; the more early it appears, it shows a more aggravated disease. It has been observed so soon as the first attack, or in a few hours, and death has followed on the second or third day. It has been sometimes so sudden, as to be taken for apoplexy, by attendants not much experienced to the effects of contagion, where a number of men are exposed at once to its influence.

Hiccups,

Hiccups, and subfultus tendinum; the fœces and urine, &c. passing off insensibly, are signs of danger; but I have seen patients recover from them all. But the more early they occur, they are the more to be dreaded: an irregular weak pulse, under these circumstances, is always dangerous.

There are also conditions of the excretions of the body, which point out a severe disease. The urine that was before pale, becoming black and grumous, is a bad symptom: so also I consider hæmorrhages, a yellow-darker colour of the skin, with increased fœtor of the breath, &c. these constitute what has been called putrescency.

Suppression of urine, and difficult deglutition, are parts of the extreme muscular debility. Deafness has not been confounded with a state of danger.

The favourable symptoms are, the gradual recovery of sensation and perception; often at first, known by the patient longing or calling for some particular kind of food; the sleep less disturbed; the tongue becoming moist and of a livelier red on the edges, and the pulse more equal and less frequent. But these appearances return by such slow degrees, that a nice discernment is required to turn them at once into favourable omens.

TREATMENT.

T R E A T M E N T.

The treatment of Typhus in the early stage, or during the first signs of infection, has been already mentioned. This is the period when most is to be expected from our art ; if we fail here, in spite of all our efforts, the disease seems to run a determined course, and is protracted to an uncertain duration.

Whatever has been pointed out to us, as indications for the cure of fever, by ingenious physicians, appears to me to have been built, more on hypothesis and inconclusive reasoning, than real matter of fact. After an attendance on some thousands of cases, in all circumstances and situations, diversified by sex, age, constitution, season, and climate, I have no doctrine to offer on the subject, that may not be liable to most of the objections urged against preceding theories. We have, hitherto, no certain method of cure ; the nice and intricate phænomena of fever, shew that the task is arduous, if not presumptuous,

A febrile state, as it is defined, after a sensation of coldness, frequent pulse, increased heat, injury of some of the functions, especially with some diminution of voluntary motion, is found to take place in very different conditions of body. Whether, therefore, the subsequent fever be of a low,

or

or inflammatory nature, is attended with some increased excretion, or an eruption on the skin, is intermittent or continued in its type; still the phænomena which usher in the disease, are more or less the same. It is true, that fevers attended with inflammation of particular parts, have a fuller and harder pulse, than we find in typhus; with also the difference of high-coloured urine, while in typhus it is little changed; yet in both diseases they would only seem to be sympathetic, with a peculiar disposition of body. They are indeed so much alike, as liable to be converted into one another; hence Dr. Cullen has given the genus *Synochus*, “*intio synocha, progressu, et versus finem, Typhus.*” The fever which precedes the eruption of the confluent small-pox, is exactly of this kind; and at the accession, there is no fixed criterion, by which we can tell whether the future disease will be distinct or confluent. In the hectic of phthisis, we see it regularly introduced with more or less chill, succeeded by heat: the same phænomena take place during the formation of pus, and in short, whenever there is condition of body attended with fever.

In all these different genera of fever, we therefore observe something peculiar to the whole, and the fact is universally admitted. What then are we to say produces the phænomena of fever, or what their proximate cause?

It

It is no unfashionable way of getting quit of an intricate point in the doctrine of fever, to refer it to the laws of the animal œconomy, as an ultimate fact. We have seen these phænomena of fever, occur in very different states of the body, the forerunners of an inflammatory disease, as well as one of diminished excitement. Would it not, therefore, be right to conclude that these symptoms are nothing else but affections, sympathetic of certain offending powers applied to the system; congenial with it, acting in unison to its feelings, and as naturally excited by them, as tickling the pharynx excites coughing: or irritating the eyes occasions the shedding of tears.

These febrile actions are primarily belonging to the nervous system, and by consent communicated to other parts. The patient often dies in the cold fit of an ague; delirium is frequently among the first symptoms of infection, and almost instant death has been the consequence. Now what we mean by a cold fit, is nothing more than the diminished energy of the brain: stupor and delirium are also owing to this diminished energy, but in a greater degree. The hot stage, is the consequence of the preceding cold one: the debility and sensation of cold continue, till the sensorial power or spirit of animation is sufficiently accumulated, to excite the sanguiferous system and other parts to an increased action, by which

means the heat is restored on the surface of the body, and the flow of sweat takes place. But if the powers of life are so far depressed, and the spirit of animation can be no longer recruited and accumulated, then the patient expires in the cold fit : or, by a quantity of sensorial power, still fit to preserve life, but not equal to restore the energy of all the functions, he remains in that state of stupor, which constitutes the second stage of Typhus.

We have divided Typhus Fever, into two stages : the first comprehends the early symptoms, or as long as chills, and heats alternating with each other, can be distinguished : the second stage, is that state of stupor that follows; but sometimes appears also, without any previous chills and heats having been observed.

I consider this distinction of real practical utility, for it is only during the continuance of the first stage, that we suppose the disease to be capable of cure; we call it *treatment* what applies to the second stage.

The remote causes of fever, are certain hurtful powers, liable to affect the human body and derange health; which, from laws peculiar to animal life, excite the phenomena of fever, and which in themselves are only symptoms of the diseased state. This diseased state consists of impressions received from the remote causes, which
will

will remain till they are expelled by others, on which the method of treatment depends. This comes near to the doctrine of one irritation overcoming another : the early symptoms of Typhus are supposed to be easily moved by suitable remedies ; and are a proof that they make no very lasting impression on the nervous system : but those symptoms that constitute the stage of stupor, show that the usual habits, motions, and appetites, are overcome or forgot, and nothing but a length of time, days, and even weeks, are required to restore them. We support and nourish the body during this inexplicable condition in the best manner we can ; and we administer stimulants to preserve and excite its energy, which forms the treatment ; but we are ignorant of any medicine that can renew the healthful exercise of the functions, at any period during this stage of the disease.

The cure of an ague by the bark, or other remedies, is to support the healthy actions for a length of time, at least till the period of the cold fit is over ; to renew this support for some time, at the proper hour of the expected accession of the paroxysm ; and to continue this support till all the actions, motions, and habits of the system, have acquired their accustomed vigour, which constitutes health. The cure of the first stage of Typhus, is analagous to this practice ; and whatever has been found useful in the second stage, will

will likewise answer to this explanation. We are of opinion, that the whole act by the *production* of sensorial power.

The success of an emetic on the first signs of infection, has been acknowledged by most writers on this subject. The effect, however, has been differently explained. It has generally been accounted for, by evacuating the contents of the stomach, and freeing that organ from any morbid irritation. It has been thought by some great authorities, to act by expelling the contagious matter from the stomach, which, they affirm, there generates the fever. The good effects which we have experienced from emetics, have been equal to those recorded by other physicians; but we supposed at the time, that under certain circumstances, they were singularly successful. I shall narrate them. The vomiting ought to be free; so as certainly to evacuate the whole contents of the stomach, without however, endangering any pain of that viscus. It is easily excited by a grain, or a grain and a half of tartarized antimony, joined to fifteen or twenty grains of the powder of ipecacuanha. It is preferable to give the vomit in the evening, because, by sleep following quickly to the operation of the medicine, unpleasing sensations are avoided; and it protracts the recurrence of the rigours. When the stomach feels perfectly secure against farther retching, a gentle dose of the pulvis antimonialis combined with
opium;

opium ; or a draught made with vin. antimon. to fixty or seventy drops, with thirty of the tinct. opii, ought to be taken at bed-time, and followed by a few glasse of generous wine, wine-whey, or negus, with a bit of biscuit or toasted bread. If these are disagreeable to the sick, some other more grateful food may be found, but it is necessary that the stomach should not be left empty, after the vomiting. The heat of the chamber, or ward, ought to be equal to our summer heat. Next morning, our patient ought to make an early breakfast, on what he is accustomed to eat : if free from feelings of coldness on the surface, or other febrile languors, he may use the cinchona, in either tincture, powder, decoction, or infusion, with a glass of wine at intervals. If, however, slight rigours return, with want of appetite, he had better go on with the antimonial medicine, under the same directions as given with the treatment after infection. The dinner ought to be at the usual hour ; and if he is in the habit of drinking wine, in the space of two hours he may be allowed to finish his pint. The food should be light and easy of digestion ; at the same time, it must be of that kind that the appetite will prefer. Although the desire for food might be sufficiently good, yet in meat as in wine, the indulgence is meant to support the body effectually, without endangering that langour and debility,

debility, which are the certain followers of excess in either. The antimonial and opiate, are to be continued at bed-time; and the bark may be added next day to this method of cure. The state of the bowels is to be attended to.

In warm weather the patient may amuse himself out of doors, in any exercise or employment he pleases; but external cold ought to be cautiously shunned during this process, and the use of antimonial medicines. The mind ought, if possible, to be so engaged, as never to be allowed to brood over its own feelings, or to re-call any unpleasant association of ideas. The remembrance of a friend or relation in the sick-bed, from whence infection was communicated, is apt to renew former impressions; the rigours return, and sickness and nausea follow.

In the treatment of the early stage of fever, or even at the first signs of infection, Dr. Lind everywhere lays great stress on the use of blisters. He says, "when a patient came into the hospital in the evening, and had a blister applied, he was always better next morning:" this continues to be the practice at Haslar indiscriminately. I believe, since Dr. Lind's time, no writer on the subject had added his testimony, in such general terms, in favour of blistering. Much of the success which he attributed, I apprehend, may very easily be resolved by another reason. When a sailor in
fever

fever is sent on shore from a ship to an hospital, from a gloomy sick-birth on board, into the clean and well-aired bed of a specious ward, with an attentive woman to nurse him; if any sense of his situation remains, I think the transition he undergoes, could not fail to make him better: if he has no senses left, it is almost enough to restore them. But I can very well suppose, that blisters may be useful: the absorption of a considerable quantity of cantharides from a blistered spot, may, as a general stimulus, affect the whole body; and it may be so permanent too, as to excite the system a sufficient time to resist the diseased actions: my own observations, however, do not justify this conclusion.

Dr. Lind's practice of blistering in fevers, remained in its full force when I joined Haslar Hospital; but the custom was too indiscriminate to be deemed rational, and it was continued, out of respect to his authority, by the whole medical gentlemen of that establishment. The once celebrated James's powder was administered at the same time, but lately changed for the pulv. antimonialis of the London Pharmacopeia. Lind was spare in the use of his cordials; probably he was afraid of trusting the exhibition of wine to the nurses, who are intrusted otherwise with the giving of medicines; and what I consider an unpardonable defect in the institution.

In

In local pains, such as those of the breast and side, we have seen blisters followed with speedy relief.

After the operation of the emetic, we have often joined ammonia with the opiate: in cases where there seemed more than usual torpor, and depression of spirits, I have thought it more effectual than any preparation of antimony.

Of a febrifuge power residing in antimony, our observations and experience do not enable us to speak in confirmation; nor do we suppose, that such a power is to be found in any other medicine whatever. The quality it has been said to possess, of determining the blood to the surface of the body, and thereby removing the constriction of excretories, and softening and relaxing the skin, are only proofs of its exerting a stimulant power. During its use the patient should either be kept warm, or lie in bed, and drink moderately of diluting liquors. This method renders it less liable to act on the stomach and bowels. It is only in the first stage of Typhus, that this medicine appears to be useful: we have no doubt, when taken as has been directed, it has had very considerable effects in our practice. After having produced full vomiting in the first instance, I think the milder preparations only should be continued. When the tartarized antimony has been well rubbed with magnesia or chalk, which I
T suspect,

suspect, abstract a part of the acid, while it is exhibited, their powers together are much like the effects of James's powder, or the antimonial powder of the dispensary. Such has been our practice in counteracting the early symptoms of infection, and in curing the first stage of Typhus.

The second train of symptoms, are those which attend the stupor, and are chiefly distinguished by the loss of muscular power, more or less dilirium, and other signs of debility. Hence, lying on the back; the loss of voice; the tremulous motion of the tongue on putting it out; indistinct vision; want of perception; muttering to himself; catching and picking the bed-cloaths; moaning, sighing, weeping, sometimes laughing; difficult deglutition; paralysis of the sphincter muscles; tremors; convulsions; syncope on being raised upright: singultus; cold sweats, as they are called; gangrene of blistered parts, of wounds, and sometimes of the extremities; hæmorrhages, intolerable stench of the breath and excretions: the skin dusky or yellow, petechiæ, vibices; vomiting of a black matter; the stomach rejecting every thing immediately as swallowed; profuse diarrhœa; dark coloured urine; glassy appearance of the eye; the eye-balls fixed, sunk; the countenance shrunk, lengthened, ghastly, and discoloured; the inside of the mouth, and tongue, black and parched; the mouth drawn aside, and
tongue

tongue hanging out; deafness, or hearing very acute; the jaw fallen; immobility of the joints; watchfulness, or constant sleep; heaving of the breast; rattling of the throat; pulse felt only at intervals; *conclamatum est*.

The treatment of this stage of Typhus has been almost confined to stimulants. In books on the subject, however, we do not meet with much satisfaction in the selection: little discernment is sometimes to be found in giving to one article a preference over another; and the exhibition of the whole seems to have been too often left to indision, or a random practice. Physicians have particularly fallen into this error, from visiting their patients at too long intervals, by which means they have been unable to judge of the effect of their medicines, and the report of the whole has been unfortunately left to ignorant attendants, or nurses.

The only indication in this stage of the fever appears to be, to support the body by the nourishing and stimulating articles of diet and medicine, that are most grateful to the sick, that sit easy on the stomach, that procure refreshing sleep, recruit the spirits, and that do not exhaust by any indirectly debilitating effect.

We shall first mention the articles which belong to diet. It is not easy, at all times, to suit the desires and unaccountable longings of the sick;

but, if possible, they ought to be indulged ; even to the most out-of-the way articles, if I may use the expression. While they can choose for themselves, it is presaging a favourable issue. A young man, about eighteen years of age, after sixteen or seventeen days confinement in bed, and just beginning to shew signs of convalescence, discovered the first return of recollection and appetite, by calling for a beef-steak from a beat bull. A common beef-steak was immediately got ready ; but he was aware, from its being got so soon, that it could not be what he wanted. The carrier, however, that went to a market-town, at the distance of fifteen miles, was ordered to bring one when he returned. Of this the patient eat heartily, and relished it as much as if he had got his desire. His appetite for other kinds of food was progressive, and he recovered apace.

The diet ought to be always nourishing ; and as solid animal food is seldom wished for, before convalescence, broth made from beef or mutton, with the fat skimmed off, and a little acidulated, with the juice of lemons, or even port wine, or claret, is, of all species of cooking, the most eligible. To this broth, may occasionally be added, some grateful aromatic, such as mace, cinnamon, nutmeg, ginger, or even common pepper. Analogous to this broth, are all animal jellies, but weaker nourishment, such as that of
calves

calves feet. It may be well imitated at sea, when there is no fresh meat on board, by the common portable cakes of soup. These cakes of soup ought to be dissolved in the boiling water as soon as it is moved from the fire, but they ought never to be boiled with it, which renders the whole unpleasant, and gives it the taste of glue.

The slightly fermented juice of oatmeal, called fowens, to which wine, and a little spice, are added, we have often seen acceptable in a sick-birth; and it ought to be a constant article in sick diet, at sea.

When milk can be procured, mustard whey may be used as a change from other articles. It is, when properly made, a very grateful stimulant; and is one of the best substitutes which I am acquainted with for purgative medicines, as it will generally keep the bowels open, without seeming to do so, so gentle is the operation.

When light puddings, custards, &c. are relished, they may be safely indulged in. They are nourishing, and easy of digestion, without any hurtful quality.

The thirst is best quenched by fruit, such as oranges, apples, gooseberries, currants, rasps, prunes, melons, &c. They have the advantage of being pleasant, and sharp to the taste; and, if they do not disorder the bowels, which they are apt to render too lax, they may be used *ad*

libitum. When these cannot be procured for drink, diluted wine, negus, porter, bottled ale and small beer, cyder, perry, &c. are generally very acceptable in this fever.

Having enumerated these articles in the dietetic method of treatment, I have to regret, that too few of them are to be met with in our hospitals. In one, which I have had some acquaintance with, it has been told to me, that to fever patients, not less than twenty guineas were expended *per diem*, for Dr. James's powders, upon an average, for a whole long war; yet, such a delicacy as a piece of roasted meat, a pudding, a jelly, or a custard, has never been seen within those walls! Those physicians, who can cure diseases which spring from misery and want, without articles of nourishment and support, must have an unbounded confidence in the wonder-working powers of medicine. The relief, however, which the bravest of the human race, the Seamen of Great Britain, have obtained, by a contrary treatment, has made me a sceptic on the subject.

This argument may be extended to some charitable institutions in great towns, where putrid fevers are frequent. The account of the poor family, as given under the head Contagion, is a melancholy proof. I never saw a corporation-dinner, but these diseased and miserable creatures
came

came into my mind. When leaving Newcastle, at Christmas 1792, I addressed the Governors of the Dispensary, on the subject of a dietetic department; and was informed by some of them, that it should meet with their warmest support: the fate of this address has not come to my knowledge. This Institution took its rise from the benevolent exertions of Dr. John Clark, and Mr. John Anderson the surgeon; the former is the celebrated medical author. The patients of this charity are now visited by all the physicians, with the most punctual attendance; they are, moreover, men high in professional character. In point of subscription, it is nobly supported; the town itself abounds with affluence, and is noted for charity and the Christian virtues. If it ever should be my fortune to return, when I have discharged my duty to my Sovereign, my Country, and her Defenders, I shall not fail to revive the subject.—But to our purpose:

The body ought to be washed all over every morning, with water about 50° of Farenheit. This may be done with a sponge; but I prefer a clean towel, which is to be dipped in the water, and rubbed over a piece of soap, to make it more effectual in purifying the skin from any perspirable matter. After this operation has been attentively performed every morning, the body and bed linen ought to be shifted; taking care, if the

patient is very weak and reduced, to move him gently, and to keep him, as much as possible, in nearly an horizontal posture, to prevent syncope. I have known a patient expire immediately by much fatigue from unnecessary motion, and being kept long erect by the officious intermeddling of ignorant attendants, or obtrusive visitors. If the ablution, or washing of the body, and the shifting, is rightly performed, for it constitutes one of the nicest duties of sick-nursing, the patient will feel himself enlivened and recruited; sometimes disposed to take nourishment, which is frequently followed by refreshing sleep.

The medical attendant at every visit should be very careful in examining and watching the duty of the nurses, and others about the sick; with regard to the state of the intestines, and the urinary discharge. I remember among some cases of my early practice in Typhus, under the direction of some eminent physicians; when from neglect in attending to the evacuation of the *vesica urinaria*, death unexpectedly happened. This ought to be particularly guarded against, after the application of blisters; and, if medicine fails, recourse must be had to the catheter, every six hours, or oftener if the patient takes much liquid aliment. This painful symptom seems to be owing, either to the directly stimulating power of the cantharides, or to the torpid or weak state
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of the sphincter, or muscular fibres of the bladder, after the preceding excessive excitement from the same cause. The finer powder of these insects is taken into the circulation, separated by the kidneys, and thus carried to the neck of the bladder by the urine. The most effectual remedy in our practice is the *mist. camphoræ*, well diluted, and its best assistant is æther in mustard whey. Camphor is a resinous substance, though with some portion of gum, not easily subdued by our fluids: and I conceive it acts by being carried unchanged to the neck of the bladder, where it exerts a stimulant power, by exciting the action of the *detrusor urinæ*, and thus expelling its contents. Acrid glysters are also useful, and the turpentine; the warm bath; or plunging the patient suddenly into cold water, into which nitre or common salt has been just thrown, to reduce the temperature, by their solution. This acts by the association of the surface of the body with the muscular fibres of the *visica urinaria*.

A regular alvine discharge is certainly of great importance in this fever. In the exhibition of medicines, or other articles for that purpose, we ought, however, to be very cautious, as their debilitating efforts are to be dreaded and avoided. The stools are commonly offensive, and there can be no doubt of the necessity for preventing them to accumulate. Glysters afford but a partial
evacua-

evacuation: I think laxatives ought to be given by the mouth, if nothing contra indicates this method. They tend, in their passage, to excite the biliary and pancreatic ducts, and mildly stimulate other excretories in the intestinal canals. We have seen nothing preferable to the tartarized infusion of senna, made pleasant by a couple or more tea spoonfuls of brandy, or even aromatic tincture of any kind. The medicines for this purpose ought, however, to be varied to the state of the stomach, and made agreeable to the patient. Their exhibition must be regulated by the late preceding evacuation, and not to wait till a longer period of dejection urges their use. By carefully attending to this circumstance, laxatives can be given in small doses, with some certainty in their degree of operation; and by which means the danger from their weakening effect will be very much obviated. We are of opinion, that an easy motion ought to be procured every twenty-four hours; and never to extend beyond thirty-six.

When a diarrhœa supervenes the use of laxatives, or purges, or any particular kind of diet, attention ought to be directed to the particular articles which may have induced it. Thus, an excess of the summer fruits will often have this effect; and a diarrhœa, sometimes obstinate to be cured, frequently follows purgative medicines.

Wine,

Wine, abounding with tartar, has also this effect. When it arises from an excess of acid, it may be discovered by the yellow colour of the stools, from its action on the bile. The wine, or other suspicious liquor, ought therefore to be changed, the fruit must be given up, and the acidity must be corrected by the chalk mixture, magnesia, bitters, and opium. If opium comes to be rejected, when taken by the mouth, it must be given in glysters, and in large doses at once, that the diarrhœa may be effectually checked at the first outset. In the remote stage of Typhus this complaint ought to be narrowly watched: the debility from it, is sometimes inconceivably rapid, and the patient reduced irrecoverably.

I shall now give my opinion, and the result of my experience, concerning bark, wine, opium, camphor, ammonia, æther, blisters, and some other articles employed in the treatment of the last stage of Typhus.

I have already remarked, that in our opinion, no article of medicine, which has come under our administration, possesses the power of restoring the use of the functions, under any form of prescription, that we are acquainted with. Much has been written and spoke of the efficacy of the cinchona or Peruvian bark, in curing putrid and pestilential fevers. Authors have, however, thrown out their ideas on the subject so vaguely, that

that at this moment we are left to guess, at what precise period of the disease, and under what pressure of circumstances, it can be most successfully administered. It is true, that some physicians have told us of their giving it in the early part of the fever; but they have not added, in the sequel, that it cut the disease short, or prevented the stage of torpor or stupor; or that this stage was cured, either directly, or after a small space from its exhibition. They have neglected to inform us, that they watched the state of the pulse, at short intervals; or that a return of appetite, the recovery of perception, or sleep, sound and refreshing, were the constant or general attendants of this mode of practice. Yet there was something very favourable to this method of cure, and the reputation of the medicine, among many of their cases; for we hear them speaking, in a tone of exultation, at the large quantity of bark which they had been able to throw into the stomach in the space of twenty-four hours; often to the amount of two ounces for days together. Yet in none of the cases on record, when this practice has been carried to its fullest extent, have we any fair detail of those symptoms which first indicate the certain, though slow recovery of Typhus patients. Among the greater number of bad cases which have come under my own care, I have generally found the stomach so weak and irritable

irritable from the beginning, that to have persisted in the exhibition of the cinchona, would have been little better than putting my patient to the rack. The fever, in their hands, seems, therefore, to have run on to an uncertain length. But we have seen, in numberless patients, where bark had been exhibited in large doses for a few days, till at last the stomach would be so oppressed, that the whole has been disgorged: and, upon examination, not a dram of the substance could be supposed to have undergone the slightest change from the digestive process. At a time of the fever, indeed, when the desire for food is almost extinguished, and when the most delicate is taken with indifference; does it appear like reasoning with a knowledge of the pathology of the human body, to suppose, that the gross powder of the cinchona, abounding with resin, can be a fit subject, at that period, for the digestive organs? Hence we account for its being thrown up after, unaltered, although it had remained for some days in the stomach. It is not, therefore, a just calculation, to say that the bark cured every case where it was given, because the patient recovered. Yet the average has generally been given in this manner; and the exception applies to other medicines that may have been popular as well as this long extolled febrifuge.

In all situations and seasons, where I have seen the contagion of Typhus extend itself among a
number

number of persons, the first cases have always been the most fatal and dangerous. Now, if we were to compare any method of cure with another, it would be proper to select an equal number, taken ill at the same period of infection; even a week's distance, will often exhibit a surprizing difference in the nature of the symptoms. Among a ship's company, a regiment, or any other body of people living together in a similar way; we have uniformly observed, that the attacks of the disease become gradually milder, till at last it seems incapable of communicating infection. This point having been clearly ascertained from long experience, enabled me to give my official opinions on the progress and extinction of contagion, with a degree of precision, that could only be acquired by a perfect acquaintance with the subject. Now physicians, in recording the state of health in fleets and armies, should be mindful of all collateral circumstances; lest, what they may relate as a successful method of cure, should fail in the hands of others, who may try it, at a different stage of infection, and when more virulent symptoms shewed a more dangerous disease.—But to return to our subject.

In mild cases of Typhus, where the disease never arrives at the stage of stupor; or where there are regular remissions; I think bark is useful, and favours recovery. It has therefore, for a long time, been our practice to confine the use of cin-

chona to the mild degree of the disease, and during the convalescence, from the stage of stupor: with these limitations, I think it a medicine possessed of virtues beyond all eulogy.

Wine, so universally prescribed in low fevers, as the most grateful of all stimulants, has frequently been condemned without reason, or fallen into disrepute, from a careless or injudicious exhibition. There are even physicians at this day, so wedded to ancient theories of fever, as to limit the quantity of wine in Typhus to three or four ounces in the twenty-four hours; while others, with unpardonable levity, are drenching their patients to the amount of five or six pounds in the same space of time. These gentlemen, it may be supposed, must have occasionally been wrong: *medio tutissimus ibis*: and I suspect, that neither of them had sufficiently taken to their guide that experience, which is to be gained only by very frequent visits to the bed-side; because the state of the pulse, and feelings of the sick man, are the sure directors whether the allowance should be small or large*.

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* Erasistratus primo tribus vini guttis, aut quinis aspergendam potionem esse dixit; deinde paulatim merum adjiciendum. Is, si ab initio vinum dedit; et metus cruditatis secutus est, non sine causa fecit: si vehementem infirmitatem adjuvari posse tribus guttis putavit, erravit.

Cel. L. iv. cap. 11.

It may be justly asked, at what period of Typhus ought wine to be administered, and by what rules are we to regulate the quantity ?

To the first part of the question I would answer: that wine may be used in most cases of this fever, from the earliest accession, and in every period of its continuance. There are however exceptions, that ought to be cautiously attended to. In some constitutions, and at particular seasons of the year, some symptoms of increased excitement evidently continue for a few days. A greater degree of thirst, harder pulse, flushed countenance, higher coloured urine, are the chief appearances; at the same time the absence of those signs which more especially indicate debility, such as dejection of spirits, and what are called nervous affections, &c. sufficiently show the difference. Under these circumstances, the good effects of wine are doubtful; and what I consider a strong contra-indication, the patient takes it with reluctance; and it is followed by an increase of the thirst, and flush of the countenance. When these symptoms disappear, the exhibition of wine becomes eminently useful: I shall now mention how that may be determined.

The propriety of a gentle stimulus to the body labouring under a disease of torpor and debility, I apprehend will be very generally admitted. But one that is grateful to the taste, that communicates
vigour,

vigour, and excites pleasurable sensations; if such can be found in the *materia medica*, it will be the duty of the physician to prefer that. Such a stimulus, and with these qualities, I consider wine. There are few medical gentlemen, I dare say, who have attended patients in Typhus, that have not remarked the avidity for wine: the eagerness with which it is received, and the instant strength that it seems to inspire, are equally astonishing. I have frequently seen the cup broke between the hands of the sick man, in the earnest grasp to get it to his lips, or gnashed between his teeth in the hurry of swallowing it. I remember a seaman, belonging to the *Valiant*, very ill of the fever, after having finished his own allowance, seizing the bottle of his shipmate, who lay next to him, drank the whole at once, and fell asleep immediately. Having accused him next day of irregularity, and robbing his friend, he solemnly declared that he remembered nothing of the matter: he had no return of delirium from this time. A black man, belonging to the *Robust*, who lay some days in a very doubtful state, but always took the wine with desire when it was put to his mouth, was asked, when the confusion of thought went off, if he liked his wine? replied with great emotion, "O, massa, gib im a gallon." On entering one of the wards at *Haslar*, one of the *Raisable's* people was sitting up in bed, with five guineas in his hand, and begged me

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with

with great earnestness, to allow the nurse to lay the whole of it out for wine. This man had a wavering about him at the time, but which was always mitigated after his dose. The natural craving for this cordial, induced me to increase his allowance to four pints, in the twenty-four hours; it was almost the only case where my prescription exceeded three pounds, during my attendance at Haflar. He had been a week ill in the ship; there was a wildness in his looks not to be described, but it always denoted danger; he died three days afterwards, and took his medicine till within an hour of his dissolution. Histories of this kind, shewing the strong natural desire for wine among typhus patients, might be extended to a very great length; but this propensity will always be worth the attention of physicians.

I have no doubt, but under particular circumstances, a greater quantity of wine may be proper, and probably something may be determined by the patient's general manner of living, which ought to be taken into the account. It can be always with safety increased, while the pulse decreases in frequency, or becomes more equal and full. Even the countenance of the patient is some criterion to judge by; it partakes of that appearance which we observe in the social circle at table; when the exhilarating powers of wine flush on the cheek, and sparkle in the eye. When the lucid interval
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of reason continues longer, and the recurrence of delirium prevented, by giving a glass or two of wine, we may be assured it is doing good. When the stimulus has not been too great, but moderate and sufficient, the sleep will be sound, the breathing soft, and the pulse more full. Care, however, must be taken, that the sleep is not protracted so long as to endanger the sinking of the pulse, by the stimulus being too long withheld; it will therefore be necessary to wake the patient, in order to repeat the medicine. Even when he is awake, and lying quiet, the wine must occasionally be put to his lips; the tone of the voice will tell the propriety of the draught, or whether it will be taken with pleasure. It ought to be given from a vessel with a spout, such as a tea-pot; because, for the greater part of the disease, and when weak and languid, the patient lies on his back, and is unable to bear an erect posture. So many unaccountable recoveries have come under my own observation, that I am never led to despair, while the wine is taken down; for I have seen it received with emotion, even during the most hopeless circumstances otherwise.

The wine ought not, however, to be always withheld, when the patient seems to have an aversion to it. The acidity of some wines will often produce this effect; and when the excess of acid in the stomach has been corrected and

neutralized, the aversion will be overcome, when a wine less sharp may be resorted to: a change of wines ought, however, to be tried, before their use is entirely laid aside. This dislike often affords an opportunity for employing malt liquors, instead of the others. I have frequently seen porter or beer preferred to wine, and always found advantage in satisfying the cravings of nature, and allowing the patient what he liked best. Bottled ale, that undergoes a brisk fermentation on drawing the cork, is one of the most grateful drinks that we know. After recovering from a low fever, which I had caught from some of my school-fellows, when not quite twelve years of age, I was informed, that I had been supported entirely by brisk bottled small beer, refusing every thing besides that was offered. It was in vain that the attending apothecary urged me to take his white powders, which I suppose were the famous fever-powders of Dr. James: by these means the effervescing small beer of an old lady in the village, got the credit of my recovery. Sydenham has something to this purpose. Cyder is also, on many occasions, highly relished by fever-patients; its natural sharpness and briskness, when poured from a bottle, render it grateful. It is also less apt to clog the stomach than malt liquors, and as possessing a vinous spirit, has most of the advantages of wine.

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The practice of giving malt liquors, was introduced at Haslar while I officiated there. There are many to bear testimony of its effects. It was begun at first, from a few of the soldiers belonging to the 19th regiment, under Lord Moira, calling for it with singular intreaties. About this time, these men had shown symptoms of recovery; and I consider this longing for malt liquor, as a pledge of returning appetite. They had, probably, in health, been accustomed to drink porter or ale; it might, therefore, be trusted as a strong indication of those propensities, which are associated from habit, with a state of health. At the same time, there was not that desire for wine, which they had expressed a day or two before; and on this account, likewise, I was the more disposed to indulge them. Two or three pints of strong beer, were generally given in the day: the feelings of the sick, were the best proofs of its good effects. They all agreed, that it did them more good than any thing; because it was given at a time, when the strongest desires of nature called for it. This beer was brought from the tap-house, at private expence; but Mr. Taylor, the apothecary, furnished us, afterwards, with bottled porter, which is one of the best ingredients in the diet of a convalescent, and never failed to strengthen them quickly for duty.

In the Charon's hospital, at different times, we have had two or three patients, to whose taste, both wine and malt liquor were disagreeable : yet rum punch was relished, and was taken in due quantity, with all the best effects to be expected from wine : we ought, therefore, to vary the liquor to the taste and desires of the sick, and never to despair, while he will receive it in any form.

Nil desperandum, Baccho duce, et auspice Baccho.

The late Mr. Kerr, surgeon of his Majesty's yard at Portsmouth, informed me, that when a very young man, and surgeon of the ship, with Captain Boscawen, afterwards the Admiral, he received the infection of this fever from the people on board. Having been moved into a cabin in the wardroom, for the benefit of pure air, extremely reduced and very low spirited, he rose from his bed, and in the absence of his messmates, seized a bottle of wine from the table which they had just left, the whole of which he drank. He slept so long afterwards, that he was despaired off ; but awaked in due time, refreshed and invigorated in a manner, not to be described. He had, during his illness, often asked for wine, which was as often refused, under the idea that it would hurt him, from its heating quality. It was
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much about this time that Sir John Pringle gave it with success in the army. Doctors, Gregory and Cullen, at Glasgow and Edinburgh, entered fully into the practice: we also find from Dr. Huxham, that it constituted a great part of his treatment in nervous fevers.— Mr. Kerr added, that he persisted in the use of wine; and to it attributed his recovery from the last degree of emaciation and weakness of body.

Opium, next to wine, has been generally prescribed in Typhus. We no longer contend for a sedative power in this medicine, in any other way than as a stimulant, exhausting the sensorial power. The same symptoms which indicate wine, also evince the propriety of opium in this fever. But a physician who has been much conversant with the disease, must have remarked, that, under certain circumstances, a preference may be sometimes given to the one over the other. It ought to be remembered that wine, as an article of diet in health, and when used with moderation, is the most beneficial and agreeable cordial that we are acquainted with. Opium, on the contrary, with us, is always an article of medicine, and never resorted to but in a diseased state of body. While, therefore, the human body is in some measure accustomed to the one, it has seldom experienced the other. There is, moreover, a nutritious quality in wine, which opium does not possess. Neither

of the two ought to be prescribed, without the physician attending by frequent visits, to watch the effects : but when opium has been given, this is more particularly required. We have spoken of the desire which the patient expresses for wine and other liquors ; but opium has not been equally acceptable, either to the palate or stomach. Opium has peculiar effects on different people : it is not easy so to regulate the dose, as to excite a due stimulant power, without inducing delirium : I also think, that a greater degree of debility follows ; both in the state of the pulse and in the stomach, although the degree of previous excitement was apparently the same. In my practice, I have generally given opium at bedtime, to assist the natural propensity to sleep at the usual hour. It is from this effect, that I consider it a most valuable medicine : but care should be taken that the dose may not increase the debility we wish it to cure ; or induce sickness and vomiting, which it is apt to do next morning. Many of the precautions we have given, when speaking of wine, will apply to opium.

In urgent cases of Singultus, Diarrhœa, or whenever there is acute pain of any part, I have recourse to opiates.

Except in the Dysuria of Typhus, I have not witnessed much good effect from camphor. It appears to me, from many trials, to be a stimulant

not much suited to this kind of fever. It also affects some persons very differently from others : I have seen it induce a degree of stupor, truly alarming, in a young woman, by a moderate dose.

I have already mentioned ammonia, favourably in some symptoms of the early stage ; and I have thought it useful in convalescents when joined to the cinchona.

Æther, in some situations, I have seen useful. When there are any troublesome nervous symptoms, as commonly expressed, as tremours, palpitation, &c. joined with opium, it acts powerfully in giving relief. To check vomiting, it is also of benefit. The spirit of vitriolic æther differs little from æther itself, and may be considered a weaker stimulant. For these kind of symptoms I have also tried castor, musk, oleum animale, and asafoetida, and often with advantage. Pure brandy will sometimes check vomiting, when every thing else fails.

Some remarks have already been made on the practice of blistering. In local pain, I must admit their utility, but cannot go so far as others have done in its recommendation : but pain, in most parts, is more quickly relieved by opium. When applied to the head in delirium, I have often been disappointed in blisters ; but not so much as to urge me to condemn their application altogether.

In this fever, though evidently attended with great debility, I have frequently seen cases, where I had strong suspicions of an inflammation of the brain or its membranes. It consists, in a state of stupor, from which the patient frequently starts up, with an appearance of ferocity in the countenance, a flushing of the cheek, the eye rather turgid and inflamed. Although the pulse leads so little into the nature of the symptoms, yet these appearances contra-indicate the use of wine and other stimulants, which seem to render the sick man more restless. What I have observed to give much relief, is shaving the head, applying cloths dipped in vinegar or ammonia acetata over the scalp. It is probable, that the cold produced by the evaporation of the fluid, acts as a sedative, and diminishes the action of the blood vessels.

It remains for me to say a few words concerning Relapses. They may be defined, a renewal of the diseased actions, from particular causes, before the body had been in condition to resist them. Cold and fatigue are the most general causes of relapse. They must often happen to the poor, among whom this fever so generally prevails; more especially as the best means for recruiting health, and gaining strength quickly, are beyond their reach. The same observation applies to
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the sailor and soldier, with the addition of hard duty and exposure to the inclemency of weather. The continuance of bark, for a certain time, with nourishing food, and in full quantity, to which ought to be added wine for a limited space, and then the stronger malt liquors, as ale and porter, are the best preservatives of health: exercise and warm cloathing are a necessary part of this plan.

The medicine required after Relapses, must be regulated by the general method of treatment in Typhus. The antimonial preparations will form part of the cure, should the disease be ushered in by heats and chills: otherwise we must have recourse to what has been found useful in the second stage.

Such has been our general practice in Typhus. If it has exhibited little that is new, it will at least teach those who have had less experience, some cautions in the use of former medicines. They will, therefore, have the advantage of beginning where I leave off. It has been my study to see my patients often, in order to watch the effect of my prescriptions, which I think to be more necessary in this disease, than has been usually thought: Let me not, now, be condemned by those, who will not give themselves equal trouble to be informed. My last appeal, must be to facts collected at the sick bed, where I have patiently
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and faithfully done my duty, undismayed with the dread of catching disease from my patient.—How I have always escaped infection, I cannot tell: “But God tempers the wind to the shorn lamb.”

Mr. KENNING's Diary of a Fever that appeared in the *Invincible*, in July 1795.

EARLY in July, some gentlemen in the cockpit were taken ill with Fever: the symptoms were those of a mild remittent, and gave way to the usual treatment; viz. emetics, antimonials, and the bark. There were three or four that complained, but were nearly well about the 9th, when one of the sailors was seized with chills, head-ach, and nausea, with quick pulse: he took an emetic, and haust. anodyn. h. f. *.

July 10th. Another taken ill; the symptoms appear more violent: he took antim. tartar, gr. iſs. natron vitriol, ʒ fs. which vomited him and procured two stools. The other patient is still feverish. Pulv. antim. gr. vj. ff. in bol. 4ta. q. h. f.

11th. The patient who complained on the 10th, is to-day worse; his stomach is very irritable

* Mr. Kenning does not, with his usual accuracy, mention by what means this contagion was brought into the ship.
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with frequent inclination to vomit. Mift. falin. hora fomni. Tinct. opii. The other is nearly the fame. Repetatur bol. antim.—One added to the lift.

12th. Three complained this morning. I now perceive that a Contagious Fever has made its appearance in the fhip; and every precaution is taken to feparate thofe who are ill from the fhip's company. Rep. med.

13th. Two added to the lift, in whom the attack is violent; the fkin hot, pulfe quick, head-ach, naufea, tremour of the tongue when put out, and a fenfe of cold down the fpine. Let each take an emetic: bol. antim. nocte.—Thofe firft taken ill are delirious.—Opp. emp. cantharid. inter fcap. Let them drink plentifully of gruel, with Nitre. T. Opii. h. f.

14th. Four complained this day; the attack much the fame as in thofe laft mentioned: there is no perceptible remiffion, but confiderable exacerbation towards evening. They continue to take pulv. antim. and nitr. occasionally laxatives, and opiates at bed-time. One in delirium is worfe to-day; has a great averfion to any liquid touching his lips*; is fo uneafy as to make it neceffary to confine him in his hammock.

* Hydrophobia, a fymptom frequently met with in this fever. T. T.

15th. One added to the list. I find that the antimonial medicines do not produce any moisture on the skin, or abatement of the symptoms. They now begin to take cinchona in vin. rub. opium at bed-time, and wine and water for common drink.

16th. In general worse : petechiæ appear on the neck, back, and breast, of three ; two of whom were those taken ill on the 13th, the other on the 12th : two, who appeared to be well last night, were seized with frantic delirium about one o'clock : they were walking under the half-deck, the place appropriated for convalescents. I rather suspect they had grog from their messmates.—Cont. med.—Three added to the list.

17th. Petechiæ appear on others : three still delirious. Repetatur cinchon. cum vino. porter or cyder for common drink, being plentifully supplied by the Captain. Those in delirium to have their heads shaved, and fresh blisters : the urgent symptoms in some are, difficulty of breathing and deglutition ; in one, subfultus tendinum : hæmorrhage from the nose, in one who was taken ill on the 11th.

18th. Two added to the list : comatose symptoms prevalent with six : the one mentioned with subfultus tendinum, worse ; dilatation of the pupils ; in the evening low muttering ; delirium in four. Rep. med. difficulty of breathing relieved by the blisters ; the bowels in all are regular : one vomited the cinchona, gave him an infusion of quassia,

quassia, gentian and ginger in port wine: petechiæ appear on the neck and breast of one, that was taken ill on the 15th; slight hæmorrhage from his nose, distension of the *alæ nasi*, with excessive tremour of the tongue. T. *opii* h. f.

19th. Excessive debility prevails; dilatation of the pupils the same, with *subcultur tendinum et floccorum collectio*.—State of the list this day, nine very ill, and twelve in a favourable way.—The case mentioned as worst, is apparently verging to dissolution, passes his urine insensibly. Mist. camphor and T. *opii*, to those who are worst; drink as before.—One taken ill.

20th. Nearly as yesterday: one added. There is a considerable degree of fatuity attending patients in this fever, though otherwise, not very ill. John Brady, mentioned as being so ill yesterday, has been got out of his hammock, and well washed all over with cold salt water, rubbed dry, and put into a clean bed; took *vin. aromat. fervid.*—William Tirry, another that has been very ill for some days past, is constantly covered with a greasy sweat; his skin clammy, and a constant flow of moisture from his eyes; passes urine and *fæces involuntarily*. Mist. camphoræ. At night all have wine, porter, or cyder.

21st. John Brady appears better since the ablution yesterday: Tirry is worse, mouth black and dry, his tongue considerably enlarged, a circumstance common with many others: one that appeared

peared perfectly well for three days, was airing his bedding, and was attacked with a violent spasmodic affection of his breast, which continued most part of the afternoon; he was relieved by æther. vitrol. and opium. One of the convalescents was suddenly seized in the evening with severe pains of his thighs, legs, and arms, so severe as to make him cry out. Opii gr. ij. Comatose symptoms still continue. Tirry is worse this evening, hiccup. Mist. Camp. et T. opii. Deafness in one, the first that complained. Rep. cinchona cum vino, to all who can take it:—one added.

22d. Those just taken ill have little appearance of fever; pulse nearly natural, and skin moist; they complain of partial head-ach, and general uneasiness: where there is no nausea or costiveness, give the bark in wine immediately, otherwise, an emetic, and if a stool is not procured by that means, natr. vitriol ʒi.—John Brady much worse towards evening, low muttering, delirium, and groping about, his eyes constantly turned up, and the pupils more dilated than before: Tirry's hiccup continues, with convulsive twitchings of the muscles of his face, mouth quite black and parched, and cannot articulate. Vin. aromat, &c.—The first taken ill is constantly covered with a reeking or smoking sweat, his tongue moist and enlarged, has the appearance, as if macerated in water. Mist. camphoræ et T. opii. He that had the spasm last night, is well: the other
with

with the pains, has a return this evening, and relieved by two gr^s of opium.—Six added to the list.

23rd. Brady and Tirry insensible ; p. scarcely perceptible : Brady died at eleven o'clock, the fourteenth day of his illness ; Tirry at one o'clock, the eleventh of his illness : three others are very bad, one of whom passes his urine, and another fæces, involuntarily, who has sub. tendinum with frequent startings, and apparently great oppression about the præcordia ; app. emp. canth. sterno. T. opii and mist. camph. vin. aromat.—Peter Reid, mentioned as passing his urine involuntarily, is delirious, p. quick and weak, will seldom take the bark ; he is got out of bed and washed with cold salt water, and his bed shifted, rubbed dry, and took vin. aromat. fervid ; about an hour after desired to get up, made water, and had a copious stool ; at bed time a difficulty of breathing ; emp. canth. sterno. mist. camph. et opii.—Five added to the list.

24th. Favourable appearances, except in one, who is insensible ; contraction of the muscles of his face, which draws his mouth to the right side ; he died about noon, the ninth day of his illness ; petechiæ appeared on him the third day, and a slight hæmorrhage from his nose on the fourth. Peter Reid still delirious, though his skin has a more natural feel, and tongue moist ; he will seldom take the bark, but drinks freely of wine,

porter, or cyder.—Six added to the list; the attack still more slight; an emetic, and afterwards cinchona in vino secundo. haust. opii h. f.

25th. Four added: John Crawford, the first taken ill, continues to perspire very much, and his deafness increased; is very fond of cyder, of which he drinks freely; is constantly smacking his lips, as if tasting something. Peter Reid, as yesterday: hæmorrhage from the nose of one of the others.—Rep. med.

26th. Favourable appearances: two added to the list.

27th & 28th. Peter Reid is free from delirium, great debility, his appetite tolerable, will seldom take the bark; op. h. f.—John Crawford nearly the same, thirst insatiable, drinks small-beer, porter, cyder, and occasionally cold water; deafness continues.—One added.

29th. As yesterday: two more added to the list. The attack is now so slight, as scarcely to confine the patient, but still has the leading features of the same fever.

30th. Recovering.—Two added.

31st. Four added to the list, in two of whom the attack seems to be more severe than for some days past.—Peter Reid has a troublesome cough, takes an infusion of quassia, gentian, and ginger, with port wine, and opiate at bed time.—John Crawford recovers of his deafness, continues to be thirsty.

August 1. John Crawford recovers of deafness, and paralysis of right leg and thigh: the others as yesterday.—One added.

2nd. One of the women, wife to a man that had been ill, was seized this morning with fever; she was fatigued with washing the preceding evening: she had an emetic and opiate. Others better.—Two complained.

3rd. The woman still feverish, great irritation of stomach. Magnes. alb. in sp. menth. and T. opii h. f.—Crawford's paralytic affection better.—Two added to the list.

4th. The woman better. Let her have cinchona e vino.—All the others recovering. This is the first day that we have had no fresh attacks.

5th. Some of those who were worst, troubled with cough, and a thin expectoration. Vin. tonic c. opii h. f.—One added.

6th. As yesterday.

7th. Recovering.

8th. Coughs still troublesome.

9th. Four added to the list: one with swelling of the parotid glands, the others partial head-achs, &c.—Peter Reid, mentioned on the 23d ult. as very ill, has been recovering ever since; he is seized with a spasm in the lower part of the abdomen; opii gr^s ij. The woman is recovered.

10th. Crawford is recovering from the paralysis of his leg, deafness nearly gone, has a swelling of

his legs. Rep. med.—Peter Reid has a return of the spasm; rep. opium.

11th. As yesterday: the return of Reid's spasm is prevented by opium, previous to the time of attack.

12th. Four complained this morning: vin. tonic et op. h. f.

13th. Three added; one with swelling of the parotid: Crawford recovers but slowly.—The Scurvy begins to make its appearance.

14th. One complains of swellings of the parotid: others recovering.

15th. Crawford continues rather weak, though with a tolerable appetite.—Received refreshments from the hospital ship.

16th, 17th, and 18th. Every appearance of fever disappeared. A few in a convalescent state.—Scurvy gains ground very fast.

19th. Sent Crawford to the hospital ship, in a convalescent state.

It has not been thought necessary, in the above Extract, to mention the time of discharge, of the different patients from the sick list: after the 25th of July, they were nearly in proportion to those who complained.

Dr. Blane mentions, in his observations on the infectious ship-fever, that "Petechiæ only appear in the latter stage of the disease, and in cases of considerable danger." In respect to petechiæ,

chiæ, it was otherwise in the fever here mentioned, which I consider, strictly, ship-fever. In every case in which they appeared, it was at an early period, generally on the second, third, or fourth day, and never after the seventh. There is no doubt, but there may be considerable danger, when petechiæ appear; but several patients that were covered with them, recovered: two of the three that died had them.

The three patients mentioned with swelling of the parotid glands, had not the least fever. I was rather alarmed at that symptom occurring in the decline of the disease in the ship; as Dr. Lind mentions it as a proof “of a violent contagion, though unattended with fever; notwithstanding that, such as were in this manner seized commonly died.” These men were not confined, and recovered in four or five days. The swelling disappeared gradually, in the same manner that I have seen in cases of cynanche parotidœa, though without any affection of the testes.

There was every precaution taken to separate those that were ill from the rest of the ship’s company. The half-deck was fitted for the convalescents; which place, with the sick berth, were occasionally purified with wood fires, and kept very clean. The cloaths of the sick were hung up in the berth, at the time of fumigation, and carefully aired afterwards.

It may appear rather extraordinary in a sea

journal, that the sick, after the ship had been several weeks at sea, should be supplied with cyder and porter of the best quality, and also fresh provisions. But such was the humanity and liberality of Captain Pakenham, although his stock was large, he left off the use of porter and cyder at his own table, that they might be plentifully supplied; of these articles they were very fond, and used them in great quantity. He had, previous to our sailing, purchased a quantity of onions, for the use of the sick; which, with barley and other vegetables, were boiled with portable soup, and a piece of fresh mutton, which made an excellent dinner, to those ill, sometimes to the number of forty. These superior advantages secured the cure, and prevented relapses.—As a further proof of the good effects of the above regimen, in the subsequent month, when most part of the ship's company were ill with Scurvy, those who had been in the fever, were in no instance tainted. In observations on sea practice, I think it an object of consequence, to mention the advantages or disadvantages of diet.

(Signed)

T. KENNING, Surgeon.

Invincible, Aug. 30, 1795.

MEDICINA NAUTICA.

A G U E,

IT is not easy to trace those circumstances, which occasionally convert an Intermittent or Remittent Fever, into a continued Type; and *vice versa*. There must, however, be something in their disposition very much alike; for wherever we find Typhus affecting a number of people at a time, we also find cases of the Remittent and Intermittent form. They occur particularly towards the decline of the contagion; and I have looked upon them always as harbingers of its speedy extinction. In the fever which spread on board the Vengeance, in January 1793, and continued among the people, more or less, for four months, were a number of regular intermittents. There was also a large proportion of Agues, among Lord Moira's soldiers, who came to Haslar hospital in January 1794. In most of our infected ships after the 1st of June, similar forms of

fever appeared. I could find nothing uncommon in the constitutions of the people to modify the action of contagion to these singularities, nor can I offer a plausible conjecture on the fact. Does a weaker degree of contagion, produce Remittents and Intermittents? Cases of this kind, have given birth to the idea, that Agues are infectious. Cleghorn and Clarke, both high authorities, assert this: yet I have never seen one Ague produce another, where the original one could be traced to communication with the effluvia of marshes; either in this country, or between the tropics. Solitary instances of Ague, are very frequent in King's ships. During the late war, while the Berwick was employed in the North Sea squadron, Agues occurred twice among a considerable number of the ship's company. The action with the Dutch Fleet, on the Dogger Bank, happened on the 5th of August 1781; the men that were badly wounded, with a few sick, were sent on shore, to very indifferently-conducted sick quarters, at Sheerness. The situation of this place, surrounded by marshes, renders it subject to intermittents: our people were, to a man, seized with Agues, either on shore or immediately after coming on board. Some of them were very obstinate, and one or two terminated in dropsy: yet not a man in the ship was affected, but those who had been at sick-quarters. The seamen who
were

were but slightly wounded, were sent to the hospital ship which lay in the harbour, all of whom, returned cured of their wounds, and in perfect health. This hospital ship lay but a short distance from the shore, but sufficient to prevent any bad effects from the wind blowing over a marshy soil *. Circumstances very much like the preceding, happened in the same ship, in the Downs, a few months after. The Agues were brought from Deal Hospital; a place, at that time, every way calculated to generate contagion, and lengthen disease. How often did I regret, at that time, that I possessed neither rank or authority in the service, to correct so depraved a system of medical discipline! I sincerely wish we may hear better accounts from arrangements that have lately taken place.

The intermittent fevers which I have met with on the coast of Africa, were confined to the seamen employed in the boats. I never had occasion to use the lancet in any of these cases; but an emetic, or a purge, were generally given early, and always with advantage. In some, the bark was tried during the whole of the apyrexia; and in others, it was given in half-dram doses, every half hour,

* Other ships having suffered by the people getting intermittents at Sheerness, ought to have been a reason for discontinuing sick-quarters at that port, and trusting the whole to hospital ships commodiously fitted for the sick.

for four hours before the expected paroxysm. The result was uniformly in favour of the latter practice. When the bark was given in large doses, from the termination of one paroxysm to the beginning of another, before the rigours commenced, it frequently happened, that the stomach was overloaded, and sickness and vomiting were inevitable. By these means, the succeeding fit recurred with greater violence, and the difficulty of curing it was increased. On the other hand, when the cinchona was exhibited a few hours before the accession of the paroxysm, six drams appeared to be more effectual than eighteen taken during the whole intermission, in checking the recurrence of the disease. After it was stopped, it was necessary to continue the medicine at the expected period of accession, and to diminish it gradually. Only one case occurred that did not yield to this mode of treatment. It was a relapse, from improper conduct on the side of the patient: he left us in the West Indies, and I am doubtful that he ever recovered.

Among the Earl of Moira's troops at Haflar, some few Agues were very difficult of cure. The arsenic solution, in every case in which it was given, failed to give relief: the cinchona after it, was administered with success. These soldiers were extremely debilitated, and had suffered much from want of diet suited to their distress, as well as the
unwholesome

unwholesome quarters of a crowded transport. There was a necessity for allowing them wine in great quantity, and a full diet of animal food to those who could use it. Under this regimen, it was surprising to see with what rapidity the cure was completed in some instances. Relapses only occurred, when the wine was withheld contrary to my directions : in the case of a grenadier, no less than three relapses happened from this circumstance alone. He was a tall slender man, and was much reduced by the disease ; but he had a good appetite in the absence of the fit, and could eat his pound of meat in the day. There are some medical attendants of hospitals, that think a sailor or soldier are not much entitled to such delicacies of diet, as a pint of wine. These are gentlemen that step easily into their appointments, who have never witnessed the hardships of a sea-life, or military service ; and thus they forget that sympathy that forms one of the finest *traits* in the medical character.

It has been already mentioned, that Agues became very frequent in the Vengeance towards the decline of the contagion. Many of these cases happened at sea ; and from having them so much under my own eye, I resolved to try the full effects of opium in preventing the fit. The greater part of my patients were Irish landmen, lifeless, timorous beings, and indolent to an extreme, when indis-

posed,

posed. The moment they felt the first approach of the fit, they were sure to run to the cockpit for relief. The dose of opium was generally administered at the door of my cabin, for there was seldom occasion for them to go to bed in the sick-berth. This was done, either under my own directions, or those of the first mate, Mr. Peter Blair, in whose abilities and attention I had much cause to confide. If the first dose did not bring on some warmth in the space of ten or fifteen minutes, from twelve to twenty drops were given in the same manner. The changes of the pulse and feelings of the patient were often carefully watched. We never gave less than thirty drops the first time, and never needed to go beyond sixty in the space of an hour, for in no case did it fail to give relief in this time. In a few minutes from the exhibition of tinct. opii, an exhilaration of spirits was perceived, which was quickly followed by a relaxation of the surface, the countenance looked cheerful, and a flush was spread on the cheek. The pulse from being weak, quick and sometimes irregular; became less frequent, full and equal: an agreeable warmth was diffused over the whole frame, and every unpleasant feeling vanished, sometimes in a quarter of an hour. Sleep now and then followed a large dose, but generally this did not happen. As soon as any symptoms indicated another paroxysm, whether on the following day,
or

or not till the tertian interval, the tinct. opii was repeated in the same manner as directed in the former fit, and always with equal success, so that the patient seldom experienced much tremor or shaking. The second paroxysm was commonly an hour or two later in the day than the preceding one; and but few instances were met with, where any indisposition indicated a third attack at the expected period of accession. The patients themselves were not a little surprized at the sudden change of their sensations, by so small a quantity of medicine: they were certainly the compleatest cures that ever came under my observation, and may justly be said to have been effected, *certe, cito et jucunde*.

During the intermission, these men were supported with nourishing and stimulant food, such as could be procured on board. They had a pint of sound wine per diem, and sometimes more if it was required. From my statement of the fever which prevailed in the ship, the Lords Commissioners of Admiralty had bountifully ordered us to be supplied with six pipes of wine, and it was the safety of many. Those who were in need of it, had a piece of fresh mutton from the table of the Captain or Officers; often a slice of pudding, and a basin of broth, and constantly a supper of flummery, with a little wine and sugar. To the portable broth, which was always boiled for dinner,

was generally added a piece of mutton, sent by their Commander, now Vice-Admiral C. Thompson, who never had a sheep killed for his own use, without ordering a share for the sick. By these comforts of diet, some advantage might have been gained by medicine, that could not otherwise be expected: and it shews how feelingly our Officers attend to the afflictions of their people.

A case of intermittent fever, of the tertian form, was cured by wine alone, given immediately on the beginning of the rigours. The wine was administered in four-ounce doses, by Mr. Peter Blair, every ten minutes; there was a considerable degree of tremour and shaking, that did not quite leave him till after the fifth dose; so that twenty ounces of wine seemed to have the same effect as forty of the tinct. opii. There was no apparent intoxication; but sleep was speedily induced, and lasted three or four hours, when he awaked perfectly well.

A few intermittents appeared in the same ship's company, at Prince Rupert's Bay, Dominica; where we went to compleat our water after the unsuccessful attempt against Martinique. The ground at the foot of the hills which surround that bay, is low and swampy: the whole is covered with trees or brush-wood. It must occasionally be an unhealthy spot, and the source of those diseases which in certain seasons originate from marsh effluvia.

effluvia. Some officers were imprudent enough to allow tents to be erected for their people to sleep on shore; I believe no diseases were the consequence; but that seemed to depend on the short time of getting their casks filled: it was not a practice to be imitated. Our method of cure was chiefly opium exhibited in the manner related above, and it was equally successful as in the former cases. There were some that required emetics, and seemed to approach more to the continued type. We had also fluxes at this bay; the people got new rum at the watering-place, and some of them nearly expired from intoxication: this made many of them fall asleep on the ground, which was damp, and checked perspiration.

A practice in Agues, nearly resembling the above, has been successful in my hands for some years: there are certainly, however, intermittents to be met with, where bleeding and purging are indispensable; and the use of both opium and bark will be found more effectual after these evacuations. In strong robust young people, who have lived in the country, this remark will particularly apply, and it ought to be attended to.

“ Glenmore, Sheerness, 10th Sept. 1796.

“ DEAR SIR,

“ A new mode of curing intermitting fevers, having lately come under my observation, I take the earliest opportunity of requesting your opinion of it : I mean by the application of tournequets to the upper and lower extremities. A very ingenious young man, Mr. Kelly, late surgeon of the Iris, has, I believe, published some account of it in the Edinburgh Medical Commentaries, which however I have not seen. Upon first hearing of it, I resolved to make the experiment the earliest opportunity, esteeming it a very safe one, under cautious management. Since I joined the Glenmore, I have had two patients in that disease. I carefully watched the accession of the paroxysm, and immediately applied a tournequet to the opposite leg and arm, and kept them on for about fifteen or twenty minutes ; taking care to unscrew them as occasion seemed to require. This procured a very effectual remission. In one of the patients the fit was violent when the tournequets were applied : and when they had remained on for about ten minutes, he called out that he was quite well ; and by continuing it a little longer, the fit
went

went entirely off. In the mean time, the usual remedies were freely used, such as bark, wine, &c. Thus, by carefully watching the disease a few days, its progress was completely put a stop to; and a slight debility only remained. This is the only opportunity which I have had of making the trial; but I have little doubt of its efficacy in the disease.

“ I can account for its effect only in this way; allowing the paroxysm to be the consequence of some derangement in the system, by debility, the application of the tournequets, in the manner I have mentioned, may cause a more abundant and speedy return of blood to the heart; and by that means remove, in some degree, the proximate cause of the disease, by giving a temporary strength to the animal powers.

I am, DEAR SIR,

Yours most sincerely,

(Signed)

Thomas Grey.

To Dr. TROTTER,

Physician of the Fleet.

MEDICINA NAUTICA.

THE YELLOW FEVER.

THE ravages which this fatal Disease have made, during the present war, in our fleets and armies, are beyond all precedent: the insidious mode of attack, and the rapid strides by which it advances to an incurable stage, point it out as one of the most formidable opponents of medical skill. It has offered the severest obstacles to military operations, which the history of modern warfare can produce: the chief victims of its fury being the young, the robust, and those free from other diseases; by which means a campaign in the West Indies is now considered as little better than *forlorn hope*.

While this mortality is going on among our troops in the West India Islands, two authors, nearly at the same time, have published opinions on this Fever, and related a method of cure very much alike, though at a distance and unknown to each other. It has been held out in these publications,

lications, that the danger of the disease was overcome, and a treatment established, as simple and effectual as in a common remittent. The first of these works has been greedily received by the medical world. A pestilential fever appeared at Philadelphia in the month of August 1793, the nature and treatment of which, excited no uncommon disputes among the Physicians; which, at such a time, could not fail to increase the affliction, as it wrested from the sick bed one of its last comforts, the hope of recovery by medical aid.

During this awful visitation, Dr. RUSH appears like a saving angel, arresting the arm of death; and we are at a loss, whether to admire most, the profundity of his professional skill, or that vigour and benevolence of mind; that bore him up against the dread of infection, and the calumny of his cotemporaries: in both, he has given a valuable lesson to Physicians, and will hand his name to posterity, as one of the greatest models for imitation. To have fled from the scene, and quitted the duties of the profession at such a crisis, would have been base and unmanly; but to see his opinions triumph over ignorance and obstinacy, is a victory only worthy of a benefactor of mankind.

Dr. Rush supposes this fever to have arisen from damaged coffee, that was left to rot on the wharfs, and from which noxious exhalations were spread that first affected the neighbourhood, and afterwards more distant parts of the city. A certain

state of the air is however admitted to render this *miasma* sufficiently active. We are apt to believe, that a peculiar constitution of the weather, was adequate to explain the origin and propagation of this fatal epidemic, without including the influence of putrefying coffee, which at best is problematical. Something ought, therefore, to have been premised on the topography of the capital of Pennsylvania, which we are surprised to see omitted, while so many inferior circumstances are minutely detailed. Is not Philadelphia built on a low plain on the banks of the Delaware*?

The practice of the Sydenham of America, was bold and decisive, in this fever. It was one
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* Since writing this account, a Captain of a man of war, just returned from the Jamaica station, informs me, that much about the time when Dr. Rush took notice of the putrefying coffee on the wharf at Philadelphia, several vessels laden with the same produce came to Kingston from St. Domingo. During the distracted state of that colony, this article, with other productions, had been allowed to spoil and ferment; the evolution of a great quantity of fixed air, or carbonic acid gas, was the consequence; and in these vessels, when opening the hatchways, such was its concentrated state, that the whole of the crew, in some of them, were found dead on deck. A pilot boarded one in this condition, and had nearly perished himself. It does not however appear that a Yellow Fever was generated at Kingston by this coffee: we must rather suppose that these people died from breathing the carbonic acid gas, the very same kind of air that frequently proves fatal in the wells of ships. This substance might, no doubt, assist the progress.

of those opportunities, which nature now and then presents, as a field for the display of superior talents, to some favoured genius; where he bursts asunder the fetters of system, to expand, at large, in a new sphere; which he peoples with new ideas, and new opinions, peculiar to their Creator. Who would not travel through this vale of tears, amidst blasts of contagion, to share the well-earned fame of Dr. Rush!

The other publication on the Yellow Fever, is from the pen of Dr. Chisholm. The fever which he relates appeared at Grenada in 1793, while he was surgeon to the hospital of the royal artillery at that island. The Doctor, however, considers this fever as a new disease in these regions, and differing essentially from the synochus icteroides of the country. Having given his arguments in favour of this distinction, he next attempts to prove, that it was an imported contagion; and was brought from the coast of Africa by a ship called the Hankey, belonging to the settlement of Bulam; “where people had been induced to
“ settle, more from the delusive prospect of
“ wealth held out to them, and the *fanatic*
“ *enthusiasm* for the abolition of the slave trade of
“ the moment, than by the deprivation of

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“ the

gress of contagion at Philadelphia, because it would render the atmosphere less fit for respiration; a physician possessing a talent for investigation, like Dr. Rush, could not therefore overlook its effects.

“ the means of subsistence in their own country*.”

This fever, according to Dr. Chisholm’s account, had, among its peculiarities, some of the most

* Chisholm on the Grenada Fever, p. 83. The expressions here used, partake little of the liberal and enlightened spirit of other parts of the work. Why should a Physician, the prerogatives of whose profession are to alleviate pain, and prevent the evils of human nature, accuse a nation, impelled by a religious principle to put an end to the sale of fellow creatures, of a fanatic enthusiasm? When a man appears an advocate for the slave trade, does he not, by that, disavow religion, and mock revelation? If we, like the French, should decree death to be an eternal sleep, such a practice would be consistent; and we might scourge, pinch, and torture the flesh of the African to the last drop of blood, for the sake of gain. But the dread of a *hereafter*, must constantly keep alive this inquiry, till the decrees of heaven, and the laws of justice, are satisfied. When I visited the islands in 1793, I was glad to find a general improvement in the condition of the slaves, which had solely risen from the discussion of the subject at home: nor did I find a captious spirit among the planters, who could reason on their side of the question with a becoming candour. I was, with twenty Surgeons on the Navy List, at the end of last war, obliged, from necessity, to seek employment in the African trade, because the Navy Board refused us ships, and we had no half-pay. Some of the number died, and the greater part of the remainder returned broken hearted. I communicated to Mr. Wilberforce what I knew on the subject; some spoke with indifference of my evidence, because I had been but one voyage. Yet on this circumstance I rested its validity: had I engaged fully in the trade, the love of money might have entrapped my judgment, as I possess frailties

most prominent characteristics of the Endemic Cause of Dr. Mosely; viz. its affecting newcomers, and being almost confined to whites: from these circumstances we are led to believe, that it was nearly allied to the Yellow Fever.

While the Vengeance lay at St. Kitt's, on the 31st of July 1793, with Admiral Gardner and the homeward bound convoy, I was requested to visit a gentleman on board a merchant ship from Grenada, who was reported to have the plague fever, then raging in that island. I found him in a helpless condition, with many symptoms of the last stage; such as, universal yellowness of the skin, black vomit, and convulsions: I prescribed for him without expectations of success, and supposed that he would die the same evening; the Fleet sailed next morning, and I heard no more of him. In the passage home, on the 22d of August, lat. 33:44°. long. 57:02°. therm. 81:0, a ship lost her foremast in a squall of wind, and received other damage, when the Admiral made the signal for the Vengeance to take her in tow. The ship proved to be the Hankey from Grenada and

Y 4

Bulam.

frailties like all mankind. I should not have touched on this business, was I not deeply afflicted at seeing a man of great medical abilities, and general science, ranged on the side of a traffic in human beings; there is not another physician in the list but himself: it will go some way in depreciating the eulogy bestowed on the profession by Dr. Johnson, if Dr. Chisholm does not recant his expression.

Bulam. Captain Thompson sent carpenters on board, with the necessary stores to assist in repairing her losses: they remained for three or four days; but no sickness followed, nor had there been any person indisposed since they left St. Jago. On our arrival in England I was not a little surprised to find, that very particular orders had been sent from the Privy Council, or Secretary of State's Office, to Liverpool, ordering the ship Hankey under a strict quarantine, lest the Bulam fever should be communicated by the intercourse. This was done in consequence of the information from the governor of Grenada.

These circumstances made me curious to read the account given by Dr. Chisholm. Having perused it, with admiration of the author's abilities, and the successful, though singular mode of treatment, I frequently made it the subject of conversation with medical gentlemen lately returned from the West Indies. Dr. Chisholm tells us, that the ships of war on the African station having sent men to assist the Hankey, after numbers had perished from the fever, received the infection by means of this communication, and that in the Charon thirty died, and fifteen in the Scorpion. Captain Dodd, who at that time had his broad pendant in the Charon, now commands the Atlas of ninety-eight guns in the Fleet: Mr. Smithers, the surgeon, is at present in the Formidable, a second rate, also in the Fleet:
from

from them I have copied the following narrative of their transactions with the Hankey.

When the squadron under Commodore Dodd came to St. Jago, in 1793, the Hankey lay there, in great distress for want of hands, having buried above one hundred persons, men, women, and children, from the time she had been at Bulam. The fever was now overcome: Mr. Smithers saw two men that had lately recovered. He prescribed to the master, who was ill of a venereal complaint, and for which he left him some mercurials, with directions how to use them; at the same time he left a quantity of bark. The Charon and Scorpion sent two men each, to assist in navigating her to the West Indies. The Hankey, at this port, was cleaned, washed with vinegar, and fumigated. No fever appeared in either of the men of war in consequence of this communication; they arrived at Grenada in perfect health, but did not go to the same port of the island to which the Hankey went. The Charon at this harbour received some seamen from the merchant ships, then taking in cargoes for England; she had afterwards fourteen cases of Yellow Fever, of which one died: but it is remarkable, that the Scorpion did not bury a single man during the whole voyage*.

It is probable, from these facts, that the Hankey did not import the infection that produced the
Grenada

(* See next page.)

Grenada fever; for, after the disease was worn out, she had a passage to make to the West Indies of many

“ * List of Men who died on board his Majesty's Ship *Charon*, between the 22d of November 1792, and 4th of August 1793, in a voyage to the Coast of Africa, and West India Islands.

Feb. 18. Ja^s Coglin - Flux. An old man very much broke down, and severely troubled with a rheumatism; had done no duty during our passage to the coast; was attacked with flux on the 18th of Feb. and died March 7th.

March 6. John Bean - Flux. A mate of a slave ship that was cast away on the coast, and in the last stage, was taken on board by the Commodore's desire, for a passage to England; died on the 22d of March, on our passage to St. Thomas's.

March 10. Querra - - Flux. A black prisoner going to England to be tried for murder; died on the 30th of March, at the Island of St. Thomas's.

June 22. Tho^s Dillon - Fever. A healthy strong young man, died on the 13th of July, being then on our passage to England.

After leaving Grenada on the 4th of June, we had twelve or fourteen men attacked with the Yellow Fever; the infection was brought on board by some impressed men whilst at Grenada.

many hundred leagues. It is also doubtful how the effects left in the Hankey could produce the fever, for the bedding was thrown away, and what cloathing remained, had been aired, and, probably, had scarcely been in contact with the body after being sick. Mr. Smithers was examined before the Governor of Grenada on the subject, and gave his opinion, decidedly, that the Hankey did not communicate this fever to the colony: from our people remaining some days on board, at sea, and escaping with impunity, is a strong support to the evidence of Mr. Smithers. Dr. Chisholm has laboured his arguments to prove, that it was a new disease; though, perhaps, only the common endemic of the country, more aggravated by a greater number of raw Europeans being the subjects of its influence, than he had been accustomed to observe before. This was the natural consequence of the war; for ships are detained to wait for convoys, which would increase the number of seamen on the spot; at the same time we find raw recruits had just arrived from England. The pay of seamen is generally high on these occasions, and they would be better enabled

nada. The disease spun out to a great length, but all recovered except Thomas Dillon.

The above deaths, with one man killed on shore at St. Jago, and another drowned on our passage to England, were all that happened during our voyage.

(Signed)

J. SMITHERS, Surgeon."

enabled to indulge their debaucheries, which would finally expose them to the diseases of the climate. These circumstances taken together, sufficiently account for the variations of this Pestilence from the common Yellow Fever; and it comes near to what has been told me by some medical friends, who visited most of the islands during the mortality among the troops. As Dr. Chisholm has, therefore, been misinformed in some very essential parts of his inquiry, I cannot help thinking, that the account given by Commodore Dodd, and his surgeon, tends very much to shake the opinion of the disease being imported.

Dr. Chisholm also says, "that this fever was not confined to Grenada, but spread from thence to the other islands, and to the continent of America." I think this assertion is given on too slight grounds; we have the authority of Dr. Rush, that the Yellow Fever of Philadelphia was generated on the spot. Three young gentlemen died on board the Vengeance, a few days after leaving the islands, of a fever, with regular remissions, where a yellowness appeared about the fifth or sixth day; which I could trace to a swampy ground, where we got our water, a little to leeward of the town, at Monserrat. It is of great consequence to the peace and security of society, that physicians should be particular in investigating the sources of contagious diseases; and
every

every candid mind ought to guard against any bias from opinions of theory. We have seen some very ill-founded alarms spread, from the idea that this fever might be imported into England by trading ships : a similar dread was spread while the disease raged at Philadelphia. I do not think that the infection is in any danger of becoming active on this side the Atlantic ; it seems directly opposite to the nature of Typhus, and they are subdued by a directly opposite state of the atmosphere *.

From the account given by these authors, we have a right to conclude, that the diseases, which they describe, were the same ; or what variation appeared in the symptoms, might be justly considered as the effect of situation, or some peculiarity of constitution in the person affected. In the chief part of the description, these physicians differ little from Dr. Mosely, to whom we are indebted for the best history of this Fever, although he does not suppose it to be infectious. We have, therefore, the concurring testimony of the three latest writers on the subject, that the Yellow Fever is, in its first stage, a disease of a high inflammatory disposition ; and, in its latter stage, as the consequence of the preceding, at-

* The dread of importing this fever, is kept alive by making ships undergo quarantine. Nay, an *army physician* reports the state of men of war, before they are liberated by the health officers !

tended with symptoms of exhausted energy, terminating in gangrene and putrefaction. They also agree, that a peculiar state of body favours its attack; viz. the young, persons of tense fibres and rich blood, and the new-comers from northern countries. This being the case, the indications of cure have been similar; although answered by some means that are rather new to the treatment of febrile diseases.

The theory of this fever, if I may be allowed the expression, affords a fine illustration of the new doctrine of Brown and Darwin, in what relates to the disposition of new-comers from cold countries, making them the chief victims*. We are there taught, that animal existence is endowed with a quality, called *Excitability* by Brown; *the Spirit of Animation*, or *Sensorial Power*, by the author of *Zoonomia*; on which the phænomena of life depend. Every thing which supports life, exerts its influence on this principle: it is capable of different degrees of accumulation and exhaustion: it is accumulated by the subtraction of stimuli, and is exhausted by excessive stimuli, or the long application of others acting more

* See the Translation of the *ELEMENTA MEDICINÆ* of Dr. Brown, published by Johnson, London, with the elegant *BIOGRAPHY* of Dr. Beddoes.—*ZOONOMIA*, or the *LAWS* of *ORGANIC LIFE*; by E. Darwin, M. D. Johnson, London. 2 vols. An inestimable work; and when physicians shall take the trouble to peruse it, will probably supercede all other systems.

moderately : a due equilibrium between the exciting powers, such as heat, food, air, mental exertion, &c. and the sensorial power constitutes *health* ; and every variation from either, is *disease*. When the sensorial power is accumulated, it is more susceptible of stimulants ; this is strongly exemplified in frost-bit toes or fingers, on being suddenly exposed to the fire, or plunged into warm water : the pain becomes intolerable from inflammation, and mortification, with mutilation often follows. This effect of the inflammation, is the indirect debility of Brown, and the exhausted sensorial power of Darwin. On a larger scale, for the sake of comparison, we may suppose the inhabitant of a cold country, like a frost-bit limb, and the climate of the West Indies, like the warm water. The cold of our winter, from deficient stimulus, allows the sensorial power to accumulate ; and increases the susceptibility of the body, for the action of all exciting agents : in other words, it predisposes us to inflammatory diseases. As we change our seasons gradually, we feel little inconvenience, because the exciting power of heat in the spring, is not much beyond the degree of excitability which the winter had accumulated, and thus the one is gently exhausted by the other. So a frost-bit limb is recovered by plunging it into water of a low temperature, more proportioned to its degree of excitability. On these principles, inflammatory affections are found to prevail

prevail most in the spring months, when the heat succeeds quickly to frost. But if we go in the space of a few weeks, from the cold of a severe winter, when the Therm. was at 20. to the Island of St. Domingo, where the heat is never below 80°. the transition is too sudden, and the difference of temperature is too great for the body to accommodate itself to it, at once. It is like putting the frozen limb into hot water : there being a redundancy of both excitement and excitability, which passes rapidly through a state of the most violent inflammation, that terminates in debility, gangrene, and spacelus. To wear out this accumulated excitability, by slow and gentle gradations, is the grand explanation of the word *seasoning* : it is the secret, which constitutes the only difference between the inhabitants of England and Jamaica. The Yellow Fever of the West Indies, therefore, as it appears in the body of a raw European, is a disease of the utmost excitement, in a constitution of accumulated excitability ; where a tense fibre, and dense blood, permit it to be carried to the highest pitch of inflammatory tendency, which, from the nature of the animal œconomy, speedily exhausts the powers of life, even in the space of a day or two, inducing putrefaction and death.

These principles being established, concerning the nature of this fever, we have seen them applied

plied with success in the cure, by Doctors Moseley, Rush, and Chisholm; and we shall now endeavour to reduce them to some practical advantage in the prevention.

We know, from Dr. Rush, that a state of the atmosphere, first checked his awful epidemic; and we know, from West India physicians and surgeons, that a quick passage to the cold latitudes, often brings about wonderful changes in the Yellow Fever. The cold in this case reduces the excessive excitement, and prevents it from gaining that height, which tends to exhaust the excitability or sensorial power in so short a space. When, therefore, the fever spreads in a ship, it has always been reckoned a salutary measure to put to sea; we are only surprized that it has not been done more frequently, during the late mortality among seamen, at the islands. A certain height of temperature, seems also necessary to give activity to this contagion; if the fever is to be extended by this manner.

It was a wise measure in our Government, to send troops from Gibraltar, or our islands in the Mediterranean, to garrison the West India Islands, rather than from England at once: by which, the transition of climate was more gradual, and the excessive heat sustained with impunity. To speak more technically; the accumulated excitability was exhausted by the exciting power of

Z

heat,

heat, by gentler gradations, till it became proportioned to the excitement ; which would fix the equilibrium between the two, and constitute West India health : the muscular fibre would become more soft and lax, and the blood less florid and dense ; and thus the body would be accommodated to a tropical temperature, or *seasoned*. But, as military operations have been carried on in that country, in a more extended scale than formerly, which puts it out of our power to season a whole army at Gibraltar, the the next expedient ought to be, to send them from this country before the cold weather sets in, that they may arrive at the islands in the coldest months. I therefore, think, that all reinforcements ought to leave Europe, from the 20th of September to the 1st of October, but not later ; whether ships or regiments.

There is another circumstance deserving consideration in this business. Our armaments have lately suffered much by detention in the Channel : now, it would much facilitate all foreign expeditions, if the whole of the army were to embark at Cork, or other ports in the West of Ireland, by which means they would *clear* the land in a day or two. I would, therefore, recommend, for consideration, the construction of barracks for ten thousand men near the Cove of Cork, to be in constant readiness for embarkation when neces-

sary. The fate of the fleet under Rear-Admiral William Parker, in December 1794, and of that under Sir Hugh C. Christian, in November 1795, are recent proofs of the propriety of this proposal. With respect to the transports themselves, there is much room left for improvement: it would surely be a better method for conducting this service, that Government should build vessels expressly for the purpose, and not permit human beings to be squeezed into small vessels; which in blowing weather are drenched with water, and some of which have occasionally been found so bad, as to be in danger of sinking at their anchors. To prevent unpleasant altercations between officers of the navy and army, they might be navigated as in the establishment for navy transports. To each, there ought to be a surgeon or mate, with necessaries, instruments, and medicines. Many recent misfortunes, sufficiently evince the necessity of this addition. But to our subject:

The prevention of this fever, evidently depends upon reducing the excitement. Now as we cannot reduce the heat of a West India climate, we ought to attend to the other stimulant powers, which act along with the heat of the atmosphere, and decrease those that we can command; meat and drink, air, &c. are all of this description: we can reduce the body very much by the evacuations of bleeding and purging. There was an old

custom of bleeding and purging sailors and soldiers, when a ship got into the warm latitudes. I cannot help thinking, that it was a rational practice, however ill understood, and I long to hear of its being revived. I have seen a very quick transition of temperature produce grievous headaches; for one of these I bled myself at the ankle, and had immediate relief. They are certainly genuine precautions against tropical fevers; now confirmed by medical authority, and still more by the premature death of thousands of our countrymen.

Heat, at 84° of Farenheit, is an excessive stimulus to our bodies; but its danger is much encreased, when at the same time a great quantity of animal food, with vinous or spiritous liquors, forms the diet. These articles, in conjunction, carry the excitement to the highest point imaginable: and hence, luxurious living has lately made many Englishman food for this mortal disorder: I have frequently mentioned the names of my acquaintance to their friends, as being certain victims, from these causes.

The sagacious Dr. Rush, in addressing his fellow citizens, says, "the best preventive of the disorder, are, a temperate diet, consisting chiefly of vegetables, great moderation in the exercises of body and mind, warm cloathing, cleanliness, and a gently open state of the bowels." I am afraid few of these rules have

been strictly followed, by either officer or private, in our army. As my residence has been chiefly at Portsmouth for the last eight months, I have had many opportunities of seeing and knowing the habits of life of a great part of the young men who embarked lately on West India expeditions. It was melancholy to behold some of their messes, where they seldom parted company, after dinner, till the bill would amount to a guinea, and often more, a-head. What a heedless profusion of health! what an example to men under their command! These modes of living, I am sorry to learn, were practised by many of them throughout the passage; and continued to be a custom in the islands. Would not Government, in such cases, have acted a justifiable part, to have prescribed a diet of temperance, and enforced the compliance, under a penalty of dismissal? Many of these gentlemen had just returned from a campaign in the Low Countries, where the moderate indulgence of wine was a safe preventive against the cold, and the marsh effluvia of the soil; but to carry such opinions and practice into a sultry climate, was certain destruction. When giving my opinion to my friends, on the best means of securing health in the West Indies, I often found it difficult to convince them of the propriety of low living. The common argument was, how are we to support the heat, unless well

supported by nourishment? This was exactly inverting the question: the heat is to be diminished by food less stimulating. It seems never to have entered their heads, that the heat of the climate did, in a warm region, what a nourishing and stimulant diet affected in a cold one, to support the excitement. Intoxication, it is well known, is doubly hurtful in a warm country; because, with the superabundant stimulus of the vinous spirit, is joined the excessive power of heat: the debility which it leaves behind, is more difficult to be recovered, because the preceding excitement had been raised to a very high degree. A dinner in the West Indies, where two-thirds, or three-fourths of it, has been made on vegetables, with water, small beer, or a little wine diluted, gives the body a degree of strength and activity, that are not to be obtained from a repast of animal food, strong malt liquor, or wine. The latter bring on a drowsiness and langour, that are apt to terminate in sleep, and which generally happens; they are, therefore, improper food, while the heat of the atmosphere is so great; they exhaust life by an unnatural stimulus, and induce what is called *indirect debility*.

It is very generally admitted, that the French bear the climate of the West Indies, better than Englishmen: now, no reason can be given for this, but their temperance in living, or being natives

tives of a warmer soil, in the southern provinces of France. With such an example before us, we ought to have done otherwise: *fas est, et ab hoste doceri*: the maxim was never more applicable than in the present instance. I cannot help thinking, for these reasons, that much might be done by diet and regimen, to preserve our sailors and soldiers in these islands.

As a large proportion of animal food enters into the diet of both sailor and soldier, it would be necessary to diminish that, in the first place: whether salt or fresh, it is the most stimulant diet. As soon as any outward bound ship or transport, in its passage, gets to the southward of the island of Madeira, let the beef and pork be reduced one half. In lieu of the other half, let the people be served with cocoa, coffee, or even tea, sufficient for a pint of water, with sugar to sweeten it, for an evening meal. If this does not equal the value of the beef or pork, let them be paid in cash, as is usual on short allowance. When they arrive at the islands, let the daily quantum of meat be reduced to one third of a pound. If the sailors have not oatmeal gruel, with sugar or molasses for breakfast, coffee or cocoa ought to be invariably substituted. A delicious mess for breakfast may be made of the pease prepared in the manner of coffee, and sweetened with molasses; the people like it beyond any thing; and I con-

sider it a highly worthy practice, and a most judicious improvement in diet. At this time, I would also increase the quantity of bread, which would be always consumed, while they have cocoa, coffee or tea, to encourage its use. When the tropical vegetables and fruits can be procured, I would recommend them to be served, in harbour, two or three times a week : vessels ought even to be constantly employed to carry them to the fleet, at sea ; and if they cannot be supplied in sufficient quantity at one island, let them be brought from another. Plantains and yams would be a fair substitute for bread, at least once or twice a week. Seamen and soldiers, it may be said, would not easily submit to these changes : I well know they would not be popular, till the men were convinced that it was solely done for their good ; and it would be the duty of every officer to impress them with this truth. For my own part, I see no unfurmountable difficulties in the business. Many of the West India vegetables, when mixed as a salad, are delicious ; and a few ounces of salt meat are sufficient to relish so many pounds. But it would even be a cheap method, to have these articles in constant cultivation, for the use of navy and army, at every island. Ship loads of potatoes, and our cheaper pickles, might be occasionally sent from England. The flour pudding with currants, pea-soup, rice
and

and fugar, might also be judiciously blended with this diet.

The negroes live entirely on vegetable food, yet they are capable of working for sixteen hours, out of the twenty-four; which is a proof, that deficiency of animal food does not induce weakness of body. Vegetable food affords a larger quantity of water, which dilutes the blood, gives a copious supply of perspiration, during the evaporation of which, from the surface of the body, the extreme heat is lessened.

The use of spirits, in any form, should be totally laid aside: they are slow poison in cold countries, but here they do the work of destruction quickly. Four ounces of wine, forenoon and afternoon, diluted with water, is an ample allowance for any man, who wishes to preserve health and constitution in these regions: nay, I am of opinion, that the man who drinks nothing beyond pure water, has the best chance of escaping fevers in the West Indies; unless some particular frailty of body urges the propriety of drinking wine as a medicine. Among my own acquaintance, who have lately returned in perfect health, I can reckon many, who lived almost on vegetables, and drank water. Some of the number consider themselves as living monuments of my advice, and attribute their escape to the instructions they received from me at their departure. It is the effect of high living,
whether

whether in eating or drinking, to wear out the constitution; it gives a short vigour, which is followed by langour and inaptitude to exercise: if in the last state the body is exposed to unwholesome swampy situations, or the dews of the night, a fever follows. In constitutions accustomed to live in this manner, it riots with unconquerable violence; till in the short space of a day or two, this goodly frame is converted into a mass of corruption. Thus we see them the first to sink under fatigue*, while the spare and slender subject undergoes it with impunity, and escapes fevers in all their shapes.

By way of indulgence, a short allowance of malt liquor might be served once a week; but spirits in any form should never be thought of. Uncommon pains ought therefore to be taken to dissuade men from the use of the rum: intoxication must therefore be punished with the most exemplary severity.

The

- * " He had a fever when he was in Spain,
- " And, when the fit was on him, I did mark
- " How he did shake: 'tis true, this god did shake:
- " His coward lips did from their colour fly;
- " And that same eye, whose bend doth awe the world,
- " Did lose his lustre. I did hear him groan:
- " Ay, and that tongue of his, that bade the Romans
- " Mark him, and write his speeches in their books,
- " Alas! it cry'd *Give me some drink, Titinius*;
- " As a sick girl."

SHAKESPEARE.

The exemption of the fair sex from this dreadful malady, can only be attributed to the habitual and temperate tranquillity of their lives. Abstemiousness and moderation in eating and drinking, along with a sedentary life, give that delicacy and softness to the muscular fibres, and dispose them less to diseases of high excitement. Having less intercourse with the hurry and bustle of business, that amiable equanimity of temper is seldom ruffled by those passions which agitate mankind, and supply an excess of stimulus. Bountiful Nature has thus kindly atoned for those ills which are peculiar to delicate frames; while their virtuous habits give them that fortitude and patience, so often admired under affliction, to which we are strangers. It is, therefore, women of more robust constitutions only, who become subject to the Yellow Fever.

With respect to dress, I think some changes might be made to advantage. I would have the whole cloathing of a soft, slight cloth, between a flannel and what is now in use. Socks and pantaloons, with canvaß shoes, for the legs and feet: an easy loose shirt or waistcoat, of the same woollen cloth, with sleeves, and no linen next the skin. The soldier, for sleeping in, should be provided with a large blanket of the same cloth, which he might occasionally carry with him, if on a march at night. For the head, I would prefer a light
hat,

hat, painted water-proof, and formed to defend the eyes from the glare of the sun. Soap should be allowed to wash this dress twice a week, at Government expence. The hair should be worn short.

A judicious and humane commander, whether on board or on shore, will always be careful how he exposes his men to a meridian sun, in a warm country. The duty will therefore be so conducted, as never to endanger them from the heat of the day: it would be well if black people were to be employed, when it is necessary to work in the sun. A few negroes attached to every ship and regiment, would save the lives of many white men. It is surprizing to think, that this has never been accomplished, when we look to the expence and difficulty of procuring sailors and soldiers. Amidst the fluctuation of commanders, a progressive system of improvements will scarcely take place: different men have different modes of action; and if ample documents of bad measures point out the necessity of alteration, the best concerted plans may be laid aside, by a new set of men coming into office. But such is the want of foresight in human nature, that the evidence of misfortune is seldom canvassed till too late.

An open state of the bowels is an excellent assistant to health in the West Indies; it is indeed indispensable, and secures the stomach against a
regurgitation

regurgitation of bile, so prevalent there*. To the precaution mentioned above, moderate exercise, regular hours of rest and sleep, with due attention to cleanliness, in person and cloathing may be added.

It does not appear to me that much trouble would be required in introducing these alterations, in either navy or army : additional expence there could be none. I am aware that many objections may be offered ; but they can only come from people who are torpid, and never thought of improvement. Let us abstract ourselves a moment from self, and think of our fellow-creatures. Look to the plains of Leogane and Basseterre, fattening with the bodies of Englishmen ! Something must be done to reconcile our countrymen to service in these islands ; otherwise, we must abandon the lucrative commerce of these fertile regions.

There having been so much novelty in the exhibition of mercury, by Doctors Rush and Chisholm, in this fever, that we wait with anxiety to learn

* Capt. Ball informed me, that the essence of spruce a little diluted, did wonders at St. Domingo, both in prevention and cure. It acted as a *purgative*, and consequently was judiciously administered.—I have just seen an advertisement in the news-papers, from the Commissioners of Sick and Wounded, to contract for a large supply of it. Capt. Ball added, that it sat on the stomach, when every thing else was rejected.

learn the general success of it among other physicians. What information has come to myself, on the subject, has been very unsatisfactory indeed : some persons condemn it, while others pronounce it eminently successful. There is one fact, too certain, that whole armies have died rapidly away. We have therefore a right to conclude, that this practice has either been of no effect ; or else, it has not been duly administered. For the honour of human nature, and the credit of the medical profession, we cannot a moment harbour the idea that it has not been duly administered, or that justice has not been done to the mercurial process, while the lives of so many valuable men were depending on it, and the fate of a nation with millions of property sinking with them. I would recommend a strict official return to be called, from every physician and surgeon now in the West Indies ; and a detail of the method of treatment in the Fever, down to the minutest circumstance of medicine, diet, and regimen. This return would no doubt exhibit a gloomy catalogue of mortality ; but it might go a great way to prevent a repetition of the scene. If accurate vouchers are required for every two-penny nail, or yard of cordage, how much more are they required for the safety and cure of a brave sailor or soldier ?

Might not some method for generating artificial cold, be of service in this fever ? I should like

like to know the effects of wrapping the body, for a length of time, in wet linnen; some how after the fashion of cooling wine, by suspending it in canvass bags, frequently sprinkled with water: such a trial is perfectly consistent with the most approved opinions on the nature of the Yellow Fever; but it must be done during the inflammatory stage.

September 12, 1796.

SINCE making these remarks on the diet of our ships, I find they have not that originality which I believed belonged to them. I have just met with a work, entitled "*Colloquia Maritima*, or Sea Dialogues; by N. Boteler, Esq. formerly a commander in one of his Majesty's royal ships: London, printed by W. Fisher and Richard Mount, at the Postern on Tower-hill, 1688." In which a proposal very much resembling my own, is narrated by the captain, in a dialogue with his admiral*.

"Admiral.—Let us now return to our victuals,
"wherein there is one point more that I desire
"to be satisfied in; and that, whether it were not
"more beneficial and preservative for the health
"of our men, that the main of our victualling
"were

* This curious work was put into my hands by my worthy friend Vice-Admiral Gayton, who preserves it as an antique.

“ were, in the kinds thereof, altered and nearly
 “ fitted to the manner of foreign parts, rather
 “ than as at the present with us; to consist so much
 “ of salt and powdered meats, in beef, pork, and
 “ salt-fish?

“ Captain.—Without doubt (my Lord) our
 “ much, and indeed excessive feeding upon these
 “ salt meats at sea, cannot but procure much un-
 “ healthiness and infection, and is questionless
 “ one main cause, that our English are so subject
 “ to Calentures *, Searbotes †, and the like con-
 “ tagious diseases, above all other nations; so
 “ that it were to be wished, that we did more
 “ conform ourselves, if not to the Spanish and
 “ Italian nations, who live most upon rice-meal,
 “ oat-meal, biscake, figs, olives, oil, and the like;
 “ yet at the least to our neighbours the Dutch,
 “ who content themselves with a far less pro-
 “ portion of flesh and fish than we do; and
 “ instead thereof, do make it up with pease,
 “ beans, wheat, flower, butter, cheese, and those
 “ white meats (as they are called).

“ Admiral.—It were well indeed if we could
 “ bring ourselves to this provident and whole-
 “ some

* A phrensy or inflammation of the brain: it used to be frequent in ships in the Mediterranean and West Indies. Inflammation of the brain, and the ferocious delirium, are common attendants of the Yellow Fever.

† The Scurvy. Latin, Scorbutus.

“ some kinds of sea-fare ; but the difficulty consisteth, in that the common seamen with us, are
“ so besotted on their beef or pork, as they had
“ rather adventure on all the Calentures and Scar-
“ botes in the world, than to be weaned from
“ their customary diet, or so much as to lose the
“ least bit of it ; so that it may be doubted, that
“ it would set them upon a loathing, and running
“ away, as much as any other thing whatsoever.

“ Captain.—I confess, that it is no easie matter,
“ by any new reason, to take off these from an
“ old custom ; and yet would they but patiently
“ consider, of the well and lusty subsistence of
“ the Italian, Spanish, and Dutch nations, who
“ hereby live far more healthfully at sea than
“ they do ; or but of our colony people in St.
“ Christopher’s, the Barbados, Virginia and the
“ Bermudas, who for the most part live, and
“ thrive well, with their *husked-homeny*, and *lob-
“ lolly* (as they tearm it) which they may make
“ of the West Indian corn, called maize, it would
“ perhaps work them to some willing conformity
“ in this particular ; or if not, it is fit that they
“ should be used like *little children*, or *peevish
“ patients*, and made to keep a good diet
“ whether they will or no*.—But howsoever

* I suppose this frank, though intelligent officer meant, that if they would not comply with what was for their benefit, and the duty they owed to their King, that they should be either flattered or whipped into it.

“ sure I am, that this maiz is a most excellent
“ sea-food, and most proper for long sea-voyages;
“ for (as it may be easily ordered) it will keep
“ extraordinarily, and withal is very nourishing
“ and healthful.

“ Admiral.—But I see not of what use it can be
“ with us, since it groweth not in these parts,
“ nor is here any where to be had.

“ Captain.—I know well (my Lord) that these
“ northern climates produce not these kinds of
“ grain; for neither the heats of our summers,
“ nor the strength of our soil, will bear or mature
“ it; I do not therefore propound it as a pro-
“ vision for our ships outward-bound, but only
“ to intimate, that whensoever we shall have oc-
“ casion, and leave to look once again towards
“ the West Indies, that then this kind of food
“ may be found most useful for a supply of
“ victual to all such of our ships as are bound
“ that way, and that either whilst they are there,
“ or when they are to return. To which end it
“ will then be necessary that all our southern
“ colonies be instructed to employ themselves,
“ (rather than as at the present upon *smoaky*
“ *tobacco*) in planting, and storing up so necessary
“ a commodity, that so an abundance thereof
“ may be ready for all such fleets and ships of
“ ours, as shall be employed that way; the
“ which is to be taken off from the colonies at
“ reasonable

“ reasonable and honest prices, with such needful
 “ merchantdize, as is requirable for their use;
 “ that so it may become their staple commodity,
 “ and a surer means of subsistence, than tobacco
 “ is likely to be.—And as for the islands of Ber-
 “ mudaes, or Summer Islands, give me leave to
 “ assure your Lordship (as one that well knoweth
 “ them, and shall be ready to demonstrate it
 “ evidently, whensoever I shall be called unto it)
 “ that (in regard of their natural strength, the
 “ safety of their harbours, their most opportune
 “ situation, their salubrity, and their wonderful
 “ production) they are the most advantageous
 “ piece, not only within his Majesty’s dominions,
 “ but of all those parts, for to make use of, in
 “ all those Western services, especially sea-em-
 “ ployments upon these coasts; and in that re-
 “ gard, do well deserve both to be cherished and
 “ well looked into.”

It is a little remarkable that this last advice of
 the honest Captain should never have been at-
 tended to sooner. A survey has at last been made,
 and a harbour discovered fit for a large fleet: it is
 of the more consequence at this time, as these
 islands are situated in the very spot that could be
 wished, to annoy the homeward-bound trade of the
 French and Spaniards. It will also be an *asylum*
 for sickly ships from the West Indies: particular
 orders ought therefore to be given, when sickness

is likely to become general among a ship's company, that they depart quickly for Bermudas. On this account, I would recommend an hospital to be fitted there, with every convenience, on a large scale, for the use of both navy and army: here the convalescents from the West India diseases might be recruited at a small expence, and seasoned to the climate.

From some recent accounts, I am sorry to learn, that among medical gentlemen in the West Indies, at this time, there is still a considerable diversity of opinion; both on the nature of the Fever, and its treatment. Some still persist in the stimulant plan; after all the evidence of those great physicians which we have quoted, has been brought against it. This is adding horror to death. We have appealed accordingly to first principles, and the little experience which we have seen of the disease, justifies the whole. Whoever attempts to controvert the practice of Dr. Rush, must bring unequivocal arguments indeed, to support his method of cure; for he has to oppose a physician, whose unwearied zeal and attention carried him beyond the common duties of the profession, and have rendered his precepts and authority very high. It appears to me, that the large doses of mercury act, by their purgative quality, causing a large and sudden depletion of the intestines, and the excretories that empty themselves there. This
medicine

medicine has therefore its peculiar period of exhibition, which ought to be early; and in full habits, large bleedings ought to accompany it. Authors, I think, treat the yellowness of the skin too slightly in the pathology of this disease. I cannot suppose such a large secretion of bile to take place, without some peculiar affection of the secreting organ. The large suffusion of bile happens particularly during the stage of debility; at least the symptoms of increased excitement are evidently on the decline. Now, is the liver itself affected? or the viscera connected with the system of vena portarum vessels, which furnish blood for the biliary secretion? but perhaps the blood itself, during the violent inflammatory stage, is altered in its quality, by which means it furnishes a larger proportion than in its healthful state. This kind of icterus differs from all others, for there is no obstruction in the ducts: it passes into the intestines, and is taken up by the lacteals; not the whole of it, for the fæces are more highly tinged than usual. In jaundice, from other causes, no bile is found in the alimentary canal.

Dec. 3d. Most of the ships which have returned this season from the West Indies, have been sufferers from the Yellow Fever: yet the disease, in all of them, uniformly disappeared as they increased their latitude: at 32° north, no fresh

attacks were known. We must suppose, that communication with the shore produces this fever; for a cruize seldom fails to put an end to it. Vice-Admiral C. Thompson, who lately commanded there, was so certified of this, from long experience and attention to the subject, that he sometimes insisted upon ships putting to sea, when their condition otherwise was unfavourable. One case in particular, during his command, is too pointed to be over-looked: the Yellow Fever broke out in a ship, and her Captain came to inform the Admiral of his distress: peremptory orders were instantly given to put to sea, without delay. The Captain even hesitated: but the Admiral added, "that if he did not see the vessel under weigh in an hour, the boats of the Fleet should *row* her to sea." The ship went to sea; and returned, after a fortnight's cruize, in perfect health; and free from the Yellow Fever, which she carried out.—The *Dædelus* frigate, that arrived at Portsmouth in October, left the islands with this Fever on board; so large a number of men and officers were affected, that Captain Countess thought it expedient to push for Halifax, to land his sick: but, before he reached that port, the disease had taken a favourable turn, and was soon extirpated.—I apprehend, an imitation of this practice will always be attended with salutary consequences.

Dr.

Dr. Pattison, who went to St. Domingo surgeon of the *Leviathan*, has obliged me with the outlines of his practice, when this Fever appeared on board. On the first symptoms of attack, he bled the patient two or three times in the space of a few hours, if one large bleeding did not give effectual relief. He next gave a large dose of natron vitriol. much diluted, by way of emptying the intestines: if this medicine was vomited up, a glyster of the same salts answered the purpose; and it was repeated every five or six hours. It was observed, that this purge often sat easy on the stomach, when other articles, less nauseous in other conditions, were immediately rejected. The next process was, to wrap the patient in a flannel shirt, *dipped in vinegar*; which always relieved the comatose state, and the appearance and feel of the skin were quickly altered. This treatment was so successful, that the disease became manageable; and a few days commonly restored the patient to duty*.

Mr. Robert Harris, surgeon of the *Thunderer*, who has just returned from Martinique, found a method of cure, much like that of Dr. Pattison,

* About the time that the *Leviathan* crossed the line, Dr. Pattison, at Captain Duckworth's request, recommended every man to take a purge of salt water: this was repeated three times before the ship made the Island of St. Domingo; and the good effects of the practice were generally remarked.

equally successful. He had recourse to glysters of common salt water, in the first instance, which, with plentiful bleeding, were always effectual in relieving the first stage. Mr. Harris thought that he obtained uncommon benefit, by washing the body all over with the juice of lemons.

The success which attended the practice of these gentlemen, is a demonstration of the justness of the principles laid down by Dr. Moseley and Dr. Rush; and it gives us cause to hope, that as they become better understood, and more generally practised, the mortality occasioned by this Fever, may be, in a great measure, checked. The relief obtained by the flannel shirt, dipped in vinegar, and washing the skin with lemon juice, I am apt to believe, was owing to the cold on the surface produced by the evaporation of the fluid. I should be glad to know the further result of this plan, as it must act powerfully in diminishing the excitement, something like a cold atmosphere.

The *Thetis* and *Huffar*, off the Capes of Virginia, on the 16th of May 1795, engaged five French armed ships, two of which were taken. These ships had left Guadeloupe lately, and had buried numbers in the Yellow Fever. From one of them, the *Huffar* received the infection, and afterwards landed eighty-three, ill of the disease, at Halifax. Mr. Isaac Wilson, who has favoured me with this account, attended them for five weeks

weeks himself, in tents fitted for that purpose: of this number, strange to be told! not one died.

Mr. Wilson bled freely, in proportion to the urgency of the symptoms, and uniformly within the first hour from the accession; by which timely evacuation, delirium was either completely prevented, or cured. Tartarized antimony was next exhibited; and care was taken, that no warm water should assist the vomiting; which was the means of relieving the stomach from vast loads of bile, and at the same time generally procured evacuation downwards. The bowels were kept soluble by glysters or kali tart. A blister was applied to the region of the stomach; the head was shaved, and cold applications were found useful. The cold bath, in cases of delirium, was always of service: the shower bath was the mode practised; after which, the patient was wiped dry and put to bed; sleep followed, and delirium seldom recurred. Such was the practice of Mr. Wilson, in eighty-three successful cases; a larger proportion than has usually fallen to one medical attendant!

MEDICINA NAUTICA.

CATARRH.

IT is here intended to speak only of the Epidemic Catarrh, or Influenza, as it was first named by the Italians.

This disease has twice, in our remembrance, been epidemic in the Channel Fleet; at one time it prevailed to such a degree, in the spring of 1782, as to render the ships almost inactive. The disease was then general throughout Europe: it spread from the shores of the Baltic to Holland and the Low Countries, from thence to England, to France, Germany, Portugal, Spain, and Italy. The spring of this year was remarkably late, with a long prevalence of cold easterly winds: the hedges were not full blown in Cornwall before the beginning of June. A similar state of weather has commonly ushered in this universal malady. When I was surgeon of the Bustler sloop of war, and attending a survey of seamen at Plymouth Hospital, I was attacked with the Catarrh. It did

did not appear to me at that time, that I had been near any person under the disease: none of the gentlemen in the room complained, nor was it apparent among the patients. My own, was one of the most early cases in the neighbourhood; but in a few days it extended over the whole country. The first disagreeable symptoms, were an unusual fulness about the forehead and eyes. The eye-balls seemed protruded, inflamed, painful, and could not bear the light. There was at the same time a large suffusion of tears, which gave to the countenance the appearance of exquisite distress. The lady where I lodged, apprehended from my looks, some uncommon misfortune, and was with difficulty convinced that I was labouring under a very different complaint. The fulness of the forehead was confined to that space occupied by the frontal sinuses; and is no doubt to be ascribed to an inflammatory affection of the membranes which lines these cavities: the pain and fulness were also felt in the upper part of the nose, when a sneezing and a discharge of mucus became excessive. More or less of chilliness and shivering accompanied these affections. I had a continual thirst, no appetite, though no nausea, and a total inaptitude to motion.

There is something very particular in the propagation of this disease, from its sudden attack. When the squadron under Admiral Kempenfelt, consisting

consisting of eight sail of the line, lay in Torbay, part of the Channel Fleet, Lord Howe with the rest being in the North Sea, two hundred men were seized in one night, on board the Fortitude. The signal was made to unmoor or get under weigh in the morning; but the officers could not get the men out of their hammocks. It was in vain that they used threats, the people declared that they were unable to move. The surgeon and mates were sent for, who soon pronounced, that they were labouring under a violent disease. This was communicated to the Admiral; who doubted the report, and sent three captains with their surgeons, to examine the state of the Fortitude's ship's company. The captains found it exactly as related; the ship was ordered to Plymouth, where numbers of her crew were landed at the hospital. The other ships had not been two days at sea, till their situation was as bad as that of the Fortitude; some of them could scarcely muster seamen to take in sail: the whole returned to port. Mr. M'Nair, an able surgeon, gave me this account of the Catarrh, in the Fortitude.

In the mean time, the Fleet in the North Sea suffered from the Catarrh in an equal degree; and was obliged to return to port to recruit the people. Some deaths happened in consequence.

On

On the 17th of January 1795, the weather then very severe, and the thermometer at 17° of Farenheit, I was ordered to examine the state of the Cumberland, just arrived from the Nore, where she had been lately commissioned. I found one hundred and twenty men ill of Catarrh. The symptoms, however, were in general slight, with no oppression on the breast, and none were confined to bed: a few of the worst were sent to the hospital. As the acquisition of a 74 gun ship was of some importance at this time, the enemy's fleet being at sea, I recommended what was deemed needful in such a condition, and reported the ship fit for sea. Captain Rowley was active and careful in making the sick comfortable. He procured the whole, additional warm cloathing, particularly flannel jackets, which were the more valuable, as a great part of the crew had lately returned from the West Indies in the Vengeance. Care was also taken not to expose them to unnecessary cold and wet weather. Directions were immediately given to abstain from washing, to substitute scraping and rubbing with dry sand: additional fires were lighted on the lower deck. The sick list decreased from this time, and the Cumberland did well.

A few days after my visit to the Cumberland, I was ordered to report to the Admiral the state of the Colossus, from the number of
sick

sick, upwards of seventy, being returned in the weekly account. This disease was a Catarrh; and some were sent on shore with symptoms of inflammation, considerably greater than any in the other ship. The Coloffus appeared to me to have her sickness much aggravated by washing decks; although I found that Captain Jenkins, then her first lieutenant, had opposed the practice, and represented it as hurtful. It was afterwards laid aside. The Coloffus did not suffer from any future increase of the sick-list, during the cruize*.

The

* “ The prevalence of catarrhal complaints appear to me to have arisen from the intense cold. A patient died who was old, but had been always subject to complaints of the breast, and difficulty of breathing.

(Signed)

Coloffus, Jan. 1795.

J. BALLENTYNE, Surgeon.”

“ There was a catarrhal fever prevailing towards the end of the month.

(Signed)

London, Jan.

J. SMITH, Surgeon.”

“ Catarrh was the prevailing complaint, particularly during the first fortnight of this month; having had seldom fewer than seventy on the sick list. But on its being suggested to me, that it was much aggravated by too frequent washing of decks; this most pernicious practice, in cold and damp weather, was intirely laid aside. In its stead, the decks were kept clean, by scraping and scrubbing with sand, &c. The good effects

The Fleet being obliged to put into Torbay, in the beginning of February, we there experienced some severe weather. The Catarrh was now general in every ship. Some bad cases appeared

effects of this were soon apparent; for, during the last ten days, the number of catarrhs never exceeded twenty.

(Signed)

Barfleur, Jan.

P. SMITH, Surgeon."

"The prevailing complaints, slight fevers, and catarrhs, seemed occasioned by the severity of the season: and, no doubt, assisted by that extreme thoughtlessness so peculiar to seamen.

(Signed)

Valiant, Jan.

A. THOMPSON, Surgeon."

"The men have been generally afflicted with violent colds, coughs, attended with hoarseness, and some feverish heat.

(Signed)

Marlborough, Jan.

T. ROMNEY, Surgeon."

"The catarrhal complaints seem to have arisen from the sudden change of weather; and readily gave way to diaphoretics, opiates, and warm diluent drinks.

(Signed)

Royal Sovereign, Jan.

R. FORREST, Surgeon."

"The prevailing diseases for this month, have been chiefly catarrhal complaints, attended generally with more or less fever; but which, however, have in no instance proved fatal, or even of long duration. The fever cases sent to the hospital, consist entirely of marines, whose exposure as sentinels on the
gang-

peared in the Brunswick, Canada, and Prince of Wales. In the latter ship it assumed very much the

gang-ways, in night-watches, to the intense colds, which have lately prevailed, will I apprehend, sufficiently account for their being attacked, when seamen who keep no watch in harbour have escaped.

(Signed)

Aquilon, Jan.

THOMAS MOFFAT, Surgeon."

"About the beginning of January, our people began to complain of catarrhs; with head-achs, some with fore throats, others with symptoms of fever. These symptoms in general gave way to the usual evacuations, and left coughs and pains of the breast, which yielded to pectorals.—As far as I am able to judge, this disease did not proceed from any contagion, but rather from the intense cold and wet weather we experienced.

(Signed)

Hebe, January.

JOHN LEGGAT, Surgeon."

"The principal complaints on board the Queen, for the last two months, were catarrhs, with coughs, fore throats, and fevers. The fevers were ardent, but happily soon subdued by the usual evacuations, bleeding, and laxatives. The crew at present is healthy, *not* a man in the ship being confined to bed, by any disease!

(Signed)

Queen, Feb. 28.

ALEXANDER BROWNE, Surgeon."

So completely was the duty in this ship, adapted to health by her officers, that Mr. Browne, her surgeon, used to say, that they left him nothing to do. It was like her method of fighting, *perfect*. T. T.

"The

the type of a pure Typhus, with weak frequent pulse, dejection of countenance, great muscular debility, and stupor. Among the soldiers who acted as marines, this was particularly remarked.

They

“The catarrhal complaints, which have been very numerous, in general yielded soon; but some left very considerable weakness behind. One case, a sudden and violent affection of the lungs, proved fatal.

(Signed)

Impregnable, Feb.

W. WALLIS, Surgeon.”

“The above fevers were, nine synocha, and one typhus. (Cases of Fever, in the Monthly Report.) The latter case from the beginning had the most unpromising symptoms, and terminated fatally on the 24th day.—Catarrhal complaints are still prevailing, but in a milder degree, which I attribute entirely to the abolishing the washing of decks, and the cruize to the southward.

(Signed)

Barfleur, Feb.

P. SMITH, Surgeon.”

“With respect to the probable cause, of so many Catarrhs, with some fevers, I principally attribute it to the weather being in a very unsettled state; for the greater part of them were taken ill the first ten days of the month, and the weather at that time was very changeable.—Were sailors obliged to wear flannel shirts in the winter months, when they are necessarily exposed so much to the inclemencies of a channel station, I think it might be attended with good effects *.

(Signed)

Robust, Feb.

J. TURKINGTON, Surgeon.”

* Cloth trowsers and flannel waistcoats, have, by recommendations from the Fleet, become a part of Navy Slops. T. T.

They had been lately embarked, were very badly clothed, and, on the whole, looked more like objects for the Infirmarys of the country, than to fight her battles. For these reasons, nine of the

" The principal disease has been catarrhal complaints, owing to the intense rigour of the weather; which have given way to gentle diaphoretics and pectorals.

(Signed)

Cæsar, Feb.

J. NUTT, Surgeon."

" A kind of influenza made its appearance on board early in February, but soon disappeared. The medicines employed, were chiefly antimony and nitre; some required bleeding: otherwise the ship's company is healthy.

(Signed)

Niger, Feb.

ROBERT KIRKWOOD, Surgeon."

" The catarrhal affections, were treated successfully by bleeding, antimonials, and pectorals. In the unsuccessful case, there was much diseased secretion from the lungs; blisters, and occasional opiates, were had recourse to, ineffectually. In the other cases, nothing occurred new, or particularly interesting.

(Signed)

Bellerophon, Feb.

R. NEWBERRY, Surgeon."

" The Influenza was the most prevailing disease in this month; it first made its appearance on board the Hannibal, about the 5th or 6th; soon after the commencement of the thaw, during which time the wind blew from the eastward of south: and it continued to affect the officers and ship's company

the worst were ordered to be sent on board the Charon; when wine, æther, and a nourishing diet, soon brought them about.

In

pany until the 12th, when it began to abate, and the wind came to the westward of south-west.

“ It appeared to me, that this Epidemical Disease was caused from a particular state of the air, after the thaw took place *.

(Signed)

Hannibal, Feb.

W. WALKER, Surgeon.”

* It prevailed in the Cumberland and Colossus, during the severest frost. T. T.

“ A fever made its appearance, about the 1st of February, of the low nervous kind: the symptoms of which were, nausea, thirst, anxiety, flushing of the eyes, a pain at the *scrobiculis cordis*, with a quick pulse and delirium in the earliest stages of the disease. Clearing the *primæ viæ* by emetics, in the first instance, with blisters, bark and wine afterwards administered, were the only successful remedies employed. From the disease assuming an inflammatory appearance, indicated by stricture on the breast and full pulse, with a difficulty of breathing, I was induced, in two cases, to make use of the lancet, in both of which it was evidently of disservice. Three died of this fever.

“ A species of Influenza, resembling that which made its appearance in 1782, was common throughout the ship, and I believe the Fleet in general.

(Signed)

Melampus, Feb.

J. B. HOUSEAL, Surgeon.”

These two diseases, probably, only differed in different subjects; and acknowledged a common cause, for Mr. Houseal does not suspect any contagion brought to the ship. T. T.

In other ships, the inflammatory symptoms ran high, and venæsection was sometimes repeated with

“ Catarrhal complaints have been most prevalent this month, and in general soon yielded to bleeding, antimonials, laxatives and opiates, and in some cases, blisters. The ship’s company is now almost free of it, except one from irregularity.

(Signed)

La Nymphe.

GEORGE SIBBALD, Surgeon.”

“ The unusual number who complained on the 1st of the month, I attributed to much irregularity, from a payment to the ship, a few days before the fleet left Spithead, but understand that catarrhal complaints with fever, were general in the Fleet. There was nothing particular or worthy of observation in the complaints; in two or three days the sick list, from four and six in number, increased to twenty and thirty; and in a week or ten days, to the usual number of four or six, of little consequence.

(Signed)

Santa Margarita, Feb.

J. TOSH, Surgeon.”

“ The feverish complaints were, in general, slight, and gave way to evacuations in the course of three or four days. A longer continuance was attended with symptoms of typhus, confined to weak debilitated constitutions, and invariably disappeared on the use of bark, wine, &c.—The cause was, visibly, intemperance whilst in harbour; the ship’s company having a quantity of prize-money, and the complaints appearing on their return from leave.

(Signed)

Pallas, Feb.

R. HARRISON, Surgeon.”

“The

with advantage. I visited a case on board the *Canada*, with Mr. M'Curdy, with every symptom of phrenitis; it proved fatal. But what were the most alarming symptoms in this epidemic, were, the determination to the breast, oppression about the præcordia, difficult expectoration, flushing of the countenance, as if the circulation had been compleatly obstructed through the lungs: if these were not quickly relieved by a large bleeding, the patient seldom survived the third day. The pains and strictures across the breast obtained considerable ease from a blister laid over the sternum. They were, in some cases, so acute, with a feeble pulse, and other signs of debility, that æther and opium were given with the best success.

I was now a sufferer in my turn, and was seized with Catarrh in a violent degree. My confinement was the more to be regretted for four days, as it deprived me of seeing the practice of the surgeons. With other symptoms more peculiar to the disease, such as fever, obtuse pain of the forehead,

“ The catarrh, which was for a few days very troublesome throughout the ship, appeared very early in the month, and seemed to be at its height about the 12th; since which it gradually declined; yielding without much difficulty to gentle antimonials and expectorants.

(Signed)

Orion, Feb.

J. NEPECHER, Surgeon.”

forehead, discharge of mucus from the *membrana schneideriana*, a painful and acute stitch, drating from my right side across the chest, and preventing a free inspiration, gave me considerable uneasiness and alarm. Finding nothing about me indicating pulmonic inflammation, and having been subject to this kind of pain, after recovery from a fever at Jamaica, formerly, I was induced to try the external application of vitriolic æther. It removed the complaint in half an hour. The manner of applying it, was by pouring a little into the palm of the hand, and then laying the hand quickly over the affected part, closely, so as to prevent the too speedy evaporation.

While the Fleet remained in Torbay, and most of the ships afflicted with Catarrh, a number of sheep were, by the Admiral's orders, distributed for the use of the sick.

A peculiar constitution of the atmosphere, certainly caused this general Disease. There was, besides the cold, which was intense, a thick haze, not like the usual hoar-frost, during a great part of January. Its different form, in different ships, cannot be accounted for: even in the same ship, among people of similar modes of life, there was need of nice discernment in the treatment. The very quick passage to Cape Finisterre, contributed not a little to the health of the Fleet. The temperature of the air, on the day we made the land,

was mild as a summer evening. The catarrhs in some ships disappeared almost at once. This fine weather was followed by a strong westerly wind, which brought us quickly to Spithead.

When a disease of this kind occurs in a fleet, the preceding service, and condition of the people on board, will very much influence the proper medical treatment to be adopted. Thus, if a fleet, or ship, had previously been a long time at sea, we would not think of carrying the evacuating method of cure, such as bleeding and purging, to the length that might be warrantable under other circumstances. When a sailor, in harbour, has lived long on fresh provisions, we know that he will be able to bear venæsection, as well as persons on shore: but a sea diet does not afford such stimulant nourishment, and the loss of blood may be hurtful. Wine was, on that account, very judiciously prescribed by some of our surgeons, and with it, opium, æther, &c. in considerable doses.

The general practice, therefore, has been to bleed, when the inflammation run high, to repeat it if the pulse rose after bleeding; to keep the bowels open; to give antimonial powder after venæsection, and blisters when pain of the breast and difficult respiration were urgent. These, with diluent drink, constituted the treatment of the Inflammatory Catarrh. When the symptoms

appeared more like the low fever, a more stimulant plan was practised. The foetid gums were sometimes useful; wine, bark, æther, and opium, were given freely. Dyspnœa was successfully relieved by blisters, and the bowels were kept soluble by very gentle laxatives.

Phthifical habits bore the attack of this disease worse than others, and their recovery was always tedious. I would recommend flannel cloathing to persons of this disposition, to be worn next the skin; exercise on horseback, when it can be conveniently persisted in, is the famous restorer of catarrhal debility.

In the space of five weeks, which comprehended our absence from Spithead, from twenty-eight to thirty died of our Epidemic; a small proportion out of 28,000 men. Vide the General Abstract,

MEDICINA NAUTICA.

DYSENTERY.

THIS Disease has frequently been attended with great mortality in King's ships, and particularly in tropical climates. It has however, been little known in the Channel Fleet. A few cases have appeared in single ships, now and then; and, excepting in some of those under the command of Rear-Admiral Harvey, at Quiberon, in the late season, the Dysentery had no fatal tendency. We received a few chronic Dysenteries on board the Charon; men, just returned from abroad, where they had the disease for months together.

It has been long observed, that Seamen are peculiarly liable to this complaint, after a long train of stormy or rainy weather, and when the ship had been long at sea. Hence it often appears at the same time with Scurvy, and they are frequently associated in the same person. But the Flux, in these cases, disappears with the other disease, and readily yields to a fresh meat diet, the
citric

citric acid and esculent vegetables ; without requiring any of those remedies, more particularly adapted to other situations.

We have also known the Flux combined with Typhus, as in the transports with Lord Moira's army : on the coast of Africa, and in the West Indies, I have seen it joined with intermittent and remittent fevers.

After the memorable hurricane, on the 5th of October 1780, the Dysentery broke out in the Berwick, then in the squadron under the command of Rear-Admiral Sir Joshua Rowley. This squadron had accompanied the homeward-bound Jamaica Fleet to the coast of America, and was returning to Port Royal, when overtaken by this tremendous storm. Owing to the hatchways not being sufficiently secured, an immense quantity of water was let into the hold, and over the decks, so as to endanger the ship. After the masts and bowsprits were thrown overboard, the motion of the ship exceeded all description : to prevent the shot and other things from rolling about, or hurting the limbs of the people, while employed at the pumps, the bags and hammocks were cut down. By doing this, the bags, bedding, and cloathes of the people, were soaked in water ; and being but imperfectly dried before they were slept in, did not fail to injure the health of the ship's company. Many of them slept for nights together
on

on the wet decks, overcome with fatigue, and debilitated from the want of food ; for no provision could be dressed in the boilers for some days. We had now been eight weeks from Port Royal ; when Captain Keith Stewart, the senior officer of the ships that remained in sight on the fifth day after the gale, thought proper to shape his course for England in the Berwick ; having ordered the others to make the best of their way to Jamaica.

We had scarcely got our jury-masts rigged, and sail set, when the Flux began to make its appearance. It spread with great rapidity, and thirty of the best men on board died from it, or the Scurvy, before we made the English land, which was seven weeks from the time of the hurricane. During this time, the people were on a short allowance of water, as well as of every kind of provision. The hold was filled with the sick ; and the groans of the dying, or those in acute pain, were heard on the quarter-deck. Some of them died in a furious delirium, uttering the most blasphemous oaths and horrid imprecations that could be conceived. This is a species of raving in disease, that I have only met with among the debased, most ignorant, and uncultivated minds. What added much to our afflictions, was a misfortune that befell the medicine chest, during the gale, the greater part of its contents being destroyed,

stroyed ; and by which means little was saved for the cure of this fatal disease.

The situation of the officers in point of cloathing, was little better than that of the seamen. Our beds were soaked in water, that passed through the seams of the decks ; and every trunk, chest, and bureau, were dashed in pieces. After being for some nights without sleep, and at last overcome with fatigue, I stretched myself upon a wet sail, where I lay sound for some hours. It was not long before I was attacked in my turn, and had reason to think my complaint was brought on from sleeping on the sail. A midshipman who lived in the same mess, was seized at the same time. We complained of violent griping, a coppery taste in the mouth, with sickness, and inclination to vomit : the taste of copper was so particular, that we could not help thinking it must have been taken in pea-soup, on which we dined, that came from the boilers. The cook, however, assured us, that could not happen, as they had been uncommonly well cleaned that morning. There were also symptoms of fever, which ushered in this painful disease, and there was more or less of a cold and hot fit in the beginning. Towards evening, we took emetics. The midshipman had a full vomiting, and felt little from the complaint afterwards : in my case, the emetic scarcely excited vomiting, and
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from being in much pain, had not the resolution to encrease the dose; but to this neglect had I to date a long confinement, which reduced me to the last stage of emaciation and debility. In the mouth of the Channel, we fell in with two English frigates, from one of which we received a little opium. No length of time will ever efface from my memory the relief which I obtained from the first dose: so quickly did it operate, that I seemed at once to have recovered perfect health. From this time, I was relieved from the most painful symptoms, the *tormina* and *tenesmus*, by repeating the opiate, and it was full two months before I could leave it off altogether.

There was little doubt but this Dysentery was caused by the beds and cloathing of the seamen being soaked in water during the hurricane; the cold weather, fatigue, and salt provisions, might also have their share in it. Seldom has a king's ship arrived at Spithead in a more distressed condition than the Berwick at that time: officers and men with little cloathing, emaciated, and pale, having been fifteen weeks from port; we were compared to so many dead bodies, that had been under water for a week, and then reanimated. Near three hundred of the ship's company were ill; some of the scorbutics, worn out, died by moving into the boats, and many others died afterwards at the hospitals.

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There is a very painful symptom attends this disease ; and I am surprised to see it doubted by one of the best writers on the subject. It is the stranguy, which sometimes terminates in a total suppression of urine. It would appear, from the almost constant tenesmus, that the rectum is protruded considerably ; this portion of it being connected to the fundus of the bladder by cellular substance, bears it in some degree downwards, by which means, the mouth of that viscus is mechanically elevated, and moved from the direct entrance of the urethra ; and thus the Dysuria Dysenterica is produced. Whether this explanation will satisfy other people, I cannot tell ; but it appears so to me.

A medical man, like other adventurers, sometimes acquires professional knowledge from personal sufferings : the danger which I had escaped, and the distress that I underwent, made me resolve to pay particular attention to this disease in future. Since that period, I have treated it, in a variety of cases, on the coast of Africa, in the West Indies, as well as in England, among seamen, and in most other conditions of life.

I believe it will happen more frequently elsewhere, than among sailors on board, that blood-letting may be found necessary in a beginning Dysentery ; there are certainly, in some cases, evident symptoms of increased excitement ; and probably, a tendency to local inflammation in
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some part of the intestinal canal. Where the stomach is much affected with bad taste, nausea, inclination to vomit, I think an emetic administered, to excite a free discharge of its contents, should never be omitted in the beginning : if the medicine given can be so managed, as to act as a purgative at the same time, so much the better. For this purpose, twelve or fifteen grains of ipecacuanha, with a grain and a half of tartarized antimony, divided into three doses, and given at the distance of half an hour, will generally answer the intention ; otherwise a saline purge should be taken shortly after the emetic. This being done, unless symptoms of increased excitement prevent it, I always give an opiate combined with some antimonial preparation, with a view to open the skin. The patient ought to be confined to bed during its operation, which ought to be encouraged by drinking plentifully of some grateful liquor.

According to the urgency of pain, tormina, and tenesmus, I repeat the purgative medicine ; and always follow its operation with the opiate and antimonial, or opium with ammonia. The reasons for condemning free doses of opium in this stage of Dysentery, seem to have been owing to the neglect of giving a purgative before. If, therefore, the purge has not preceded the opium, the latter seldom fails to do harm. The griping that is commonly aggravated after the space of
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fix or eight hours from the taking of the opiate; can only be relieved by a brisk purge : but when the one follows the other as we have directed, the disease has rarely continued long or obstinate. In the latter stage, where astringents have been recommended, unless their exhibition has been preceded by purging, they have generally done harm in my hands. The neutral salts well diluted, I have always found the best purges *.

When the Dysentery has advanced to its chronic stage, as happened with myself, it appears to be continued more from habit than other causes. In my own case, whenever the opium was intermitted

* “In a former situation, I had many opportunities of seeing Fluxes in their worst stages ; which naturally induced me to pay particular attention to that disease ; consequently I took some trouble in giving the most of doctrines, I conceived at all rational, a very fair trial. I beg leave to say, I am decidedly of opinion with yourself, respecting the opium being given in large doses, after a few gentle purges of sal. cathart.

* You will perceive by the report above, I have had seven Dysenteries in the month ; four of whom are recovered, and the remaining three in a very fair way. I had formerly one hundred and twenty fluxes, during a cruize of four months, and was fortunate enough not to lose a single patient by the same practice. (Signed)

Orion, May 1794.

WILLIAM PATTISON, Surgeon.”

* Mr. Pattison here alludes to a paragraph in the second edition of my Observations on Scurvy.

ted at bed-time, although the dose never exceeded five grains, the liquid dejections returned, with more or less of griping at the same time. In this manner it continued with me for two months, during which I acquired flesh and strength, that at last allowed me to diminish the medicine gradually, and leave it off. Much, however, might depend on my constitution, and the period of life, for I was then under twenty. The cure, therefore, seemed to be effected by the opium overcoming the habit; which enabled the natural actions of the intestinal tube, to recover their former propensities.

The vitriolic solution, so strongly recommended by Dr. Moseley, has always failed in my practice; nor have I found any reason for preferring the mercurial treatment of Doctors Houlston and Clarke. Riding on horseback, with other active exercises, and flannel cloathing, have done more in the chronic Dysentery than any remedy which I have seen tried; but the early stage of the disease is the fittest period for the cure, and if omitted, pain and suffering are the lot of the patient.

I have only dissected one subject for this disease; nothing uncommon was detected: nor do I think that the dissections of other physicians, have thrown any light on the pathology of Dysentery, so as to direct a better method of cure.

MEDICINA NAUTICA.

SMALL POX.

IT appears, from the Medical Register of the Fleet, that the Small Pox has been a very frequent disease in the ships. There are many reasons for this. The frequent communication with the shore, and the constant visiting between the wives of seamen and their husbands, are generally the means of conveying the infection on board: we have even seen an instance in the Orion, of a man bringing the disease from the ward at Haslar. These are sufficient excuses for me taking notice of it, in a work on the Diseases of Seamen.

Seamen brought up in our merchant service, go to sea, in general, very young. Many of them have escaped Small Pox, and while they continue on long voyages, they are exempted from all intercourse with infected persons; in this manner they grow up to manhood; and, when brought on board his Majesty's ships, are exposed to the disease, as we have seen. During a war, the
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Small Pox ward in Haslar Hospital is seldom empty. This circumstance gives great force to the arguments of those enlightened and charitable members of society, who are advocates for a general inoculation. What a pity it is, that so valuable a part of the community as our seamen, should be subject to the ravages of so mortal a disease in their adult age. A very large proportion, in every King's ship, are men of this description: in a ship of 74 guns, I have known seventy seamen, that never had been conscious of going through the distemper.

Whether some of the evils attending Small Pox, as now narrated, might be remedied, remains for future experience to determine. It appears to me, that a general inoculation in a ship, or fleet, is highly practicable. I have not been informed, that any thing of the kind was ever done in a man of war, before practised under my directions in the Charon and Orion; but the success which attended the measure, in both these ships, justifies the principle.

A general inoculation might be done while a Fleet is in port, by selecting the subjects into an hospital ship, or let a pavilion of Haslar Hospital be allotted for the purpose. A week, or ten days, of suitable diet and regimen, are all that is necessary for preparation. In order to reconcile the seamen to this practice, it would be necessary to

circulate among them, in printed papers, the various arguments and information which point out the safety and utility of inoculation. They might be told, that they are in constant danger of catching the infection, whenever they go on shore; and the longer they delay inoculation, the hazard becomes greater. If any religious scruples should appear, as happened in the *Orion*, they ought to be combated by the chaplains of the ship, in the manner that has been used elsewhere by other clergymen. There is a valuable little work on this subject, by the Rev. Mr. Turner, of Newcastle upon Tyne, written in a familiar style, and intelligible to every capacity.

When the Small Pox appear in a ship at sea, where there is an hospital ship belonging to the Fleet, the patient ought to be immediately moved, and with him, every thing that is likely to imbibe infection. When ships are cruising, it will be necessary to keep the patient at a distance from the ship's company. I have heard of Guineamen towing them in a long-boat. The boats are the best places in this situation, on the booms, or flung at the stern: centries may then be placed to prevent communication with the ship's company. If there are any persons on board who have never had the disease, I would recommend inoculation as soon as matter can be taken from the diseased subject. A captain and officers

officers might, by attending to this business, meet with some additional trouble; but it would be amply repaid, by alleviating one of the most fatal distempers that human nature can undergo.

With regard to any preparatory course of medicine for the Small Pox, I have only to remark, that I have but little faith in its effects of producing a mild disease. In my opinion, the artificial method of ingrafting the poison, is the sole cause of the disorder going through a moderate degree, both of fever, and eruption of pustules. Whether this depends upon the small quantity of variolous matter introduced, or other adventitious circumstances, I will not decide. I think, however, when we can mend the habit of body, it ought always to be attempted. Nature, it would seem, is taken by surprize, by inoculation, and only disposes a small part of the skin to propagate the variolous matter, as if she did it with a view to get easily secured against a dangerous distemper*.

* Strong mercurial purges, in full habits, are famous, during the eruptive fever: I suspect that they act chiefly by the sudden depletion which they occasion, by evacuating the contents of the bowels.

R $\bar{x}$ Calomel - - - gr vij.
 Pulv. Jalap. - - - gr xxv.
 Syr. - - - - f $\bar{s}$ bol.
 mane sumendus.

In one season I inoculated near three hundred children, all of whom came fortunately through. There was a great number of them under five months; and I think this is the best age for the practice, although the habit seems less susceptible of receiving the disease by the common method of puncture with a lancet. I never observed any other disorder, that could be certainly known to have been inoculated along with the Small Pox pus. This disease often brings to action, complaints that have not been noticed in the body before; particularly scrophula, and cutaneous affections. It was a very common thing for parents to say, that their children received such and such diseases by this means; but I knew that they were latent in the constitution before.

MEDICINA NAUTICA.

RHEUMATISM,

MAY justly be classed among the diseases of seamen. Their laborious duty, exposure to weather and climate, and the accidents to which they are continually liable, make this a very frequent complaint in our ships. Hence it is often feigned for the purpose of effecting their discharge; and one of the chief sources of their tricks and deceptions. When this is the intention, the story is commonly introduced by the account of some old hurt or fall, though it may have happened years before, in order to obtain a more patient hearing from the surgeon. The Pseudo-Rheumatism is, for the most part, confined to the loins; and to strengthen the pretension of being objects for invaliding, an incontinence of urine is said to accompany it. A person who has been accustomed to hear their narratives, may easily distinguish the real, from the assumed disorder: the tale is seldom contrived

with address, and it requires but a slight cross-examination to detect the incongruity of its materials. Yet obstinacy from disappointment will occasionally carry them to great lengths in their perseverance; and the fictitious complaint sometimes becomes a fatal disease. The applications of copper to their sores has killed many. These deceptions also afford them opportunities for making their escape from the hospitals. I have known a man, that for two or three months had never been known to raise his head and shoulders beyond an angle of forty-five degrees, with the rest of his body; yet, when he found his purpose fit for execution, would get over the hospital-wall, and make his escape. These tricks have, however, been less successfully practised, and are now more rarely met with; partly from the inquiries which have taken place in the hospital departments, by both surgeons and officers; and partly from the laudable improvements in diet and necessaries, with which our sick have been furnished in their own ships, that bind them by gratitude to the service.

This disease appears in all seasons and climates, but particularly where vicissitudes of heat and cold are frequent. Ships leaving a warm climate, and returning to England in cold weather, when the people are thinly cloathed, often suffer from

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Rheumatism *. A long train of rainy and stormy weather, in the Channel, also renders the body more liable to these pains: the muscles of the joints, near old wounds, bruises, or broken bones, are the parts more readily affected with the chronic disease. The acute Rheumatism appears most often in those constitutions liable to other inflammatory affections.

At Jamaica, in June 1784, after being ten months on the coast of Africa, I was seized with the Rheumatism. It observed a regular periodical form. About an hour after noon it was ushered in by a febrile paroxysm, that continued more or less till midnight. A swelling and inflammation appeared on the first day in one leg, but afterwards in both, over the ankle-joint, and about the upper part of the foot, attended with acute pain, which subsided with the fever. In the morning and forenoon I remained tolerably free

* When a ship returns from a warm climate to England, during the cold months, it will be great humanity in the officers to have a stock of warm fops in reserve; for the seamen are not provident enough to think of this themselves. If they have been some years on a foreign station, their cloathing has either been worn out, or fold, so that nothing but attention in their commanders can save them from suffering by cold weather.—The duty of boats is another cause of frequent Rheumatism. It is a pity that some accommodations for drying their cloathing could not be made at the landing-places, at every sea-port.

from

from uneasiness, till near one o'clock, the fever, swelling, redness, and pain returned, and went through a course similar to the preceding paroxysm. This was my situation for some days; when the Rheumatism disappeared, and the fever assumed the remittent type peculiar to that country. My confinement afterwards was long, and painful; a quick passage to Europe, in the August following, only saved me from the grave.

This disease appears to me to reside more in the muscular fibres than physicians have usually admitted. The acute species is an increased degree of their excitement, attended with synocha. The Chronic Rheumatism, which follows the Acute, is the exhausted state of these fibres. Where the Chronic is the primary disease, it is always induced by debilitating powers, and generally in parts previously weakened, as, after dislocations, broken bones, wounds, or bruises. Those obstinate complaints which cause permanent lameness, may be attributed to a torpid state of the muscular power; or even a paralysis of the muscle, which becomes no longer susceptible of stimuli; or has lost that disposition which fitted it to recover its exhausted spirit of animation. The pain is felt at the joints, as being the centre of motion.

The cure of the Acute Rheumatism is like that of all other inflammatory diseases. Bleeding is, therefore, the principal remedy; and, in proportion to the early time in which it is performed,

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ed, it will do the more good. It is at the very first attack of the fever and pain, that the success is most certain; a large bleeding, suited to the strength of the patient, will save much future pain. If that has been neglected for the first days of the illness, the effects of venæsection become more doubtful; and the danger of converting it into a chronic disease, ought to be carefully weighed before it is performed. This being done, every thing besides that can reduce the powers of the body, should be immediately practised. Total abstinence, or confining the patient to water gruel alone, are proper; and the belly must be emptied by brisk purges, which include mercury in their composition. All external applications at this time are of ambiguous efficacy, and I have seen them do much harm.

The cure of Chronic Rheumatism has, I believe, been generally conducted on a sudorific plan. But however extensive this practice may have been, the propriety of it appears to me somewhat questionable. Exposure to cold after being over-heated, wet cloathes, damp beds, or damp lodgings, a part of the body being exposed while the rest is kept warm, &c. are among the causes which most commonly produce it: a dry skin, and diminished perspiration, are more observable than happens in other diseases. These causes, joined to the appearance of the surface, seem to have

have led physicians to the administration of sudorific medicines, with a view to restore the diminished cutaneous discharge; and to this, the method of cure has been almost confined. If I was to speak of the success of the sweating process, in my own hands, and what I have seen in the patients of other physicians, in some thousands of cases, I would very much doubt, whether any of them was relieved by medicine. In some of these cases, the sweating has been continued for nights and days, without the smallest abatement of pain; but with an evident increased degree of debility, which I also consider an increased degree of the disease. Instead, therefore, of wearing out the already exhausted sensorial power, by disproportionate stimuli, I would have the body gradually recruited by nourishing diet, gentle exercise, or such as the patient can bear, a warm climate, flannel cloathing next the skin, to be frequently changed, and stimulating medicines accommodated to the strength of the patient. When flannel cloathing is wore next to the skin but a few days, it ceases to perform many of its good offices. The perspirable matter soon softens the hairy part of the cloth; for I consider it as a constant flesh-brush to the surface, which stimulates the skin, and excites its excretories, to support an increased action: besides, it confines the heat of the body more than linen or cotton, by

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which

which means the variations of weather, and a changeable atmosphere, are sustained with impunity.

The best cures which ever came under my observation, in Chronic Rheumatism, were the cases brought in the Charon's hospital, from Rear-Admiral Harvey's Squadron, in Quiberon-bay, in November 1795. These were seamen much debilitated: but the comfortable and cleanly lodgings of the hospital ship, with a diet agreeable, and nourishing beyond what is usually met with in the hospitals on shore, soon restored them, with the assistance of very little medicine*.

With respect to external applications in the Chronic Rheumatism, they appear to act by exciting

* The Charon's diet for the sick, at sea, partook of the oddities which have marked the character of the Physician to the Fleet; it was not modelled to the rules of either a steward, or purser, but the appetite of the patient. Fresh mutton broth, with abundance of vegetables, was prepared every day: the meat roasted, or made into a chop, if it was preferred: egg flour pudding, or rice pudding; occasional custards; eggs dressed in different ways; soft bread, baked daily; pea-soup, nicely seasoned; pan-cakes; apple-dumplings; orange marmalade; pickles of different kinds; sowens, with wine and sugar, a supper for convalescents; tea, coffee, or cocoa; wine, porter, punch, negus, &c. &c. Nor was there ever found an excuse for not having all this at sea.

December 9th. Captain Faylor, of the Fame, assures me, that molasses mixed with the flour-pudding, is an excellent substitute

citing the skin, and other parts near the seat of pain; and are to be much assisted by the friction used in their application. Æther, with the hand closely laid over the spot, to prevent evaporation, acts as a gentle stimulant. Blisters should always be removed before the vesicles rise: otherwise they act as unnatural stimuli, by exciting the neighbouring vessels beyond measure.

Sea-bathing, in the proper season, and exercise daily persisted in, are the best supporters of the restorative regimen, which we have recommended in this capricious and obstinate disease. I cannot help lamenting, that a suit of baths is still a desideratum at our hospitals.

substitute for eggs: with this addition, I beg leave to call it an

U S H A N T P U D D I N G,

from having been highly relished in the late cruize.—I must now request, that the Officers of the Fleet will communicate this intelligence to the seamen, as the Lords of Admiralty have determined, that molasses shall form a constant and permanent part of sea-diet. One of our Admirals emphatically calls it the *safety* of the British Empire.

MEDICINA NAUTICA.

INTOXICATION.

THE frequency of Intoxication among Seamen; the diseases which it produces; and the number of deaths which happen in consequence, sufficiently point out this subject as an object of medical inquiry. Many fatal cases have occurred in the Fleet, and one under my own eyes in the Charon. There are many circumstances connected with a sea-life, which lead to the indulgence of inebriating liquors, and often confirm it into habit. The early entrance on ship-board, whether in his Majesty's service, or that of the merchants, before an education has been compleated to regulate the moral conduct; the bad example of others; and the abominable custom of grog-drinking, lay the first foundation for this most pernicious practice: to all these may be added, those merry-makings and gusts of joy, which the thoughtless sailor plunges himself into, when he returns from a long voyage, and with plenty of money in his pockets. Inconsiderate beings! after having braved both the battle and the

the storm, how often does the Lethean cup arrest that courage, which feared neither the arm of man, or the war of elements!

This holds up another argument for extending the use of malt liquors in the seaman's diet; and could be easily done, by the method recommended in a former part of this work. It does not appear, that habits of drunkenness prevail more in the navy than formerly: I am even informed, from good authority, that seamen, when on shore on leave, at this time, confine themselves more to the use of ale and porter, than was observed on former occasions. Now it would be but a small attention on our part, to encourage the indulgence of malt liquors; health and morality claim it from us: there are facts in these pages, that point it out in language that cannot be resisted; and I hope the Board of Admiralty will see the necessity for adopting a measure so salutary.

It was my acquaintance with a sea-life, and from having known so many fatal cases of Intoxication, that induced me to make it the subject of my Inaugural Dissertation at Edinburgh, in 1788*. Since that time, I was encouraged to prosecute the work on a more extended plan; but
before

* "Dissertatio Medica Inauguralis: Quædam, De Ebrietate ejusque Effectibus in Corpus Humanum complectens.

Edinburgi, 1788."

before I had compleated my task, the war with France broke out, and I was obliged to leave it, without any fixed resolution of following it up at a future time. What I have therefore to offer here, will be a few practical remarks, more immediately connected with my present undertaking.

We have often known the bad effects of Drunkenness, in predisposing the body to receive contagion; it has been in our late transactions particularly marked by Mr. M'Callum of the Valiant, and Mr. Kenning, of the Invincible. In Scurvy, we know it to be equally hurtful, but singularly so, when occasioned by spirituous liquors. In situations where seamen are exposed to marsh effluvium, Intoxication has been one of the chief causes for rendering it active in the body: it cannot therefore be too strictly forbidden by officers, who wish to preserve a healthy ship's company.

The treatment of the Drunken Paroxysm, or fit of Intoxication, is the most frequent part of a navy surgeon's duty; and it requires instant relief. The correction of habitual drunkenness in ships, belongs to officers; the example of sobriety in themselves, the due observance of good order and discipline, with the exemplary punishment, are the most effectual means for this purpose.

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When there is danger of suffocation*, as it is called, the patient ought to be placed in a posture, that may keep the head and shoulders erect: it ought to be in a place freely ventilated and cool; the neckcloth and collar of the shirt must be unbound, and no person ought to crowd round the spot, but those who may be wanted as assistants. It is of some importance to know the nature of the liquor that has been drank, and the quantity. It will always be proper to provoke vomiting as soon as possible; and this will be easily accomplished by tickling the throat with a feather, or a finger. If raw spirit has been taken in great quantity, and the patient is able to swallow, he may be allowed to drink plentifully of water either warm or cold, and then the tickling of the throat, to urge the vomiting, may be renewed. This ought to be continued, till the whole contents of the stomach are evacuated.

When there is danger of apoplexy, which is to be distinguished by the bloated countenance and stertorous breathing, blood-letting becomes indispensable. Blood ought therefore to be taken from the temporal artery, the jugular vein, or the arm, from a large orifice, in quantity as much as the person can bear. It must however be limited occasionally, by weighing the state of debility

* A slighter degree of apoplexy.

debility that will sooner or later succeed. At the same time cold applications ought to be laid on the head, such as a cloth wrung out of the coldest water, and frequently changed. Snow or ice may be applied, if at hand: but the water for this purpose may be cooled by common salt or nitre, and the cloths dipped in during their solution. It is surprizing to see how quickly danger is removed, by unloading the stomach, and it is by far the most certain remedy. A sailor belonging to the Vengeance, then lying in Prince Rupert's Bay, Dominica, in June 1793, drank near three pints of new rum, and was saved by exciting vomiting; the debility that remained was very great.

When a drunken person has slept long, exposed to cold or rain, the treatment will very much depend on the degree of collapse or debility, that has taken place from the excessive exhaustion of sensorial power. If the extremities are cold or frost-bit, it will be proper to rub them well with snow or very cold water, and not to bring him too quickly into a warm room, or near a fire. The exhibition of any thing by way of medicine, must be done with caution, and in very small quantity at first. It may be then gradually increased, as strength revives; and diet and medicine administered, as customary in similar states of weakness.

I have frequently seen a drunken sailor fall overboard, and when picked up, be perfectly sober. I have not had sufficient experience to know how far this might be imitated in practice; but I have a notion, that sprinkling water on the body might be useful, as we see good effects from cold applications to the head.

MEDICINA NAUTICA.

S C U R V Y.

WHEN I last had occasion to lay my thoughts on this Disease before the Public, I could not help congratulating the Country and myself, on the prospect of exemption from it, in the Channel Fleet*. Shortly, however, after this work had issued from my hands, unforeseen causes began to operate, which in a few weeks produced a more general Scurvy than had been ever known on home service.

The frost in the month of December 1794, sat in extremely severe; and a cold north-easterly wind prevailed for three or four months. About Christmas, the French taking advantage of our fleet going into port, assembled, with astonishing celerity, at Brest, a fleet of thirty-four sail of the line, besides frigates, with which they put to sea, in order to intercept our outward-bound West India convoy, under Rear-Admiral William

* " Medical and Chemical Essays. Jordan, London, 1795."

Parker. Many of our ships were refitting; some of them in dock, the whole having suffered from a long course of boisterous weather, in September, October, and November preceding. It was therefore with great exertions that a Fleet of thirty-three sail of the line were able to sail from Spithead on the 26th of January.

In the mean time, the enemy's fleet at sea had experienced a continued storm, from which it was reported that five ships of the line had foundered, with their crews, and that the others were much disabled. In this condition they returned to port.

The Channel Fleet having put into Torbay, from contrary winds, experienced much cold weather, and a dangerous gale of wind from the south-east. At last a northerly wind brought the large convoy out of Plymouth: Earl Howe having seen the outward-bound so far to the southward as Cape Finisterre, returned to Spithead on the 26th of February.

While the Fleet lay in Torbay, no fresh beef was served to the people, but mutton for the use of the sick only; by which means we were full five weeks on salt provisions, when the first fresh meat was allowed at Spithead. During this time, an Epidemic Catarrh had raged in every ship, and the debility which followed it, had certainly some

share in predisposing the body for the attack of the Scurvy *.

On our return to port, from the number of cattle that had already perished from the rigour of the season, beef was much risen in price, and the contractors were not able to purchase. The Victualling Board, on this account, thought proper to dispense with the usual allowance to the ships, and reduced it to one day's fresh meat in the week. Whether there was more œconomy, in point of expence, in giving salt provisions, than fresh, is matter of doubt with me; but this I well know, that such a change in the victualling of a large fleet, ought never to have taken place without consulting officers on the spot.

Independent

* “Catarrhal complaints were the most prevailing during the month of March and part of April, many of which terminated in Scurvy. During our late cruize, numbers were afflicted with that malady: the citric acid, to the quantity of three ounces per day, cured many, and always stopped the progress of the disease. It was given with wine in the following manner:

Rx Vin. Rub. - ℥ij.

Suc. Limon. - ℥i.

Saach. - - ℥ij. M.

Ft. haust. ter die sumendus.

Some of the Catarrhal complaints terminated in remitting fever.

(Signed)

W. WALKER, Surgeon.”

Hannibal, April 1795.

Independent of the effects which an extreme degree of cold, long continued, may possess in predisposing the body to Scurvy ; it had at this time destroyed all vegetation in the neighbourhood of Portsmouth. Even the bum-boat women, who are in the practice of bringing vegetables to sell in the ships, could procure little of the kind, or at a price that put them out of the reach of the sailor.

In this state of the Fleet, my fears were very early alarmed. I recommended the immediate stop to be put to the use of salt provisions ; and early in March laid before the Admiral, what changes of diet I thought would be useful under the present circumstances. They were transmitted to the Admiralty ; and by their Lordships referred to the Victualling Board. The Commissioners of Victualling, *disapproved* of the whole, the use of molasses excepted ; but a supply of them did not come in time to our relief.

A squadron, of five sail of the line, sailed on the 17th of March, under Admiral Colpoys ; to each of these ships I sent a cask of lemon juice ; at the same time informing the Admiral of my reasons. This squadron, after a month's cruize, returned to port with many ill of Scurvy, and a general disposition to the disease throughout the ships : some very bad cases were even sent to Haslar,
from

from the *Astrea* frigate. (Vide General Abstract of Health.)

A squadron, of four sail of the line, returned from the North Sea, under Rear-Admiral Harvey. The Prince of Wales, with a raw crew, and a bad party of soldiers, instead of marines, on board, had sent fifty scorbutics on shore to Deal Hospital; many of these in the last stage of the disease, five of whom perished in the boat. The cold of the North Sea is generally reckoned more severe than in the Channel; hence the Prince of Wales and *Ruffel*, seem to have had worse cases than with us at Spithead.

The Scurvy, towards the beginning of April, had made very considerable progress, particularly in the *Excellent*, *Minotaur*, and *Invincible*. These ships were part of a squadron, ordered to sea, under the Honourable Admiral Waldegrave. I had previously represented the state of the Fleet to the Commissioners of Sick and Wounded; and demanded a supply of lemon juice, or the fruit in its entire state, to be ready on board the hospital ship, to serve the detached squadrons as they went to sea. This supply not having come in due time, in consultation with Admiral Waldegrave, and by his order, I purchased at Portsmouth seventy pounds worth of lemons and oranges, which were distributed to the squadron. At the same time I informed the Sick and Wounded

ed

ed Board, that I did not think these ships were in a condition to go to sea, without being provided with articles for the cure of Scurvy. These ships continued at sea seven weeks, and towards the end of the cruize had a further supply of fruit, which the Admiral ordered to be purchased from a Swedish vessel. The consequence of these precautions were, that many cases were cured at sea, without a single death: but the crews of the whole were much in need of fresh meat and other delicacies, when they returned to port.

Admiral Waldegrave was so obliging as to transmit to me, copies of remarks on the fruit, in the treatment of Scurvy by the surgeons of his ships. It was observed in each ship, that by changing the beer for grog, had a quick effect in encreasing the number of Scurvies. On board the Excellent, much attention was paid to this circumstance. Captain Collingwood tried it in different ways, and kept a diary of the sick list. Mr. Scott the surgeon, in his report, says, that “ they sailed with ten scorbutics in the list ; “ that this number fluctuated a little while beer “ was served ; but when half beer and half grog, “ it increased to twenty or thirty. When all “ grog or wine, it increased from forty to fifty- “ six. He concluded, with the uniform testi- “ mony of others, by saying, that the lemons were “ a certain cure.” The testimonies of the other surgeons,

surgeons, viz. Mr. Kent of the Marlborough, Mr. Dods of the Tremendous, Mr. Bell of the Minotaur, Mr. Sibbald of the Nymph, and Mr. Drew of the Blonde, were to the same effect *.

* REPORT of the Effects of LEMONS on board His Majesty's Ship Invincible.

"It may be, in some measure, necessary, just to mention the state of health, on board the Invincible, previous to our sailing on the late cruize; in order to shew, in a clear point of view, the excellent effects of the Lemon and Orange, with which we were supplied.

The Scurvy (the only complaint to be mentioned here) made its appearance at Spithead in the first week of April, in a severe degree. Five patients were sent to the hospital; others variously ill, to the number of eighteen, at the time of sailing; four of that number were incapable of duty. By the last of the month, ten more had applied. Those that were worst, took three lemons and one orange, daily; and the others, two lemons. In every instance, after the third day, and sometimes sooner, they began to recover, and were shortly well.

In the beginning of May, patients continued to come down, and were treated in the same manner, with equal good success; in the course of the month fifty-six had applied, and were recovered, or nearly so: in the latter end of the month, the fruit was all expended; but there still remained a few gallons of lemon juice, which lasted until the 2d of June. Patients continued to apply, and two of those that had been recovering before the lemons were expended, got worse in the short interval from the 2d to the 5th, the day on which a fresh supply of lemons was received. Their complaints were soon checked by the fresh fruit; it was not found that they recovered so fast
by

From the circumstances just narrated, it will appear satisfactory, that my fears were not groundless. The prevention of Scurvy was a great object in a Fleet, because we are not aware of the exertions of a restless enemy. But the period was now arrived, when the necessity of checking this ravaging disease became more apparent. It pervaded every ship; and as the causes which produced it were general in their operation, so it was reasonable to infer, that every seaman in the Fleet

by the juice, though it was given, in some cases, to a pint per diem. To this time, thirty-two had applied; and every day two or three, variously tainted, had appeared.

"It does not appear, at present; that we shall have occasion to send any men to the hospital for Scurvy, though I am *positively* of opinion, that if we had not been supplied with the fruit, many of the ship's company must have suffered greatly, or, perhaps, died.—The numbers that complained, and cured, or nearly so, are, in April, twenty-eight; May, fifty-six; and in June, thirty-two: in all, one hundred and sixteen.

(Signed)

June 8, 1795.

T. KENNING, Surgeon."

"*Note.* In the sketch of the good effects of the lemons supplied in the late cruize, I have not mentioned any thing of the advantage our men had in point of regimen. Previous to our sailing, Captain Pakenham, according to his usual liberality, purchased five guineas worth of onions, and put them under my care. A quantity of fresh mutton was also sent every day to boil with the portable broth. The sick had wine instead of grog. T. K."

Fleet ought to partake of the means of prevention and cure *.

In my representations I took upon me to explain our condition to the utmost minutiae of the cause, as well as the method most likely to give us relief. The Lords Commissioners of Admiralty, were therefore pleased to order every thing which was demanded. The fresh beef was served according to the usual allowance, and the salt provisions withheld. A large supply of lemons and oranges were ordered to be sent from the Sick and Hurt Department, equal to our wants. In addition to all these, sallad was ordered to be procured, by way of assisting the other means of prevention and cure. Vegetation was very late, from the coldness of the spring months; but what could not be commanded in the gardens round Portsmouth, was brought from Fareham and other places. In my official letters, I took care to inform their Lordships, that I had attended the vegetable stalls on market-days, as well as the gar-

* “ You will no doubt observe with pleasure, the few scorbutic patients sent to the hospital, in comparison with the number that have complained of that disease. This I can attribute to nothing else, but the timely supply of fruit and vegetables, which were obtained by your order, and which had the most speedy and desirable effect.

(Signed)

Robust, May 31, 1795.

JAMES TURKINGTON, Surgeon.”

dens

dens in the neighbourhood, and had there found abundance for our consumption. We were, therefore, from the 31st of May, supplied with near five thousand weight of sallad every day, which was distributed, under my own eye, to the different ships at Spithead. The good effects of these refreshments were astonishing ; we had only to regret that they were not sent sooner. They do not rest on the official testimony of the surgeons only ; the whole of our officers attended to the recovery of their people, with every mark of affection : they had fought and conquered together, and were now from habit like persons of the same family.

About two hundred men in Scurvy, had been sent on shore, during the early appearance of the disease ; but from the time of being supplied with fresh meat, fruit, and vegetables, it was not necessary to move them from the ship. The officers and surgeons agreed, that their men were cured in a shorter time on board. But more urgent reasons required to keep them on board ; desertion was prevented, indolent habits soon learned in our hospitals, were not so apt to appear under the eye of their own officers, and as equal justice would be done to the cure ; our ships thereby remained ready for service.

Thus, were those valuable men fitted and recruited for duty, at an expence to Government

too trifling to be mentioned. It was amply repaid, in a very short time, by the capture of three sail of the enemy's line, in the very mouth of a French harbour, by Lord Bridport. But it ought to be remembered, that these ships could not have sailed a week sooner, from the people that were laid up with Scurvy bearing a large proportion; to such an extent had it prevailed every where.

Some deaths happened at the hospital in this disease; I believe not more than one or two; but not a single one on board, either at sea or at Spithead.

Although the health of the people was so much recruited when Lord Bridport sailed; yet it was plain, that the disposition to Scurvy was not sufficiently corrected, which would have required a continuance of the sallad for a longer time. But to guard against the effects of salt diet, and any accident that might detain the squadron at sea, every ship was supplied with thirty gallons of lemon juice from the Charon, besides some half chests of fruit, to those that were most in danger from a return of the complaint. The London, Valiant, and Coloffus, that had suffered so much, were now in perfect health.

The weather, for the season, was cold in the early part of the cruize. On the 10th of July, the hospital ship parted from the squadron, having received the sick, and forty-five wounded men,
to

to carry home. At parting, some of the surgeons were served with an additional supply of lemon juice from the *Charon*, lest it should be wanted before our return.

On the 15th of August we returned to Lord Bridport, having on board a number of sheep, vegetables, &c. I visited every ship in the course of the day, and found the Scurvy beginning in all; even the frigates had many cases of it.

We have seen, in Admiral Waldegrave's squadron, the rapid increase of Scurvy, as soon as the beer was done; it was also observed in Lord Bridport's *. I have even remarked at Spithead, some ships, that indulged the seamen more than others with spirits from the shore, have on that very account a longer list of scorbutics, and with more aggravated symptoms. This fact gives considerable force to my former arguments on the theory of Scurvy. The use of spirits in the drink

* This is an incontrovertible argument, in favour of my proposal for beer of a stronger body. A ship would be able to carry eight weeks allowance to sea: if the cruise or passage was longer, it might be served alternately with wine; by which means, a ship going to the East or West Indies, might prolong it to their arrival at the place of destination. We should then have no condemned beer; for a little more hop, and being stronger in quality, would make it keep. I would have a quart served in the forenoon, and another in the evening. In the warm summer of 1794, the beer that became unfit for use in our Fleet, exceeded all precedent for the immense quantity.]

of

of the sailor, called *grog*, manifestly tends to abstract the oxygene from the body: from a deficiency of this principle, I apprehend the disease is produced *.

After Lord Bridport's squadron had been ten weeks at sea, it then appeared how much the safety of our men depended on the citric acid. There was not a case, in which it was given, where it did not produce a cure in the space of a few days †.

The Robust, at anchor in Quiberon Bay with Sir J. B. Warren, was obliged to leave the station from becoming so over-run with Scurvy. Some of her people sunk under it, from not sending to the Charon for a fresh supply of the lemon juice ‡.

Vinegar was carefully served to the messes of seamen throughout the squadron, to be used with the salt meat: yet in those ships where the men

* Observations on Scurvy, second Edition. Longman, London.

† "I have no remarks worthy of insertion, except additional proofs of the most happy effect, from the use of lemon juice: not only in scorbutic affects of the extremities, but in pneumatic attacks, when a scorbutic diathesis prevails.

(Signed)

Pallas, Sept. 20, 1795.

R. HARRISON."

‡ See Mr. Turkington's Report in the General Abstract of Health.

took it in large quantities, it was not observed to retard the advancement of the disease. Even porter failed to cure. There was now another cause that accelerated the approach of Scurvy. The ships had been so long at sea, that there was a necessity for curtailing the allowance of water: the number of scorbutics increased in a great proportion; and the London and Prince George were obliged to leave the Fleet.

These ships made for the first port, and arrived at Plymouth in the beginning of August. Mr. Smith, of the London, sent eighty cases of the Scurvy to the hospital, and thirty in other diseases. Mr. Harris, of the Prince George, sent four men in various complaints. The purser of the latter ship was generous enough to supply so large a proportion of vegetables, that two hundred scorbutics were cured on board, and the disease effectly subdued among the crew. The condition of the two ships, both second rates, affords a valuable lesson on service: the London not having the means of curing her people on board, by having only an acting purser, who was not empowered, lay inactive, for a length of time, in Plymouth Sound; and many of her men never returned from the hospital. The Prince George, from the bounty of a single individual, was thus enabled to cure her seamen in the ship, and sailed for Portsmouth, in less than four weeks, in perfect health,

health, to receive the flag of Rear-Admiral, Christian, destined for the West Indies. Thus we see, as certain measures predominate, that the Navy of Great Britain may be occasionally disabled, or rendered active.—Reasons similar to those now assigned, made the *Robust* leave sixty men at Haslar, when she sailed a second time for Quiberon Bay. This is one of the greatest misfortunes that can befall either a ship, or the people left behind *. The ship's company is replaced by draughts of raw men from guardships, or another ship is broke up to recruit the other. The sick that were left on shore, when recovered, are sent to a guardship, perhaps not famous for good order; and in the end they are scattered into strange ships, where they have a new acquaintance to form, and where new officers, perhaps, inculcate very different modes of discipline to what they have been accustomed: such are the irresistible arguments that may be produced, to

* The *Anson* frigate, Captain Durham, one of Sir J. B. Warren's squadron, was obliged to go to Plymouth in July 1795, being overcome with Scurvy. She landed eighty seamen, and was under the necessity of leaving a number behind, when she sailed for Quiberon Bay a second time. Not having received vegetables while in port, sufficient to subdue the general taint among the crew, the disease quickly re-appeared; and had it not been for very large supplies of lemon juice from the hospital ship, she must either have returned to England again, or buried half her people in Scurvy.

justify the propriety of serving the seamen with every comfort in their own ships *.

On the 19th of September, Lord Bridport's Fleet arrived at Spithead. The only disease that was known in the ships, was the Scurvy. In the General Abstract of Health, I have mentioned the number in each ship; but every one on board might be considered as labouring under some degree of the disease.

Large supplies of vegetables were served throughout the whole; and from the quantity of lemon juice being diminished, the surgeon of the Charon was directed to purchase, at the Isle of Wight, fifty bushels of apples, in the immature state. The lemons indeed were now so scarce, and the consumption of the juice had been so great, that little was left in the kingdom. We were there-

* Mr. Perry, then surgeon of the Adamant, sent me some Spanish *onions*, which he had brought, in the winter, from Cadiz. In order to preserve them, he cut the root off to the quick, and applied a slight solution of lunar caustic to the wound, which checked their vegetation so much, that one of them lay in my cabin window for six months, without shooting. This philosophical experiment may be easily accomplished by a hot poker, or any piece of iron, with which the roots should be effectually seared. Country people are in the custom of running a red hot knitting needle from the root to the top of the onion, which answers better. These processes preserve this vegetable for a length of time, and as it is one of the most useful at sea, they cannot be too generally known.

fore

fore very glad to procure the apples, as a substitute. The Royal Sovereign, in particular, reaped much benefit from them, and did not send a single patient on shore. Mr. Kein found his people well satisfied : I was indeed glad of the change of fruit ; for I was tired with seeing the poor fellows drinking constantly of the lemon juice. The cure was every where so compleat in ten days from the arrival, that we had nothing left, but the slightest remains, to show Earl Spencer, when he visited the Fleet on the end of the month.

On the 6th of October, the hospital ship joined the squadron under Rear-Admiral Harvey, off Belle-isle; when the sheep, vegetables, apples, lemon juice, and porter, was distributed to the ships for the use of the sick. This squadron put into Quiberon Bay, and lay at anchor there, except a short cruize, till the end of December. During this time, fresh supplies of cattle, sheep, and vegetables, were frequently sent out ; so that the Scurvy was kept under, or cured when it appeared, with little trouble, by the lemon juice*.

E e 3

These

* “ I am opinion, that the lemon juice that was served out to our people three or four times a day, diluted with about two parts of water, and a suitable proportion of sugar ; with the timely supply of vegetables and fresh meat, received while the Fleet remained in the Bay, and issuing of wine a considerable part of the time, checked, and in a great measure prevented,

ed,

These ships came to Spithead on the 2d of January 1796, and with a squadron, just arrived, under the command of Vice-Admiral Cornwallis, were supplied, on fresh-meat days, with a large allowance of vegetables. This allowance was continued to all our ships, for a fortnight after coming from sea. From this period we may date the extinction of Scurvy in the Fleet.

We have thus seen, from the effects of a cold and rigorous winter, the impolitic and inconsiderate measure of reducing the allowance of fresh beef, in harbour, and the destruction of vegetation by frost, a Scurvy induced, so general in its extent, as to endanger the safety of the whole Channel Fleet of Britain. The practical inferences to be drawn from this narrative are obvious.

It appears highly expedient, that a Fleet just come from sea, should have the people recruited for future service in as short a time as possible. However

ed, our people from being afflicted with Scurvy, and other disorders.

(Signed)

R. FORREST, Surgeon."

Prince of Wales, Jan. 2, 1796.

N. B. Thirty cases of Scurvy appeared in the Prince of Wales during this absence of nineteen weeks from England; but there were more in the other ships of the squadron.

T. T.

However vague and uncertain the records of naval transactions left this point on former occasions; the late occurrences of the Channel Fleet have sufficiently established the fact, that Scurvy can always be prevented by fresh vegetables, and cured effectually by the lemon, or the preserved juice of that fruit.

In the General Abstract of Health, I have mentioned, that Dr. Archibald Thompson, of the *Valiant*, found, upon comparing his cases, that not a man who shared of the large allowance of lemons and salad at Spithead, towards the end of May and the beginning of June, had the least symptom of Scurvy during the long cruise with Lord Bridport. Mr. John Smith, of the *London*, on comparing his cases, found, that only five of all that he sent on shore to Plymouth Hospital, were of the number who partook of the former refreshments at Spithead, and for these he gives reasons. I think it proper to mention these two ships, because they suffered more than others, from the disease in April and May. Their respective surgeons took also much trouble to ascertain the fact, with sufficient clearness, on my suggestion*.

Whatever,

“ London, Jan. 6, 1796.

* “ S I R,

“ According to your request, I have examined my books very carefully, and find only five men who had the Scurvy in

Whatever, therefore, may be the theory of sea-scurvy, we contend, that recent vegetable matter, imparts a *something* to the body, which fortifies it against the disease: and that in proportion to the quantity of this *something* imparted, making allowance, at the same time, for external causes, which counteract its effects on the constitution, the symptoms will sooner or later appear. The preservative means ought, therefore, to be attended to, and we ought to trust only to the vegetable acid, when we can do no better.* The

April and May, sent to Plymouth Hospital in September, after more than three month's cruize. Three of them had a scorbutic flux; and two had blotches, &c. on their legs, with other symptoms. One of these had but lately recovered from a venereal complaint, being six weeks under cure: the other was always of a sickly habit.

"Two out of the eighty sent to Plymouth Hospital, in September, for Scurvy, had been at Haslar Hospital in April and May. One of them was sent for a scorbutic flux; the other had blotches. &c.

I am, S I R,

Your most obedient servant,

(Signed)

John Smith."

To Dr. TROTTER,

Physician of the Fleet."

* It is the custom of service, for the purser to order his steward to buy vegetables, greens, or cabbages, for the fresh beef broth out of his necessary money: but there is no fixed quantity. There is a necessity for fixing the proportion, cost
what

juice of lemons long continued, tends to weaken the stomach and general habit, and produces emaciation in proportion to the length of time it is used.

We have also found, that the preserved juice is very inferior to the fruit, in its intire and recent state; although, I believe, that great attention was paid to its preservation, and when there could be no suspicion of vinegar, or other acids, fraudulently added. Three dozen of sound lemons did generally as much as a gallon of the juice. Yet we have seen, in Mr. Moffat's report, that he had cured many with the juice that had been near two years squeezed from the fruit*.

We have, from this practice, established another fact, of the first importance in naval operations. We have often heard people talk of land air, and land recreations, for the Scurvy. There is

what it may. Why is an article of diet, that is the best security against a fatal disease, left to such uncertainty, or liable to be withheld by any individual, when its price becomes a little higher than common?

* This general Scurvy in the Fleet, would have afforded a fine opportunity for trying the effect of oxygene air in the cure. But, as I was the first who ventured to publish the Theory, there was a danger of being accused of a predilection for speculative opinions, had I applied to Government for an apparatus.

is not at present an officer in the Fleet, that, in doing justice to either his people or his country, would prefer the cure out of a ship. Nay, there is often the most urgent necessity for keeping them on board till they acquire a certain degree of strength. In the very weak stage, a scorbutic patient cannot bear the external air, which has been long observed, and recently confirmed, by the five men dying in the boat belonging to the Prince of Wales, between the Downs and Deal Hospital.

Those who may consult these pages, and are acquainted with the opinions, which I formerly published, on the Theory and Practice of Sea Scurvy, will see, that this immense field for observation, which the Channel Fleet has afforded, seems to strengthen all my old conclusions. Nothing remains for me to retract. The whole has been confirmed by the experience of a great number of surgeons, of approved abilities, in the profession. Dr. Beddoes, in his remarks on my work, laid much stress on the impure air of ships in producing Scurvy. If this had so much effect, surely it would have counteracted the cure, when the seamen remained on board: but that has not been observed. The surgeons generally remarked, a very great difference on the second and third day; and a week was long enough for to complete

pleat the cure. The discipline of the officers in the Fleet, in whatever related to health, has rendered them famous. To have thought of foul air, as a cause of the Scurvy, when it appeared in the Royal George and Queen, would have been the last resource of a physician, investigating causes, who had witnessed the admirable system of duty practised by Captains Domet and Bedford.

I shall conclude my observations on this disease, by introducing a letter from Mr. Baird, surgeon of the Hector. This ship left the Channel Fleet in May, when our sufferings were great.

“ Hector, Spithead, Dec. 4th, 1795.

“ S I R,

“ As I consider the Navy indebted to your exertions, for the very valuable institutions of lemon juice; I should think I failed in my duty, if I did not communicate to you, the wonderful benefit derived from it in the Hector.

“ On my joining this ship, in May last, I found her under orders for foreign service; our destination supposed to be the East Indies. Several of our ship's company were labouring under Scurvy, in an advanced stage, all of whom I sent to the hospital, previous to our sailing. But, as I
had

had great reason to suppose, that the scorbutic taint was general, I rather felt discouraged at the idea of encountering so long a voyage, under such circumstances. Indeed my fears were soon confirmed; for we were but a few days at sea, when the sick list was considerably increased with scorbutic patients: some with their gums highly putrid, legs and thighs much swelled, hams contracted, and so very ill, as to render them totally unfit for any kind of duty. The small beer not being expended, the instructions from the Sick and Wounded Office did not exactly warrant my issuing lemon juice and sugar. But, as it seemed the only probable remedy, I solicited Captain Montague to lose no time in giving it to the ship's company, in the quantity directed, as a preventive; to be mixed with a proportion of water, as sherbit; and also to allow me to issue it, in any quantity I might think proper, in bad cases.

“ I began with giving the lemon juice, in the quantity of an ounce and half daily; and, encouraged by the material change I perceived in about four days, I increased it to three or four ounces *per diem*; always taking care to join a sufficient quantity of sugar, to prevent it from irritating the bowels: in twelve or fourteen days, the worst of them were able to return to duty; every

every symptom being then removed, except some slight degree of stiffness in the hams, which gradually wore off.

“ That the lemon juice was equally serviceable as a preventive, as I think evident from the following observation; for the first month, new patients frequently complained, but after that time, the only scorbutics we had, were men pressed out of merchant ships returning from long foreign voyages.

“ We sailed with the outward bound East India trade on the 24th of May last; and returned the 19th of November, with the homeward bound trade; having been as far as 28° and a half south; about three weeks in harbour from the time of sailing till our return; and part of that time at St. Helena, a place well known for its barrenness, and the very little refreshment which it produces. We have returned to Spithead without losing a man by Scurvy; nor have we had occasion to send a single man, in that disease, to the hospital.

“ When I consider the alarming progress which the Scurvy was making among the Hector's ship's company, previous to the administration of lemon juice as a preventive; the sudden check that disease met with afterwards; the powerful effect of the acid in very bad cases; I think I

will

will not be accused of presumption, when I pronounce it, if properly administered, a most *infallible remedy*, both in the cure and prevention of Scurvy.

I am, SIR,

Your most obedient,

and humble servant,

(Signed)

A. Baird."

To Dr. TROTTER."

THE MEANS used to eradicate
A MALIGNANT FEVER,

Which raged on board His Majesty's Ship BRUNSWICK,
at SPITHEAD, in the Spring of the Year 1791 :

With some short OBSERVATIONS on the most probable Means
of preserving the Health of a Ship's Company.

By SIR ROGER CURTIS*,
Then Captain of the Brunswick.

THE health of the Crews of His Majesty's ships, is a consideration of so important a nature, that whatever may contribute to its preservation, or to the removal of contagion, when it unhappily exists among them, are circumstances which merit the serious attention of every officer. Those who are conversant in our maritime history, must have regarded, with horror, the dreadful havock which disease, for a long continued series of years, made amongst the seamen of this country.—They will have observed, that disease carried off an hundred times more than fell by the hands of the enemy. During those unhappy

* Captain of the Fleet to Earl Howe :

“ To Souls like these, in mutual friendship join'd,

“ Heaven dares intrust the cause of humankind.”

Addison, on Marlborough and Prince Eugene.

periods,

periods, it is true, that medical skill had not reached the degree of perfection it now possesses ; but the chief cause of the dreadful calamities which beset our Fleets, was the want of that order, cleanliness, and internal œconomy, which is now more generally observed. It is now proved, that a due attention to these circumstances operates most powerfully, in all situations, towards the preservation of health. But, notwithstanding the strictest adherence to the wisest precautions, disease but too often finds its way amongst us. Fevers, of the most infectious and dangerous kind, frequently rage in our ships. They are sometimes generated there by a want of cleanliness in the ships, and in the people ; but they are more generally propagated by the introduction of infected persons.

When contagion has once taken root in a ship, the different parts of it, as well as the persons and the cloaths of the crew, become highly infected, and it cannot be removed without great labour and perseverance. Under circumstances, when neither the stores nor the crew can be removed from the ship, the difficulty of eradicating infection is greatly augmented ; but even thus situated, it is *possible* to be effected. It requires, however, great and unremitting pains. The slight and ordinary modes of fumigation, by correcting the air, are serviceable in the *prevention* of sickness ; but when
contagion

contagion is established, a more powerful application of it, and other means must be adopted.

The Brunswick was afflicted with a putrid and highly infectious fever, when lying at Spithead in the spring of 1791, which raged so violently, that frequently ten or fifteen men would fall down in it in a day, and more than one hundred and fifty were in the hospital at Haslar at one time. Its progress in the ship was however at last arrested, and the means made use of are hereafter related, that they may be followed by others under similar circumstances, if they are deemed to be deserving of notice.

As seamen have great reluctance in complaining when they find themselves but slightly indisposed, and it being very material that infected persons should, as speedily as possible, be removed from the body of the ship's company, to impede further communication of the disease, as well as to facilitate the cure of those attacked, by an early application of medicine, great attention was observed by all the officers, in immediately reporting every man who appeared to have the smallest indisposition, whether it was discovered by day or by night. The whole space under the fore-castle on the larboard side, including the round-house, was appropriated to the sick, and the obtrusion of any other person absolutely prevented. To this place every person was removed the moment it was dis-

covered that the disease had seized him, and the primary remedies towards cure immediately applied, from whence, as speedily as could be, he was carried to the hospital, care being had that every thing belonging to him was sent with him.

Moisture operating more powerfully than any other cause in the production of disease, as well as in the propagation of it, our first care was the endeavour to remove all humidity, and foulness of air.

The well was baled out, scraped and swabbed till entirely dry, and then a large fire was kept burning in it for several hours every day, so that the smallest dampness therein was not suffered to remain.

The hold had the upper tier of casks removed from it, and sent on shore. Three fires were then kindled in it, and kept burning for many hours every day, confining the smoke as much as possible, and occasionally shifting the fires from place to place; and in the fuel made use of, as many empty tar barrels were consumed as could be collected for the purpose; at other times wood, and occasionally coals, intermixed with shakings of tarred ropes. Every precaution being constantly taken to prevent accident. When the fires were extinguished, the gratings of the hold were removed, and the windsails let down.

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The horlop was constantly kept as clear as possible of every thing that prevented a free circulation of air, and a fire placed sometimes in one part of it, and sometimes in another.

The cockpit, steward room, and bread room were treated in the same manner.

The doors of all the store rooms were occasionally thrown open, and the ventilators worked unremittingly day and night.

Three fires on each side the 'tween decks were kept burning almost the whole day, and these were from time to time shifted to every part of it. The manger was cleared of all manner of lumber, and a fire occasionally placed therein. The deck was seldom washed, and never but when the weather was such, that the people could remain upon the upper deck, until it was perfectly dried by the fires, and the natural current of the air; nor was any person whatever permitted to go below, under any manner of pretence, until the general permission for it was given. When the deck was not washed, it was kept perfectly clean by other means; and slops about the decks, and every sort of dampness was specially guarded against. The sides, beams, carlings, the deck overhead, and every part of the 'tween decks were white-washed, twice or thrice, during the course of the disorder.

Fumigation in the hold was thus conducted :— four half tubs with stands in them were disposed therein. In each of the tubs was placed an iron pot, into which was put about two pounds of brimstone tied up in a piece of canvas. The gratings were laid, and so closely covered with tarpaulins, old hammocks, swabs, &c. that none of the smoke might escape. When every thing was prepared, a red hot loggerhead, or iron fid, was put into each of the iron pots, which set fire to the brimstone; and the men performing this service, immediately leaving the hold by a grating of the main hatchway being kept open for the purpose, the hatches were entirely closed.

It was the custom, to fumigate the hold, horlop, and 'tween decks at the same time; but as we could not be furnished with a sufficient quantity of *brimstone*, to make use of it in all the different parts of the ship at the same period; it was usual, therefore, to use the *brimstone* in the hold, horlop and 'tween decks in rotation; and where the brimstone was not applied, there were substituted what are called devils, made of powder wetted with vinegar. In those parts of the 'tween decks least accessible to air, and where consequently there is a greater degree of contagion, the flashing of powder from pistols is attended with very good effect; for the shock of the explosion assists very powerfully

powerfully in dispersing the infectious matter attached to the timber of the ship.

During the fumigation, the men's hammocks were all hung up in their places, with their mattresses and blankets spread over them, and all their spare apparel was so disposed of upon the guns, &c. as to receive the full effect of the fumigation; and the cloaths, which the men wore upon deck during the time of one fumigation, were changed upon the next, and placed below, that all their things might receive equal purification.

The gratings on the main deck were laid and covered, and with such care, that no smoke could escape, and the pots were carefully barred in. The brimstone in tubs, or the devils, with other safe precautions, were dispersed about the decks, and then lighted; the persons who did it escaping upon deck, and closing the hatchway after them, the operation was completed.

The smallest crevices of the ship were pervaded by the smoke and effluvia of the brimstone, and affected every part of her in a powerful and astonishing manner.

Three hours were generally suffered to elapse before the gratings were uncovered, and the ports opened; and a free circulation of the air for a very considerable time was afterwards necessary, before a person could remain below without inconvenience. The whole of the hull of the ship,

and every thing therein, animate and inanimate, was strongly impregnated with the fumes of brimstone, and to such a degree, that it was perceptible when to leeward of the ship, at a considerable distance from her.

In damp weather these fumigations were practised every day, and never less than three times a week. The fires were continued daily.

The sick birth was attended to with the same solicitude, to impede and eradicate infection, as has been described in respect to the other parts of the ship.

Nor were the persons and apparel of the men disregarded. Every man in the ship was washed from head to foot with warm water and soap, and more than even our usual pains were taken that they should be cleanly in all respects. If any old and useless cloaths were found, they were thrown overboard. Such serviceable apparel as was discovered the least filthy, was washed and fumigated, and the men were forbid to wear woollen trowsers. On fine days, the whole of their bedding was hung upon lines between all the masts, and on the rigging, and exposed thus to a free ventilation for many hours, and their cloaths of every kind were treated in the same manner.

The recovered men, returned from the hospital, were treated upon their coming back to the ship with great precaution. Having received at the
hospital

hospital notice of their recovery, and the intention of their return, a careful petty officer was sent thither to see all their cloaths and bedding well aired, by being spread abroad for two days, and well beat and cleaned, previous to their coming to the ship. Upon their arrival on board, every man was washed in warm water, and with soap, and an entire change of cloaths was then put upon him; all the rest of his apparel and his bedding were immediately fumigated with brimstone, which was performed by suspending it over the fumes issuing from an iron pot, placed in a half tub, in a convenient place under the forecastle.

Such were the means made use of with punctual and unceasing perseverance. They certainly were attended with no little labour, but the fever with which we were afflicted having been entirely subdued, the gratification, arising from the reflection that our endeavours were crowned with success, was the most ample recompence for all our trouble.

T H O U G H T S

ON THE MOST PROBABLE MEANS OF

Preserving the HEALTH of SEAMEN.

A CHAIN of calamitous Circumstances but too frequently occurs, to endanger the Health of our Seamen; and on such occasions the utmost endeavours of the Officer to prevent it altogether, proves frequently ineffectual. But except in those extraordinary cases, prevention is more in the power of officers than seems generally to be imagined. It would save the lives of many men, and be otherwise productive of very beneficial effects, if fires were, in the day time, to be placed in the hold and other parts of ships, for some weeks previous to their being put into commission. And the difficulty and expence attending the measure are really contemptible, to the good that would result from it.

Great care should be taken, that the ballast received on board should be clean, fresh, and as
good

good in its kind as can be procured. The Thames ballast is very unfavourable to health; for besides being naturally foul, it is full of fresh water animalcula, which being destroyed in the ship, stink, and become very offensive.

It is sometimes the practice to line the gratings of the horlop with thin deal, to prevent any filth from falling into the hold: but it is a method highly pernicious; for the preclusion of air, which is thereby occasioned, fills the hold with putrescency, induces dreadful disease amongst the people, and destroys the ship. Every method therefore should be taken to cause a circulation of fresh air in the hold, by the use of windsails, and occasionally by fire.

The well should be kept as dry as possible; and if the tightness of the ship will allow it, it should be cleanly swabbed out every day. If it cannot be kept properly dry, water should be let into it every evening, and pumped out the following morning, and in the day-time fires frequently made in it. Fatal accidents frequently happen from the bad state of the well, in cases where men are obliged to go into it upon duty; but where even these do not occur, very great is the injury done to the health of a ship's company, by want of due attention to the state of the well. It is a very proper precaution to try a lighted candle in the well before any person be permitted

mitted to go into it, if there is the least suspicion of the air therein being foul.

Upon the first outfit of a ship, the men received on board her, should be examined with the most scrupulous attention, that disordered and infectious, or foul ulcerous persons may not be admitted. Such of their cloaths as are foul, and of little worth, should be destroyed, and the residue washed and fumigated; and their persons should also be thoroughly cleansed, by causing them to be washed with soap and water from head to foot. Their hair, if neglected and filthy, should be cut short, and if necessary their heads should be shaved. Without these precautions, the seeds of future malady may be diffeminated in the ship, and disorder may afterwards make dreadful havock amongst the crew. And at no time should any strange men be received on board, without similar attention.

Order and cleanliness are the officers' most powerful resources for the preservation of health; but there are a thousand lesser circumstances to be attended to, which materially contribute to so desirable an object. The nature of cleanliness too is often misunderstood; and I know of nothing of that kind which is so much mistaken, as the too frequent and indiscreet drenching the decks, and more especially those where the people sleep, with water, and particularly in cold latitudes during the

the winter. By this means I have known dreadful sickness *introduced*,—and I have known it *removed* by a contrary practice. It would be deemed extravagant to advance an opinion, that the decks should *never* be washed; but I feel no reluctance in making a direct assertion, that it were far better that they should not be *washed at all*, than with that want of discretion and precaution, which so generally prevails. It is an error that has caused the deaths of thousands! Certain it is, that the decks cannot be kept too clean; but they should be made so by other means than washing, except the weather be such as will soon cause them to dry, or that you have the means of drying them by fires. This observation applies to every deck in a ship; but in a particular manner, to those where the people chiefly reside, or from whence the humidity particularly affects them: nor should they ever be permitted to go below after a washing, until the decks are perfectly dry; for it is a fact universally admitted, that moisture is the chief predisposing cause to almost every malady with which a seaman is afflicted. It particularly induces scurvy and putrid fevers. Seamen are naturally indolent and filthy, and are merely infants as to discretion, in every thing that regards their health. They will assist in washing decks, and sit the whole day afterwards, though wet thereby, half way up the legs, without shifting themselves,

themselves, to the great injury of their health. They should therefore be compelled to put off their shoes and stockings, and roll up their trowsers on those occasions, which will not only cause their feet to be dry and comfortable the rest of the day, but necessarily cause a degree of cleanliness which otherwise would be disregarded. The practice which has lately been adopted of having stoves with fires placed occasionally in those parts of the ship where the men reside, and in others subject to humidity, is of the utmost importance to the health of the people, and should never be omitted in damp weather.

Great pains should be constantly taken, that the men are cleanly in their persons, and that they are furnished with all necessary cloathing. And the method now so generally adopted of appropriating the ship's company to the care and superintendence of the several officers, renders the accomplishment of these necessary and important requisites extremely easy.—Seamen have a custom of dressing themselves to undergo inspection at stated periods, while at other times they are covered with rags and nastiness. They should be compelled to keep their trowsers and other cloaths clean, how much soever they may be worn; and that they may have no excuse for raggedness, there should be a taylor to every division, whose sole employment, under the direction of the officer,

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should be in keeping in order the cloaths of the men belonging to it. Whenever any payment is made on board, the officers of divisions should take care that their men do lay in a sufficient stock of cloaths, with soap, and such other articles as may be necessary for them, before they are allowed to squander any of their money in dissipation. And where these payments are made upon the eve of the ship's going to sea, the men should be induced to lay in a stock of onions, potatoes, and even tea and sugar. It is inconceivable, to those who have not seen the good effects of it, how much such attentions preserve the health of a ship's company.

The bedding of seamen is in general too little attended to ; for as they sleep without sheeting, their blankets must unavoidably become offensive, and injurious to their health. Their bedding should therefore be frequently well aired, by being hung upon lines fixed for the purpose ; and their blankets should be washed as occasion may require.

Their hammocks should be kept clean ; but whenever they are washed, they never should be permitted to sleep in them until they are perfectly dry ; for they had better spread their bedding on the deck, than lie in a damp hammock. Whenever it can be done, there should be a change of hammocks in use for the ship's company ;

pany; and this may be managed without the least additional expence to government. But what are expences, compared to the health and comfort of the people! The hammocks should be got up whenever it is practicable, to admit of a free circulation of air below, and this may be generally done, owing to the excellent hammock coverings which are now allowed by government. But when the weather is thoroughly dry, the hammocks should be frequently uncovered in the nettings, in order that they may be benefitted by the free access of the air. The cleanliness of the people's bodies should be particularly attended to, as well as their cloaths and bedding. They should therefore be compelled to wash themselves in tubs allotted for that purpose, which will not only contribute to prevent illness, but will also act as a bracer, and render them less liable to catch cold.

Having but little judgment of what is fitting for them in any situation, they should not be permitted to go too thinly clad in severe weather, nor too warmly when it is hot. They are too indolent to suit their dress to circumstances, unless they are forced to do it, nor is any thing more common than to see some of them with a pair of thin linen trowsers on in the severity of winter, and a pair of greazy woollen ones in the hottest weather.

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When their watches expire in rainy weather, they should be obliged to take off their wet shirts before they get into their hammocks, which, from laziness as well as fatigue, they will not do, but by compulsion. Nothing can be more pernicious than going to sleep wrapped up in wet linen, and it causes also their bedding to be damp and unwholesome for some time afterwards.

They should never be allowed to sleep upon deck during their watches, a custom too prevalent, but which is always greatly injurious to the health of the people, and more particularly so in warm climates, where the dews are profuse, than even in colder latitudes.

Many officers are of opinion, that it is advisable to put the men to three watches in preference of two, when it can be done, from a supposition that the greater degree of rest thereby given them, it must be conducive to their health; and this would certainly be the case, were they to sleep in a pure air. But as the places where they rest are particularly close and confined, during the night especially, and the air rendered foul by a number of people crowded together, there are those who think it better for them to have shorter portions of rest, by being at two watches, than to continue for eight hours together sweltering amidst an highly corrupted air. And great care should

should always be had, that the people should be so birthed, that the portion of the crew off of duty should be disposed generally over the ship, and not arranged together in a particular part.

Nothing is more commendable, or has a better effect on the people, than parade, order, and regularity in a ship of war; but these things should always be subservient to the health of the men. In line of battle ships, the ports being up and the guns run out, has a fine appearance: but, in this case, the health of the crew should be consulted; for in cold damp weather, and particularly when the ship is broadside to the wind, the exposing of the men to a current of air on such occasions, and when too they are in an inactive state, is extremely detrimental to their health, and brings on a train of dismal disorders. At these times the weather ports should be shut. A frame to fit every port, with double bunting stiched to it, is an excellent method to correct the evil consequences of too great a current of air passing through the ship at improper seasons. It prevents the ill effects of too much air, but admits enough for sufficient ventilation.

It has been observed, that the men belonging to the boats are more frequently diseased than any other equal proportion of the ship's company. The reasons are obvious: they are more exposed to the weather. They frequently get wet on
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going on shore, or become so there, and in that condition they often remain many hours, waiting upon the beach for some giddy and unthinking officer, who, amidst his own enjoyments, thinks too little on the sufferings of the boat's crew. Upon the return to the ship, instead of care being taken that they shift themselves, and are made comfortable, they pass unnoticed, and are suffered to continue in that condition until their cloaths dry upon their bodies.

The boats crews of a ship are generally ragged as well as sickly. They too often sell their cloaths to buy *liquor*, but too often also they part with them to buy food, on account of their being unnecessarily kept on shore, to the loss of their regular meals with the rest of the ship's company. It may with truth be said, that the inattention to the boat's crews of his Majesty's ships, is amongst the principal irregularities in the navy that require correction; for it destroys their health, and is a great cause of desertion.

Amongst the various omissions which contribute to the injury of the health of the crews of his Majesty's ships, nothing seems more extraordinary than the general neglect there is of working the fixed ventilators. These should never stand still for a moment. A boy is capable of working them, and it may also be made a little extra duty for such as may be guilty of very slight offences.

To judge of the utility of them, one has no more to do, than to visit any of the enclosed parts of the ship, with which they have connection, where they have not lately been used; set the ventilators a going for a few hours, and visit the place again, and the difference of the state of the air will be found as obvious to the senses, as the distinction between extreme heat and extreme cold. The ventilator in the foremost part of the ship should be particularly attended. The air in the store-rooms there situated, especially the gunner's, becomes so foul, as frequently to be scarcely respirable, and every thing in them decaying or rotten. The powder too is greatly injured by the humidity and foulness of the air, and causes the manufacturer to be blamed for its bad quality, where the diminution of its strength has arisen from the want of due attention to it in the magazine, where seldom any pains are taken to correct the air, and where sometimes the powder remains during a whole year, without the barrels containing it being changed in their position. The several materials of which powder is composed have, and more especially in damp situations, a natural tendency to separate from each other. Where, therefore, the barrels remain a long time in one position, the saltpetre descends towards the bottom, the due proportion of parts is destroyed, and the powder is good for nothing.

I am, therefore, persuaded that the clamour against the powder, with which his Majesty's ships have been furnished, has not always been well founded, and that the bad quality perceived in it has generally arisen from a want of due care in its preservation. I have seen a very great number of trials made of the strength of various sorts of powder, made in different nations, and the result of these trials was, an unequivocal decision, that the British powder was fully as good, if not in general the best, made in Europe. It is clear, therefore, that the barrels containing powder should be turned at least every two or three months, and particularly when in so close and damp a place as the magazine of a ship of war.

The fore masts of ships are found more generally decayed than either of the others, and this is, undoubtedly, occasioned by the foul and humid air, with which the commonly unsound part is almost always surrounded. Motives of safety will, perhaps, continue to prevent these evils from being perfectly removed; but they may certainly be much remedied. I have often thought, that the outward doors of the fore store-rooms, might have a scuttle in them, covered with copper, punched full of holes, which would admit a considerable portion of fresh air, without the least danger of accident. And, as the state of the weather, and other circumstances may ad-

mit, the doors of the store-rooms should be thrown open for a considerable length of time during the day; and to prevent accident, an officer should constantly stand before them until they are again shut. Such stores, as may with safety be removed, should be occasionally got upon deck to be aired, which will greatly tend to their preservation, as well as give the more free admission of fresh air into the store-rooms. These remarks are, indeed, something digressive from the professed plan of this little work; but it is hoped they will not be thought so much so, as to be deemed entirely misplaced.

The windfalls, at every hatchway, should be constantly used, when the state of the weather will admit of it, and they should reach below the horlop deck; for as the hold is unavoidably subject to confined air, in a considerable degree, every possible means should be taken to introduce fresh air into it; and it is too little considered, how many causes of disease originate in a want of due attention to the hold.

As a preventive against sickness, as well as when contagion rages, the white-washing the interior parts of the ship, twice or thrice a year, would, by removing noxious effluvia, greatly contribute to the health of the people.

It is much to the credit of government, that the several articles of diet, provided for the navy,
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are generally of the best qualities: but notwithstanding this generous care of its servants, it cannot be denied, that owing to the nature of some of the articles allowed, and the unfuitable proportions of others, there is abundant room for amendment in the mode of victualling the navy; and it should seem, that improvements therein may easily be made, which, without additional expence to the state, would greatly conduce to the health of the seamen. Deviations from the usual articles of victualling were adopted, in various instances, during the last war; and the good effects of it are too well known and remembered, to be here particularized.

The articles of cloathing supplied, deserve also new regulations; for the same proportion of the several articles are issued to the ships, whether destined to a frozen, or to a burning climate.

The want of soap, abroad particularly, is very generally the cause of great filthiness in the persons and the apparel of seamen. It would greatly tend to remove these evils, and consequently contribute to the preservation of their health, if this article were to be supplied by government, and issued by the purser to the people, in such quantity per month as may be deemed necessary.

At some fit period, it is probable, these important subjects will meet with the consideration of government.

Touching the articles now supplied to ships, which relate to provisions, there appears to be nothing so injudiciously used as vinegar. This is a very useful article wisely distributed ; but the general practice, at present, is to issue it to the ship's company, in considerable portions to every mess, once in two or three months ; but the men having no proper means of keeping it, it is lost by accident, or properly consumed in the course of a day or two, and they have no more until the next serving. I have seen the following mode of supplying vinegar made use of with the happiest effects : a small cask of it has been slung up under the half deck, and, to prevent waste, in care of a centinel. The men had access to it whenever they pleased, and, though they had thus a constant use of it, there was never want of vinegar in the ship.

Whenever ships touch at places where lemons or limes are to be obtained, a considerable quantity should be procured for the use of the ship's company ; and, to prevent the loss that may be sustained by their rotting, it is advisable to express their juices. The juice should remain for twenty-four hours in a tub ; the scum being then carefully removed, it may be put into a clean cask, and with the proportion of two or three gallons of spirits to a hoghead of juice, it will be preserved for a very considerable length of time.

Thus

Thus furnished, a ship may bid defiance to the scurvy; and the application of it will be found not a little useful as a remedy for other afflictions.

Respecting water, some very valuable observations are to be found in Dr. Blane's publication relative to the Diseases of Seamen, to which the reader is referred. But it may not be amiss to say, that no ship should go to sea without one of OSBRIDGE's machines for sweetening it, which is found, by experience, to be the most simple and efficacious mode of purifying water that has hitherto been invented: nor should a drop of water be used by the men, while a ship is at sea, without having been previously purified by it.

Ships are frequently obliged to have communication with the shore, where the country is covered with woods and marshes, and where it must be, unavoidably, unhealthy. In these situations, no man should, on any account, be suffered to pass the night on shore; nor should they leave the ship for the purpose of wooding or watering too early in the morning, nor ever before they have breakfasted. And it would greatly preserve their health, if before they went upon these duties, they took each a small quantity of spirit in which bark had been infused. They should also always be brought off to the ship before sun-set. Where the crews of ships *must* of necessity be employed in wooding and watering, the rules and precau-

tions above recited will be found highly beneficial; but in unhealthy climates, these duties should be performed by the natives hired for the purpose, and particularly on the first arrival of the ships.

I beg leave to relate a fact, in confirmation of the utility of the above precautions. In a voyage down the coast of Guinea, in the Assistance, in the year 1762, we had scarcely a man indisposed. We wooded and watered at the Island of St. Thomas; and, with a view to expedition, a tent was erected on shore, in which the people employed on these services were lodged during the night. On the Middle Passage, every man that slept on shore died; and the rest of the ship's company remained remarkably healthy!

To the humane and learned Dr. Lind we were first indebted for a most valuable work, written professedly with a view to preserve the health of our seamen; and Dr. Blane, the present Physician of the Fleet, has very successfully directed his eminent talents to the same important end.

As an individual sincerely attached to my profession, and ardently solicitous to adopt every rule of conduct, by which the more laborious part of it may be rendered healthy and comfortable, I beg leave thus to offer them the tribute of my unfeigned gratitude. The same sentiments of acknowledgment are due to them from every well-wisher to this country. They have not, indeed,

deed, directed fleets on the day of conquest, but they have eminently contributed to preserve the health of those by whom victories are obtained. And I scruple not to say, that their country has been more benefited by their labours, than by the greatest victory that was ever atchieved! It has been wisely said, that the fatherly care of a commander is the *Seaman's best Physician*. To know, therefore, how most usefully to direct his benevolent and humane disposition, the works of these respectable men should occupy the first place in the library of every Captain of a man of war; for a careful perusal of them, will teach him the way to render healthy, comfortable, and happy, the men over whom he is appointed to command, who are entitled to kindness in return for obedience, and who look up to him as their guardian and protector.

A P P E N D I X.

THE TREATMENT OF RECENT VENEREAL INFECTION.

ADDRESSED TO OFFICERS.

IT is not the intention of the present address, to make every man his own physician : that, the author well knows, is equally hazardous and impracticable. This is a matter, however, from its peculiar nature, on which young men sometimes read books ; and Officers of our Navy do it as well as others. But the reading of books on the Venereal Disease, as I have frequently seen, has not been from curiosity alone ; there has been a desire to think and act for themselves ; and we often hear people who have not made physic their study, giving their directions on the method of prevention and cure, in a tone of confidence and authority, that bespoke a long acquaintance with the subject. To persons of this description, a little seasonable advice may be useful. I am
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the more inclined to do this, as many officers of the service, have been accustomed to treat themselves, in the early stage of the complaint, according to my directions; by which means they believed that their constitutions were saved from the ravages of a dangerous disease, by a very short confinement and pain.—If there was any more urgent motive for my treating the subject in this manner, it would be gratitude for a thousand tokens of friendship, that no distance of time or place will ever obliterate from my memory.

It has fallen to my lot, to see the Venereal Disease in as great a variety of cases, and among persons of very different descriptions, as has usually come to the share of most physicians and surgeons. I also think, as a navy surgeon, I have had some advantages over gentlemen who practise on shore, and who have not their patients so much under their eye, as we have in ships.

It would be well if a safe method of treating the Recent Venereal Infection, could even be extended to the seamen: for although the abolition of the fine, for the cure, has done much in making them discover their complaints early, yet we have known a degree of modesty in some of them, independent of other considerations, prevent them from applying to the surgeon, lest their names should be handed in the sick list to the Captain. We are now told that the sale of mercurial preparations

parations in the apothecaries shops in Portsmouth, and elsewhere, has diminished in an uncommon degree, since government remunerated the surgeon for the cure; and may we not suppose that many valuable lives will be saved in consequence. I have frequently known seamen enter on board a man of war, for no other reason but the cure of the Venereal Disease, which they were not able to pay for, on shore; and if that was the case formerly, how much more encouragement does it hold out now, when they are cured for nothing. We may therefore consider it, not only as one of the most humane and just alterations which could be devised, but as one of the most popular measures which the Admiralty could adopt. The herd of quacks and itinerant practitioners who frequented the sea-ports, and preyed on the credulity of our men, have also taken their departure from the failure of business. It was a grievous reflection to think that a sailor often paid so high as five guineas for medicines, while the disease, in the mean time, was gaining ground, and for which he was obliged at last to go to an hospital. But there is another advantage, no less humane, derived from the change that has lately taken place: the poor women who associate with our seamen, who were often known to perish in the lowest sink of human misery, from an incurable distemper, are said, at present, to be little afflicted

afflicted with the complaint, compared with former times.

The history of this singular disease, has exercised the pens of many ingenious physicians ; yet it has not been satisfactorily proved, that the infection was imported by the followers of Columbus, in his first voyage to America : on the contrary, its trans-atlantic origin is much doubted, and the idea that it was known before the siege of Naples, begins now to meet with general support.

We agree with those physicians who distinguish two diseases, which were formerly considered as one. This opinion was first held by Dr. Duncan, a professor of the institutes of medicine, in the College of Edinburgh, published in the Report of his clinical practice, in the Public Dispensary of that city. It has since that time received additional support from Mr. Bell's Treatise on the Venereal Disease ; but who takes no notice of the original author, or the arguments he had used in favour of his doctrine. I shall therefore consider Gonorrhœa, with a train of symptoms peculiar to itself, as a primary disease, and incapable of producing the Confirmed Pox : the Lues, I also think, never produces Gonorrhœa. Long and attentive observation enables me to draw these conclusions ; but it would be foreign from the present purpose, to state the facts from my own experience, or that of others.—I shall first treat of Gonorrhœa.

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This name was given to the disease in the rude ages of anatomy, when the nature of the discharge, and the parts where it arose were not accurately known. But it is sufficiently ascertained at this day, that the running from the urethra, is only an increase of the mucus of the parts, which becomes altered in quantity, colour, and consistence, during the inflammation of the membrane and glands which secrete it. We are therefore fully assured by dissections, the best authority, that the discharge is such as we have mentioned; nor does it come from excoriations or ulcers, which might also be suspected, were we not convinced of the contrary.

This complaint is one of those, which have given full scope to the ingenuity of imposture and empiricism, to profit by the afflictions of mankind; hence hand-bills and news-papers teem with the accounts of wonderful cures, and *certain* prevention against the malady. We are not surprised to see the credulous and ignorant, become the dupes of these tricks and deceptions; but it must afford matter of astonishment, if not regret to some, that there is a body of physicians, vested with the exclusive privilege of preventing these depredations on the health of his Majesty's subjects, who seem to have forgot that a late order in council, renewed the delegated power; to be seen in the last editions of the *Pharmacopœia Londinensis*. If any thing can prevent venereal

nereal virus from taking effect, it must be immediate ablution of the parts ; I apprehend nothing surpasse the finer soaps, and common water, which ought to be continued for some time, and repeated morning and evening.

After impure connection, when infection has been received, it commonly appears in the following manner: a kind of tickling is felt about the end of the urethra, which at first may be called, rather a pleasurable sensation, than one of pain ; but it soon creates uneasiness, particularly after the last drops of urine are made ; with this appears an increase of mucus, which is of a whiter colour, and thicker than natural ; the mouth of the urethra is of a redder complexion, is also wider, and somewhat swelled in the edges. A vermicular motion, at this time, is often perceived in the testicles, and accompanied with desire.

There is no fixing the precise period for the commencement of these symptoms ; nor does their early or later appearance always presage a milder or more violent disease. They sometimes shew themselves in a few hours ; most generally in two or three days ; and we have repeatedly known them so late as ten weeks.

These symptoms of venereal infection are occasioned by some particles of the virus having come in contact with the lips of the urethra, during their state of distension, and when they were rendered

rendered exquisitely sensible by the influx of blood. When the penis is in its collapsed state, it is probable that so small a quantity would be unable to produce the effect: the poison first affects those very nicely sensitive nerves, and the inflammation of the inner membrane, and other parts, is from sympathy. There is no such thing as a fermentation taking place from the venereal matter, by which it assimilates every thing to its nature; its first action is on the nerves; and which, like a species of generation, communicates a peculiar power to the glands, by which means they generate, and pour out a matter exactly resembling the one which gave the original impulse; and like it, this matter is endowed with the property of spreading the disease. Now it requires some space of time for the poison to be in contact with the mouth of the sensible urethra, before it is sufficiently impressed to receive the disease: if, therefore, the matter which conveys the infection should be washed off, by soap and water, before the impression is finished, you will escape the complaint; and this is the whole secret of prevention.

The whole train of symptoms that follow in Gonorrhœa, are either directly from the inflammation of the parts, or its effects. The inner membrane of the urethra is more or less inflamed: certain little glands situated there, which pour out
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a mucus for defending it against the acrimony of the urine, partake also of the inflammation, and this so changes their disposition, that their secretion becomes the vehicle of the infection.

Now such is the effect of inflammation here, as in all other parts, that the sensibility of the membrane of the urethra becomes greater than usual. This gives what is called the *heat of urine*; which is felt when the urine passes over the tender surface. The pain will also be greater when the urine is small in quantity, or when long retained in the bladder; because its more watery parts have been absorbed, and therefore, the remainder is loaded with certain salts, which render it more acrid. The pain in making water is also greatest, when the last drops come away; this proceeds from a greater contraction in the fibres being wanted to expel a few drops, than what is required for a full stream.

The heat and redness of the neighbouring parts, with some swelling, are owing to the greater influx of blood, because the pulsations of the arteries are increased; they contract more often, and drive a greater quantity of the vital fluid through their cavities, in a given time; hence erections in some stages of the Disease become so frequent and painful.—This is a strong argument for avoiding all lascivious ideas, as they have the effect of increasing the flow of blood to parts that

ought to be kept collapsed and cool, which is a most effectual means for subduing the inflammation.

When the train of symptoms which we have described above, make their appearance, they afford an opportunity for cutting the disease short, and preventing much pain, otherwise unavoidable. This may be accomplished by the following means :

If the patient is of a full habit, strong or robust constitution, he must immediately submit to the following regimen: He is to avoid walking, riding, and all kinds of exercise; the parts must be carefully washed every morning and evening in cold water, with castile soap: abstinence from all spiritous and fermented liquors is to be strictly adhered to; and animal food of whatever kind is forbid. Weak broth, small-beer, water-guel, tea or coffee, and bread without butter, milk, sago, light pudding, and such like fare, are to form the diet. A gentle dose of physic will be necessary: boil four drams *avoirdupois* of senna, in a half pint of water, then add an ounce of tamarinds; let them stand a-while, then strain off the decoction, and drink the whole in three hours. If the patient is of a weaker habit of body, there will be little variation needed from a diet of temperance*.

* When the inflammation increases to a great degree in a short space, bleeding is indispensable.

By way of medicine, take half a dram of arabic gum, in a half pint of pure water, every hour or two. The intention of this is to dilute the urine: I have told you above, that the urethra, from its inflamed state, was become exquisitely sensible: there are certain salts in the urine, which render it more acrid when little drink is taken, and in being voided over the tender and inflamed passage, it gives a sense of heat, which is called *the scalding of the water*. It so happens, when a large quantity of diluting drink, such as gruel or barley water, is taken, that these salts are diffused in a larger proportion of fluid, and thus pass over the inflamed membrane with less pain.

Along with the regimen and diluting drink, the following injections for the urethra, are to be used immediately on the appearance of the running. The syringe ought to contain three drams or a half ounce, made of pewter, with a conical point, so as to fill the mouth of the urethra exactly. This being filled with one of the injections mentioned in the margin, it must be gently introduced into the urethra, and while you hold it steady at the point, and close the lips upon it with one hand, with the other you throw the injection into the passage: the syringe is now to be withdrawn, and the fluid to be held in for three or four minutes.

This injection is to be repeated every time you make water, and as soon as that is done, before any accumulation of mucus fills the passage. By drinking the gum solution in due quantity, you will be able to inject so often as eight or ten times in the day, for the first day or two. The slightest pain should be perceived in throwing up the injection; and for this reason, I have given three of each kind, which differ in the quantity of metallic salt to each. The weaker ought to be tried first, and the stronger ones in succession: there is also, sometimes, advantage in changing the one of sugar of lead for that of white vitriol, and the contrary *.

I have

• I N J E C T I O N S.

1. Take of sugar of lead twelve grains, pure spring water half a pint; mix them.
2. Take of sugar of lead sixteen grains, pure water half a pint; mix them.
3. Take of sugar of lead twenty four grains, pure water half a pint; mix them.
4. Take of white vitriol twelve grains, pure water half a pint; mix them.
5. Take of white vitriol sixteen grains, pure water half a pint; mix them.
6. Take of white vitriol twenty grains, pure water half a pint; mix them.

N. B. More of the salts, or more water may be added, if it is found necessary to make either of them stronger or weaker.

I have often known a smart discharge attended with considerable pain in making water, carried off by this plan in the space of twelve hours. The injection must nevertheless be continued for some days after the running has disappeared, although there will be no necessity for throwing it in so often: the manner of living must also be regular, according to the directions given above, otherwise there can be no chance of a speedy cure. The first favourable sign will be the mucus becoming more thick and ropy. A swelled testicle, or any untoward symptom, has never occurred in my hands from this method; nor did I ever see it fail in producing a cure, if duly persisted in under the limitations prescribed. Gentlemen who are willing to adhere rigidly to the regimen and method laid down, will soon be convinced that there is no quackery in the proposal; the process is simple and intelligible, and the whole apparatus is portable. But at the same time it ought to be remembered, that nothing is proof against intemperance and indiscretion.

This treatment will also apply to the more advanced stages of Gonorrhœa; but it is to the recent infection alone, and the early symptoms, that

I would wish you to confine yourselves *. I will now direct you how to treat incipient

CHANCRES.

THE Chancre is a Venereal Ulcer; it sometimes begins like a pimple with a white top, which breaks and spreads. At other times it appears at first merely an excoriation, as if the skin

* A friend of mine, a wealthy merchant in London, after spending the evening at a tavern in the west end of the town, with some companions, and having drank heartily, was imprudent enough to have connection with a woman of the town, by whom he was infected with gonorrhœa. He was a married man, and injured his wife before he was aware of his complaint.—In order to conceal the business, he avoided making it known to the family apothecary, but consulted one of those specious practitioners, with which the metropolis abounds. He took much medicine, and gave large fees to his doctor, without being at all benefited, for six weeks, when he became low spirited and melancholy. At this time he happened to see in the newspaper my appointment to Haslar Hospital. He immediately set out to consult me. His looks and appearance alarmed me much, and I suspected that his fortune, by some mischance, was ruined. He shortly told me his tale, as I have related it, and I comforted him with the hopes of a speedy cure. He used the injections as I have described to you; the disease disappeared on the second day; I ordered him to continue it a week or ten days longer; and he carried with him the

skin was fretted, which soon gets deeper and wider, and never looks equal or clean on its surface. They occur most frequently on the inside of the prepuce, particularly where it joins the glans ; but occasionally also on the glans itself, and some smarting pain generally leads to the discovery. This symptom always precedes the Bubo and Confirmed Pox ; at least I have never known either without it ; although some authors tell us of the poison getting into the habit without previous ulceration. Chancres sometimes are so small and so indolent, as to give no pain ; and I have often been consulted for a Bubo, without the patient having observed any sore, till the parts were examined by myself. I have also known a small Ulcer heal up in a week, without giving any uneasiness, or having been treated as such ; and the patient was led to think that a beginning Bubo was the first symptom of the disease. On the whole, the result of my own experience is, that neither Bubo, or Lues, can be produced without preceding ulceration

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the same for his wife ; and from that time their domestic happiness was restored. The gentleman told me since, that he had fixed his mind on either a pistol or poison, before he applied to me, as his only relief from trouble unsupportable. I do not mention this as an instance of a quick cure, because such are daily performed by others ; but it shows to what chicanery the peace of a family may be occasionally sacrificed ; and it ought to be a beacon for others.

ceration in the genitals, or other parts that have been in contact with the venereal virus.

The *Chancre* is therefore a local symptom ; and if healed up in due time, will not affect the constitution. The venereal matter is secreted by these sores, it is taken up by a certain kind of vessels, which from their office are called absorbents, and by them it is carried to the glands of the groin, where it produces Buboes ; or into the body, where it produces the dreadful train of symptoms which constitute the Lues Venerea. Now, you see from this description, that the safety of the constitution depends upon the early treatment of a Chancre ; when this is neglected, the horrors are uncalculable that must follow : I have seen eight or ten people within the last month, who are suffering pains and mutilations, not to be described, from having fallen into bad hands, and permitted the Chancres to spread. We cannot say to a certainty how long a venereal ulcer on the glans or prepuce, may remain open without endangering the absorption of the poison ; but I would not trust it beyond twenty-four hours, although we have seen them open for months, and nothing bad follow. We can, however, pronounce it as a fact, that by watching the most early sign, after a suspicious connection, that the danger may be prevented effectually. The parts are to be kept clean, by ablution, as directed above ;

above: if any pimples are observed, they are to be broke immediately, and wiped dry; their whole surface is then to be rubbed with vitriol of copper, or blue vitriol, as it is called, till the spot becomes blue like the vitriol: if there are any excoriations, let them also be rubbed over, and apply a little surgeon's lint, very thinly, over the whole. The lint may be renewed after the ab-lution, morning and evening, and the blue spots will fall off spontaneously in sloughs, and leave a clean ruddy surface beneath, which needs no ap-plication but the lint, as thin as it can be laid over, and the same attention to cleanliness. If, however, the surface of the sore should lose its ruddy appearance, and not close quickly after the separation of the slough, the vitriol may be re-newed; but this will seldom be needed. There is sometimes a necessity of touching eight or ten little sores in this manner; a trifling inflammation follows, but never such as to give alarm. It will therefore be proper to follow the regimen directed in Gonorrhœa, as it will accelerate the cure.

It has long been the custom of destroying Chancres by caustic, as you will see in medical books; but the word itself, to persons not con-versant with the subject, implies a painful ope-ration. I have tried every kind, and I am now satisfied that the blue vitriol is the best. It is
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the nature of a venereal sore to be obstinate; the surface never looks clean, and it never shows granulations, or little sprouts of new flesh, which form the character of ulcers disposed to close and heal: we therefore employ a caustic, which destroys their surface altogether to a certain depth; this is gradually separated from the sound flesh below, and a new sore is formed, that has nothing venereal in its nature, and which heals in thirty-six hours, if not large. If, therefore, you carefully watch the first appearance of infection, as I have directed, you will certainly secure your constitution; the surface of the Chancre being small, it is likewise superficial.

If the Chancre is of some days standing, we cannot answer for the safety of the constitution; but even in that case, I would recommend the same treatment. It is always necessary to check their spreading, which is sometimes inconceivably rapid. Some authors, of great note, say, that in this situation, the caustic hastens the absorption; but our experience does by no means justify this conclusion: even if it were so, it could be no argument against the speedy cure; for while it remains open, it must generate venereal matter, which is every moment in danger of being carried into the blood. I would therefore advise the application of the blue vitriol to every Chancre, and
consult

consult with some physician or surgeon, on the propriety of using mercury for the security of the constitution.

A solution of blue vitriol, is often useful in the case of fores, between the prepuce and glans, when the skin, from inflammation or stricture, cannot be drawn back. Two grains will be strong enough for an ounce of water; it may be thrown between the skin and glans with a syringe, morning and evening, and care must be taken it does not get into the urethra. These fores are known to be present, by the pain occasioned by squeezing the glans, or moving the prepuce, and also, by the matter flowing from between these parts.

C A S E

O F

AMPUTATION AT THE SHOULDER,

In a wounded French Officer,

*Performed at Sea by Mr. BURD, Surgeon of His Majesty's
Ship NIGER.*

April 26th. **L**AST night, Jean Moerieton, a French officer, apparently a healthy vigorous man, about twenty-four years of age, was brought on board here, having received a wound with a musquet ball in the right shoulder. Upon examination, I found the ball had entered at the deltoid muscle, about two inches above its insertion, and passed out at the superior part of the scapula. I dilated the anterior wound, and readily discovered the neck of the os humeri to be fractured, and much splintered. I also was enabled to feel, with the first
finger

finger of my right hand, introduced at the wound, that its head was shattered into two or more pieces; a fracture of the scapula, where the ball passed out, was very evident; the clavicle was thrown so much upwards, as totally to prevent my being able to distinguish the first rib above it. Having ascertained the nature of the wound, I considered the operation as indispensable, but at the same time resolved to defer it till the first inflammation should subside, and then perform it; therefore nothing more was done the first night, than to cleanse the wounds, apply light dressings, and a proper bandage. An anodyne was given him, which procured a tolerable night. On inspection this morning, the anterior wound was found to have bled considerably; the dressings were removed, but no artery could be discovered, to be secured. The wound was now dressed again as last night, and as there was a great deal of tension about the parts, a cataplasim was applied.—
Repet. haust. anodyn. h. f.

May 1st. Has had tolerable rest these four nights past, with the use of anodynes; p. little quickened; b. bound; eats sago for dinner, with a little wine in it.—Bib. aq. hord. Wounds are dressed daily; have a very irregular lacerated appearance, and discharge copiously a highly
fœtid

fœtid pus, of pretty good consistence.—Cont. cataplasim.

May 3d. As the inflammation was nearly, if not entirely gone, and a very copious discharge of pus continued, by which the patient was much debilitated, at the same time the weather so moderate, that the ship could be kept pretty steady, I determined to perform the operation to-day. When he was placed upon the table, which was in the gun-room, I endeavoured to make compression on the artery as it passes over the first rib, but without success; for not only the clavicle's being thrown upwards, but also some degree of tension, prevented its being effected, except very partially. I now attempted to make the compression in the axilla, but the head of the humerus being so much shattered, yielded to the least pressure; finding both fail, I felt myself very unpleasantly situated; but without the operation's being performed, it was evident that death was the certain consequence to the patient; therefore resolved to give him the chance.

Having every thing prepared, I appointed a French surgeon (who was surgeon of the vessel the patient was wounded in) to make what compression he could upon the artery above the clavicle, which, as mentioned before, was only partial. Mr. Brown,
surgeon's

surgeon's mate of the Niger, stood at hand, to give me the necessary instruments, apply ligatures, &c. The arm was now stretched out, and supported at nearly a right angle with the body, the shoulder projecting over the side of the table. A circular incision was now made through the skin and cellular substance, about the insertion of the deltoid muscle, into the humerus, before proceeding further, any divided blood-vessels were secured. The teguments retracted about three quarters of an inch. At the edge of the retracted teguments, on the inner and under parts of the arm, I applied the knife, and divided the muscles down to the bone, all round, except a portion in which the humeral artery was included: any large blood-vessels that were divided by this incision were secured. In the undivided portion of muscle, I distinctly felt the pulsation of the artery; upon which I placed the thumb of my left hand, and then finished the division of the muscles down to the bone: upon the artery being divided, a prodigious flow of blood followed. (Had the French surgeon been of much service, he now forsook me, and removed the little compression he was making.) I was very soon enabled to pass a ligature round it, and secured it, fortunately without the loss of so much blood as might have been expected,

expected, when we consider the size of the vessel, its vicinity to the heart, and almost a total want of compression, for my thumb effected only a partial one; as it was secured with the needle, the nerve was inevitably included in the ligature. (During the whole of the operation, Mr. Brown gave me very great assistance, but particularly at this part of it.) I now secured every blood vessel; for even the smallest bled freely, after the larger were secured. With a strong round-edged scalpel, I made a perpendicular incision down to the bone, beginning at the lower part of the wound (which I had dilated upwards the first night he came on board) and terminating in the circular incision, about an inch and a half on the outside of the humeral artery, the bleeding vessels were immediately secured. Finding the deltoid muscle was in a gangrenous state, I made the upper flap about one third smaller than the lower, and proceeded to separate the flaps from the os humeri; which being effected, the arm came away, not leaving half an inch of the humerus attached to its head. I now saw that the head of the humerus was shivered into various pieces of different sizes. After cutting the capsular ligament all round, it was, with some difficulty, I removed the first piece; the others came away easily, accompanied

with a part of the glenoid cavity. I found two pieces of the scapula detached, which were dissected out; one of them was the greatest part of the spine: the removal of all these, together with the gangrened flesh, protracted the operation to a great length of time, which the patient bore with astonishing fortitude. In the course of the operation, eight or ten vessels were secured, some with the needle, others with the tenaculum. After cleansing the surface of the flaps, and applying a second ligature upon the humeral artery, about one quarter of an inch above the first, they were brought in contact, and adhesive straps applied to retain them together, leaving an aperture in the most depending part, sufficient to discharge the remaining very small pieces of bone, which could not be removed by the knife. After the straps, pledgets of cerate, or lint, were applied, and a compress of lint and tow, with a flannel roller over all.—An anodyne of tinct. opii. gr. 40. was given immediately, and repeated at bed-time.

May 5th. The posterior wound was dressed to-day; discharge copious; the patient complains of almost constant nausea; he has also some spasmodic affections, frequently; no stool since the operation; in the afternoon he complained of pain in the lower belly, and inability to pass urine,

with frequent tendency: the pulse quickened; skin hot; great thirst; with some head-ach.—Warm fomentations were applied to the belly, and he soon passed his urine freely.—Hab. Enem. Commun.—A saline draught was given him every second or third hour, and an anodyne at night.—Dressings have not yet been removed from the stump.

May 7th. Soon after the operation of the injection, most of the unfavourable symptoms were considerably relieved; and, by continuing the saline mixture, went intirely off. This morning there was a recurrence of the pyrexial symptoms. I removed the dressings from the stump, and put fresh applications in their place; soon after which the febrile symptoms subsided. The flaps were found to have adhered no where; their surface have a very sloughy appearance. Adhesive straps we applied to the superior part of the flaps, so as to keep them slightly in contact: the inferior part was lightly dressed. As suppuration had already begun to take place, over all a compress of flannel roller was applied. The posterior wound looks well, and discharges a laudable pus; it is dressed daily. Sago, with a little wine, is given him for dinner: drinks water, with a small quantity of Oporto wine in it.—Omitt. Haust. Anodyn.

May 9th,

May 9th. About an inch and a half of the lower part of the upper flap is in a gangrenous state; discharge very copious; extremely foetid, but of pretty good consistence; p. calm and weak; skin moist; b. rather costive; rests but indifferently without an anodyne. Repet. Haust. Anodyn. h. f. ut antea. Eats a little mutton for dinner; and in the course of twenty-four hours drinks nearly a bottle of Oporto wine, in water: he is dressed now twice a day.

May 11th. Discharge continues very great and foetid; p. regular; several of the ligatures have fallen off; his diet and drink, as mentioned last report, continued. Omitt. Haust. Anodyn.

May 14th. Part of the superior flap, that was in a gangrened state, fell off to-day: the lower flap looks extremely well, and granulates kindly; discharge continues copious; all the ligatures, except that of the humeral artery, have been removed. The patient has great spirits; general health good; and sleeps very well, without the use of an anodyne.

May 16th. Granulations are shooting out from every part of both flaps; discharges a well digested pus, not so profuse, and little foetor. This morning I accompanied him to Ferton Hospital, where

484 CASE OF AMPUTATION, &c.

where he was left under the care of Mr. David Patterfon, furgeon there.

Aug. 17th. He was discharged perfectly well, and returned to France.

WILLIAM BURD.

Niger, October 14, 1796.

P O S T S C R I P T.

Now that my labours are, for the present, brought to a conclusion, I cannot let them escape from my hands without emotions of a particular kind. I stand in a predicament, different from all authors which have preceded me in the same line; for I am doomed to remain on the Spot of Action. If a fallacious statement of occurrences has been pursued, it will be quickly exposed. As I have on all subjects thought for myself; so the freedom of opinion will be retorted: and as some innovations have taken place, I must expect that they will be examined with suspicion, and criticised with distrust. While the approbation of the world is an ingredient in the happiness of an individual, it is in vain to oppose to these, purity of intention, or rectitude of conduct. Hence my reflections must be checquered with hopes and fears, or clouded by misconstruction and disappointment.

It will continue to be my task, to improve this Work, as future experience may supply materials,
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and to correct what may be found exceptionable; I shall therefore receive with gratitude every communication, which the Surgeons of the Navy may think me worthy.

To the younger Members of the Profession in the Navy, I have a short advice to offer. As study and diligence lead to preferment in every department of life, so in our line, they have their rewards. We fill a most important station in the service of our Country; nay of much more importance than we can expect credit for, because many of our best actions must sleep with ourselves, as medical abilities are not to be appreciated by common observers. Yet this very circumstance is a stimulus to exertion; for it keeps alive the spirit of perseverance, from the hope that merit will at last be discerned, and meet with success. Changes have lately happened in the medical department, that have multiplied the posts of honour; and from the abilities that now manage the administration of science, over us, the ingenious and active student cannot fail to be distinguished and known. But as the Board of Physicians will applaud and protect talents and worth, they have it in their power to detect and chastise ignorance and sloth. Of this you must seriously reflect; for to incur displeasure, is little short

short of loss of reputation. Our defections of duty carry with them a higher degree of reprehension, than are prefixed to some other employments; because not only the lives of individuals are intrusted to our care, but the health of a Fleet, on which the safety of Great Britain may depend, may devolve upon us. This was really the case, during the extensive Contagion, spread from the French prisoners, and during the general Scurvy, in the spring and summer of 1795. As our defects, therefore, are not always known, so our faults cannot always be concealed.

I cannot help congratulating the service on the arrangements and appointments that have taken place at the hospitals. They promise to hand down to posterity, that spirit of improvement which is essential to public welfare: Thus end the Naval Occurrences of 1796.

F I N I S.