

**Some account of the diseases that prevailed in two voyages to the East Indies, in the Carnatic East-Indiaman, during the years 1793, 1794, 1795, 1796, 1797 & 1798 ; together with observations and medical remarks in a series of letters to John Hunter / By John Milne, formerly surgeon of the Carnatic, now surgeon on the Bombay Establishment.**

**Contributors**

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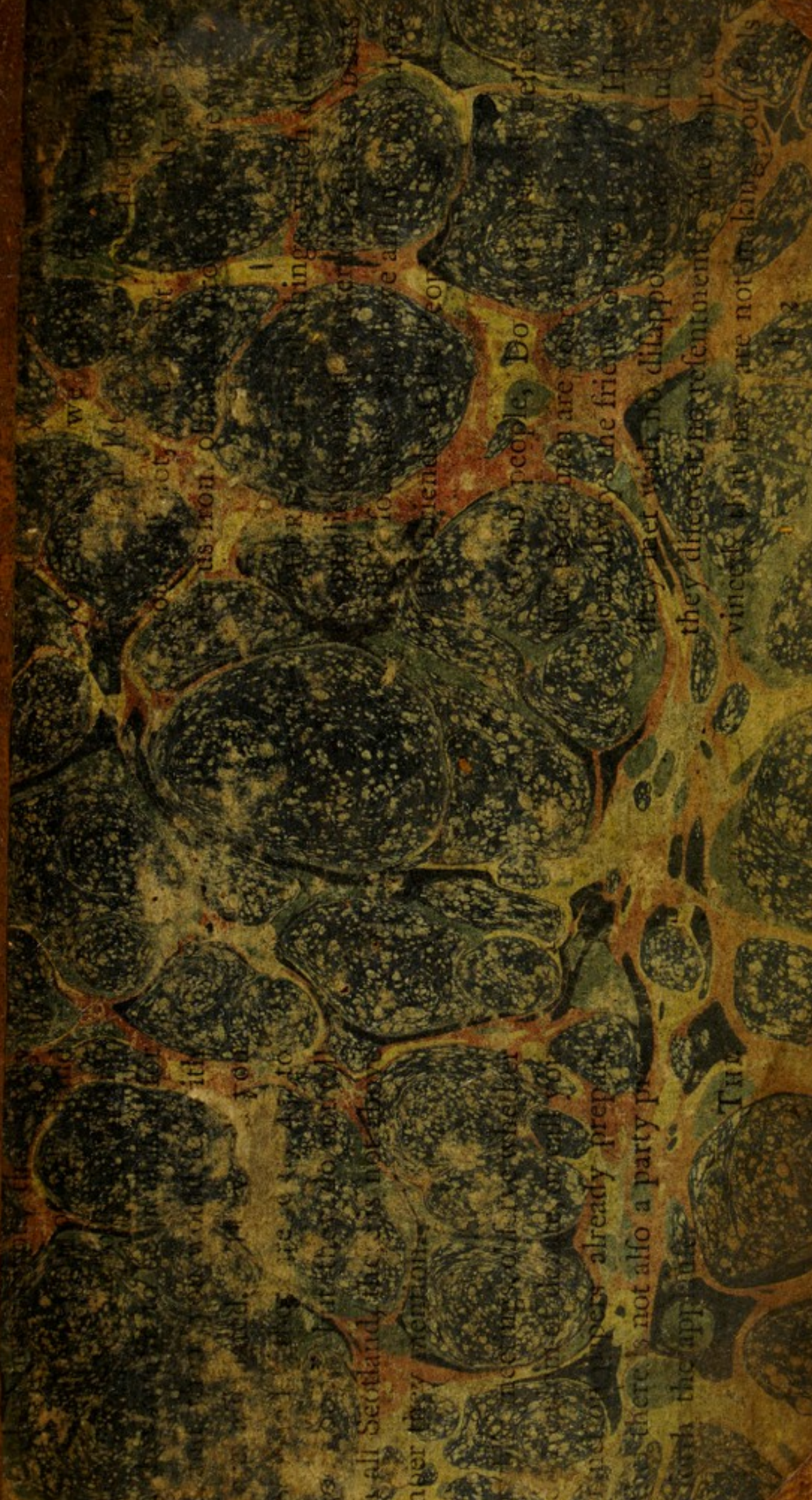
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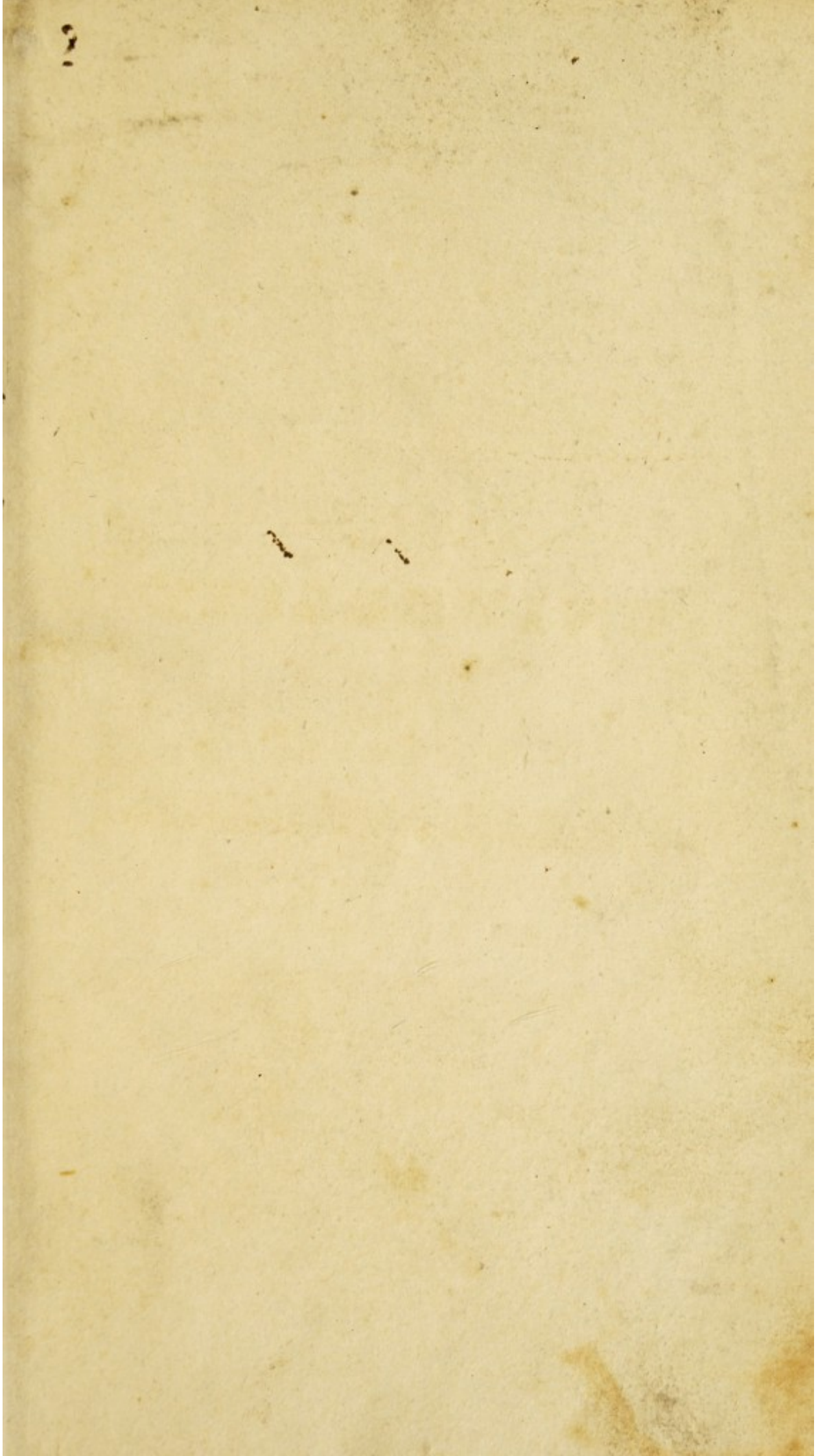


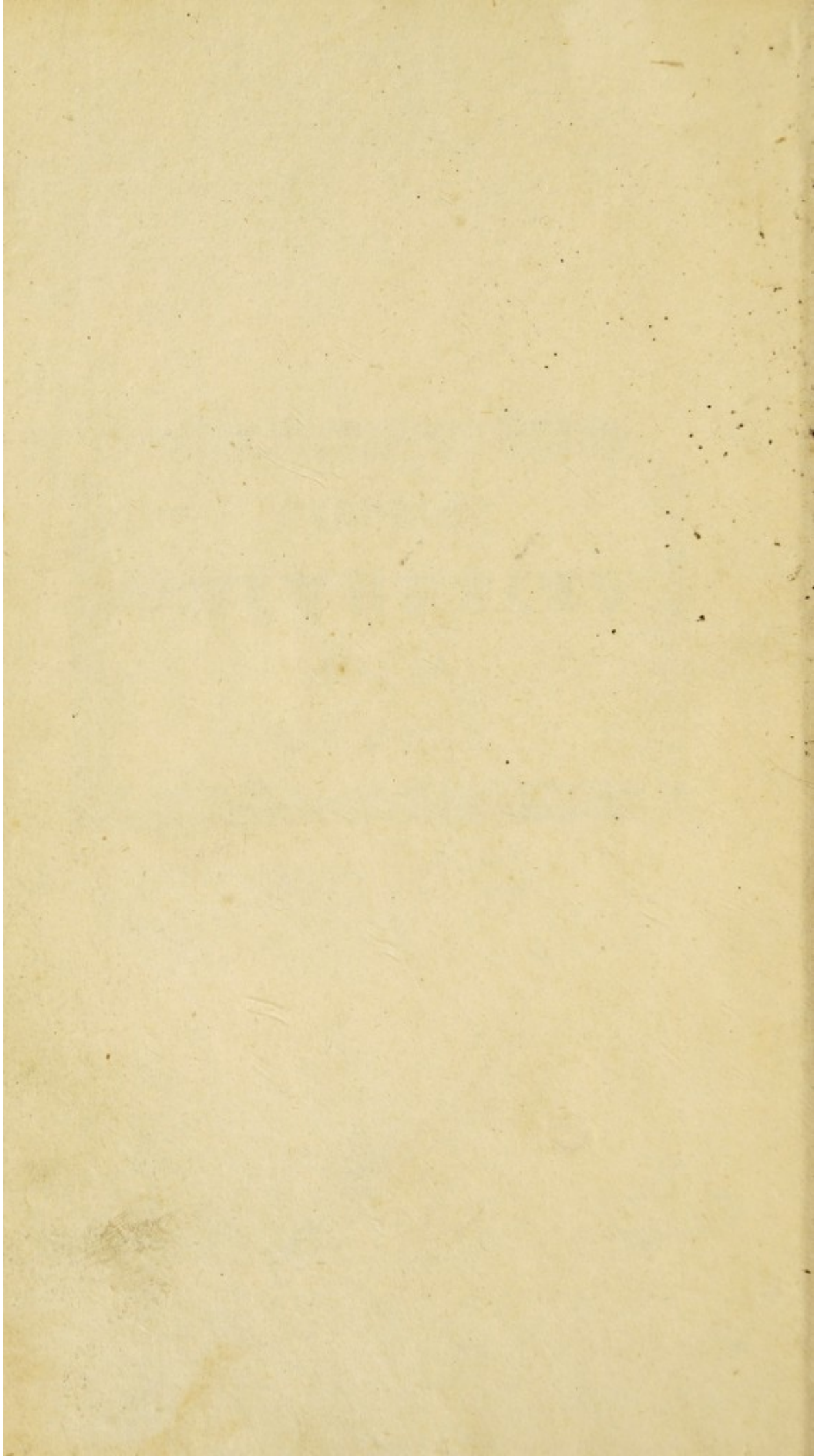
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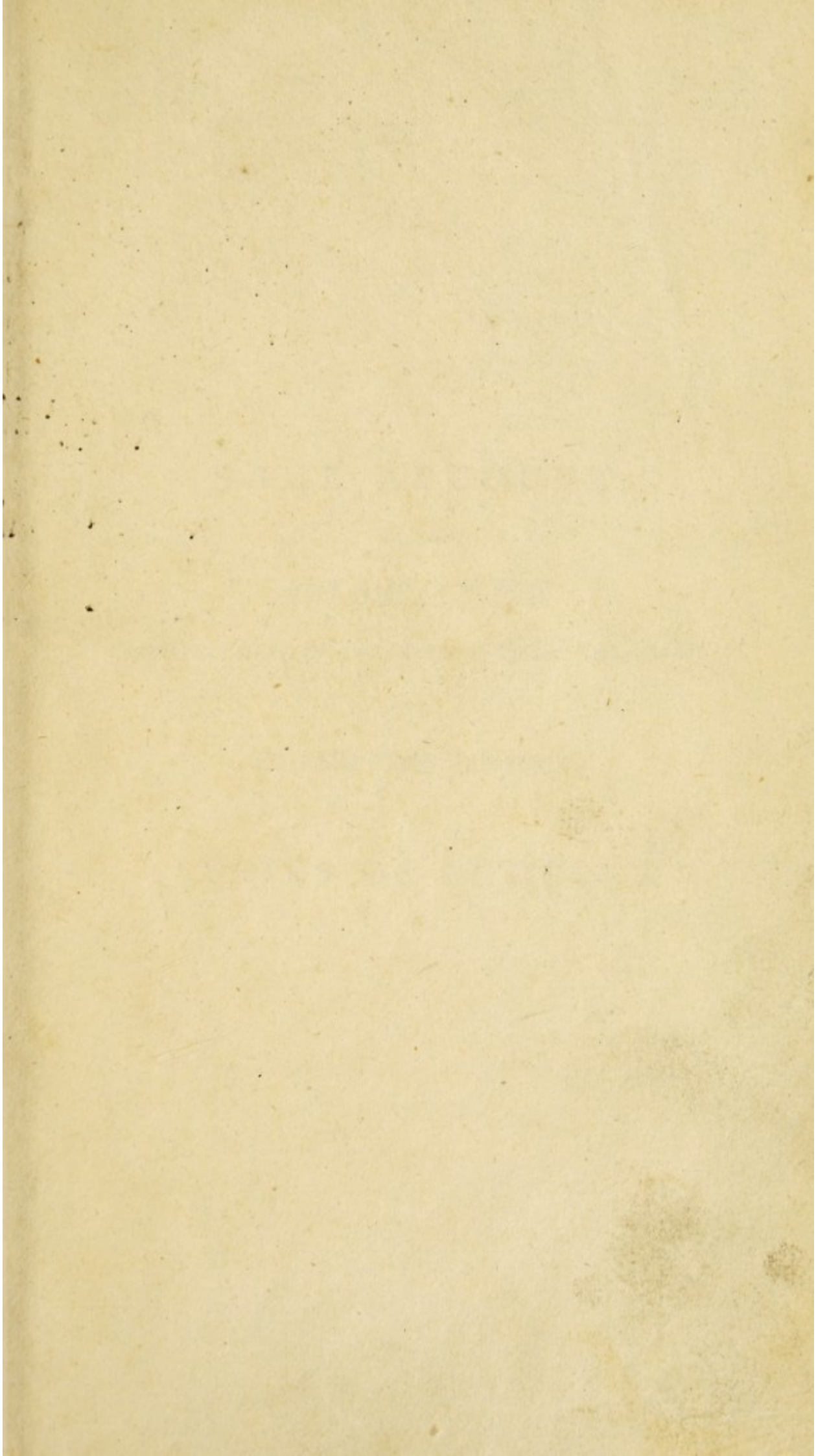
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SOME ACCOUNT

OF THE

*DISEASES*

THAT PREVAILED IN TWO VOYAGES TO THE EAST-INDIES

IN THE

*Carnatic East-Indiaman,*

IN A

SERIES OF LETTERS.



SOME ACCOUNT

OF THE

DISSEMINATION

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THAT PREVAILED IN TWO VOYAGES TO THE EAST INDIES,

IN THE

*Carnatic East-Indiaman,*

DURING THE YEARS

1793, 1794, 1795, 1796, 1797, & 1798;

TOGETHER WITH

OBSERVATIONS AND MEDICAL REMARKS,

IN A SERIES OF

*LETTERS*

TO

JOHN HUNTER, M.D. F.R.S.

BY

*JOHN MILNE,*

FORMERLY SURGEON OF THE CARNATIC, NOW SURGEON  
ON THE BOMBAY ESTABLISHMENT.



“ Nothing extenuate,  
“ Nor set down aught in Malice.” *Shakesp.*

“ Si quid novisti rectius istis,  
“ Candidus imperti; si non, his utere mecum.” *Jlorace*

London;

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Crown-Court, Soho.

1803.

BOOK NO. 100

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OBSEVATIONS AND MEDICAL REMARKS

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ADVERTISEMENT.

THE following Letters are written, and published from the best of motives, a desire to afford useful information to such as may be in situations similar to those in which the author has been, that is, to the surgeons and surgeons-mates of the ships belonging to the East-India Company. There are many thousand sailors in the daily employ of the East-India Company; the recruits sent to the army in India, and Passengers, on board their ships are often more in number than the seamen; and the voyage is one of

the longest that is undertaken from this country; whatever, therefore, in such circumstances, can contribute to the preservation of the health and lives of our fellow creatures, must deserve our serious attention. The abilities, zeal, and diligence, which mark the authors conduct upon every occurrence that affected the health of those committed to his care, cannot fail to furnish most valuable instruction, and set an example that well deserves to be followed.

Had the author been in England to have superintended the publication of these letters, it is probable there are a few things advanced in them which he would have chosen to express in terms somewhat more qualified; considering that his experience, though large in some diseases, is limited in others. But it was not

thought necessary to alter the manuscript on this account, because the extent of the experience upon which he founds his medical opinions is every where obvious.

Some apology may, perhaps, be deemed necessary for the freedom with which he has exposed the errors of others; to such as shall think this requisite, no better excuse can be offered than, that he has every where animadverted upon the mistakes committed by himself, with even less reserve than upon the errors of others.

LONDON,

MARCH 14, 1803.

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LONDON  
March 15, 1792.

## LETTER I.

*Account of Diseases prevalent in the first  
Voyage.*



SIR,

I HAVE been induced from several considerations to record the following circumstances, which from being a party not the least engaged, have in a very forcible degree impressed my mind. I conceive, in doing this, that I may be useful to a very valuable part of the community, whose sufferings and meritorious conduct require that every means should be employed for their relief, and to render them as comfortable as the nature of their situation will admit: and I shall be happy if in this instance I should in any degree contribute towards such an important purpose.

In endeavouring to state the occurrences with candour which are here related, I have,



consistent with the object of your inquiry, not attempted to excuse any part of my own, nor the conduct of any one who may be occasionally taken notice of, as it is by those means only that the various scenes of like distress are in future to be palliated.

I have taken the liberty of addressing this paper (narrative I may rather call it) to you, as the situation which you fill is more immediately connected with the department that hath given rise to the subject of the detail, and, moreover, from the very high opinion which I have been led to entertain of your humanity, and exertions to promote the general welfare.

Towards the latter end of the year 1793, upon my first becoming a candidate for a place of public trust, I was appointed surgeon's mate of the honourable Company's ship Carnatic.—The contracted state of my finances obliged me almost immediately after my examination to join the ship, which lay at that time opposite to Gravesend. I found, notwithstanding it is unusual for any of the medical gentlemen who are appointed to the different ships to be ordered on board until the time of sailing, that my presence was very neces-

fary, and more wanted indeed than at many other periods of the voyage. There was, it is true, a gentleman who occasionally visited the ships belonging to the Company during their stay there; but, with a fleet of eight or ten sail to look after, it is hardly possible that he could pay the necessary attention to all who might happen to be indisposed. During the month that I remained on board here, the ship was taking in her cargo, stores &c.; and the people were employed in several other laborious jobs, which exposed them not a little to many serious accidents: hurts, therefore, were frequent; and, from the usual effects of an inclement season and habits of drunkenness, many had slight attacks of fevers, peripneumonic and catarrhal affections. Amongst men also daily coming from the shore, and by the common practice of admitting women of the town on board, venereal complaints were very common—so that during this time I found sufficient employment.

About the middle of December the ship's company were paid there bounty and two months' advance; and immediately afterwards we sailed from Gravesend, having on board many poor wretches very ill calculated to go an India voyage. Before the ship left the

river, several men who had received their bounty and advance contrived to make their escape—a practice too common on board the company's ships, that many live entirely by that species of fraud. Nothing further occurred worthy of remark in this place, till the ship's arrival at Portsmouth, about the latter end of the month.

Before we left Gravesend, upon examining our medicine and drug chests, we found that many absolutely necessary articles which were indented for, had been neglected to be packed up, so that the surgeon was under the necessity of writing from hence to London, to request that the gentleman who had the care of providing our stock of medicines would supply this material deficiency. About a week afterwards they were sent, with an excuse for the oversight. We had not been long at Portsmouth before many of our people were seized with severe attacks of fever, supposed nervous, which carried off two men, and reduced three others to such a weak state, that they were, at their own request discharged, as were also some of those brought from Gravesend, who were now found totally unfit for the duty of a ship. The weather was at this time extremely cold, our

gun-deck was often washed, and our guns were always kept run out with half ports shipped, which were but very indifferently calculated to defend those people who slept upon the gun-deck from the inclemency of the season; and it now appears to me, that it was from these causes alone (intense cold and moisture) that the great degree of malignancy in those diseases originated; for none of the midshipmen, quarter-masters, or recruits (of the last to the number of forty), who slept on the orlop-deck, where they were warm and well sheltered, had the smallest indisposition: and further towards the latter end of March, when the weather began to get more mild, these complaints entirely disappeared, and I observed that they were chiefly men of rather a spare habit of body, who were consequently more liable to be acted upon by cold, and those indifferently provided with cloathing, who suffered in the greatest degree. Almost all who were taken ill were allowed to remain in their births upon the gun-deck. About this time a sick birth was erected on the larboard side of the ship; but I am now persuaded, although at the time it did not so forcibly occur to me, that it was placed in the worst part of the ship, considering the nature of the prevailing disease; a few, however,

in consequence of the intolerable noise around them during the day, of their own accord got their messmates to remove their hammocks to the orlop-deck, where they all did well, which induced them to sleep there during the remainder of the cold weather. I remarked, also, that the men who died, and those whose recovery, in consequence of their severe illness, was so tedious, all lay close forward on the larboard side of the ship. The reason which I assign for this part being more affected than any other, is, that, during the time of our having the greatest number on the sick list, the prevailing winds being from the S.W., the ship in swinging to this quarter rode head to the wind by her starboard cable, which necessarily brought the larboard-bow to be more exposed to the wind and occasional rain which fell. So intense was the cold at one time, and so powerful in the production of disease and its effects on those already sick, that one old man lost two of his toes, which mortified and dropped off during his illness. The gun-deck, after washing, was seldom dry in less than twenty-four hours; and from our galley being placed upon the upper deck, it could consequently in no respect contribute towards rendering it healthy, nor afford the least degree of warmth

to a place so much exposed. I must here again mention, that, soon after we got round to Portsmouth, several of our men found means to make their escape from the ship.

Upon the approach of more moderate weather, towards the latter end of March, those fevers which had been so prevalent entirely disappeared. The weather, however, became now somewhat irregular, being in the forenoon warm, and towards night rather cold and chilly. Some cases of erysipelas occurred at this time; and catarrhal complaints, in consequence of this disposition of the weather, became very frequent, almost all yielding to repeated emetics with an opiate at night.

About the beginning of May, at the time of our leaving England, the season was very mild and pleasant, and the ship's-crew were now in perfect health, excepting a few venereal complaints, which are always more or less common after leaving a port where women are to be procured. When we sailed, our ship's company amounted to one hundred and thirty-six men, and we had on board, besides those belonging to the ship, about forty-five passengers and military recruits for the establishment of Madras.

We enjoyed an uninterrupted state of good health until the ship reached the Cape of Good Hope, which we passed in the depth of winter. Here several men were again affected with slight feverish attacks, which, however, proved of little consequence. Our commander, ever studious to preserve to his utmost the health and comfort of his ship's company, now ordered a warm breakfast for the people, composed of flour boiled to the consistence of thick gruel, with the addition of molasses and spirits, which to men who have been for four hours upon a cold, and sometimes wet deck, is not only a very acceptable thing, but highly conducive to the preservation of health, strength and vigour, and probably on that account one of the best preventatives of scurvy, and what, under similar circumstances, I would recommend never to be neglected. About three weeks before we arrived in India, after having been at sea nearly three months and a half, symptoms of scurvy began to make their appearance. The recruits, who all slept upon the orlop-deck and had by this means escaped some severe attacks of fever on a former occasion, were those that now principally suffered from this disease. Two of them upon our arrival at Madras, on the 12th of September, were in a

very advanced stage of this complaint, notwithstanding the free use of spruce-beer, wine, and a fresh diet, which was allowed them from the captain's table. The one had been in the habit of getting very often drunk, was dirty, and ill clothed; and the other had formerly suffered much from the venereal disease, which had considerably debilitated his constitution. The phænomena of this maritime scourge in these two men were somewhat striking, but they were such as I have uniformly observed to take place. In the drunkard, livid and copper-coloured blotches, with œdematous swellings of his legs, contraction of the hamstrings, and bloated countenance, accompanied with spongy gums and fœtid breath, were the principal appearances. This man waited upon the midshipmen, from whom he got the liquor, and was often found lying upon the wet deck perfectly senseless: he never wore shoes nor stockings, and consequently suffered chiefly in his extremities from cold, where the scorbutic symptoms were the most apparent. The other had formerly been in good circumstances, was now therefore somewhat desponding from the nature of his situation, and seldom came upon deck.—The first marks of the disease discoverable in him were from a cut, the bleeding from



which was stopped with difficulty, and which afterwards put on every appearance of a true scorbutic ulcer, inducing me now to examine into his particular state and habit of body. I found his skin covered with petechiæ, and his ancles beginning to swell; his breath foetid; his gums slightly affected and bleeding when rubbed; and his countenance more than usually fallow. Thus we see in those two instances, that although the scorbutic diathesis existed in both to nearly the same degree, yet that it was modified by certain circumstances in the production of symptoms; and we shall in another place be able to point out, that many accompanying symptoms of this disease remain after the diathesis is completely removed. Of the men belonging to the ship who suffered most, one was a very old seaman, almost worn out in the service; and the other a man who, from being a good deal employed as a taylor, led rather an inactive life, and was in the habit of getting frequently drunk.

Upon our arrival at Madras, the symptoms of scurvy in the ships company soon disappeared by the use of fruit, and a fresh diet. The advanced state of the season now induced our commander to make every exertion in

landing the cargo, and in getting the ship ready for sailing, in order if possible to make his passage through the China sea. The ship's company were in consequence much employed upon deck in the heat of the sun; and diarrhœas, cholera morbus, and fevers attended with bilious symptoms, became very prevalent. Soon after our arrival here rice was served to the people in place of their bread, which was now expended. The beef which was here daily sent off for the use of the ship, was of the worst quality, lean, tough, and tendinous, and very ill suited to the condition of the digestive powers of an European in such a climate, and under the present circumstances.—Here I must be allowed to examine a little into the case: the men, during the whole forenoon, have been hard at work in the heat of an almost vertical sun, and about twelve o'clock, when its power is greatest, they are piped to dinner; many by this time are so faint and exhausted, that they are more inclined to use some fluid for the purpose of quenching their thirst and to refresh them. in some degree, then to eat such beef as has been described; after drinking a little water probably, and resting awhile, they now perhaps begin to feel some desire to eat—they indulge it, and we shall suppose

that they make a tolerable hearty meal—languour and heaviness then succeed, with a total aversion to motion, and they would be glad to be allowed an hour's sleep;—the boatswain's call, however, rouses them instantly upon deck—they return to their duty in the sun within an hour from the time that they came below. The debilitated stomach, now deprived of that rest of body which is absolutely necessary to digestion in such a climate, performs its functions imperfectly, and the aliment thus passing into the irritable bowels in an improper state for their reception, a diarrhœa ensues, and if the weather is unsettled and wet, a dysentery is for the most part the consequence. Again, if at supper a man—in this climate, and under such circumstances as we have mentioned—is induced to eat a portion of animal food, or any thing else which he may have procured from the shore (cucumbers with vinegar for instance, which is a thing very commonly done), and goes to sleep afterwards, during hot and sultry conditions of the weather, he is soon awoke with great sickness at stomach—he vomits—the vomiting continues, and is soon followed by gripes and frequent loose stools; spasms of the muscles of the abdomen ensue, accompanied by the same affection of the

extremities, and soon forming a complete case of cholera morbus. In this manner have those diseases always shown themselves in the course of my experience on board of ship. Some of those who were attacked with cholera during our stay here were much reduced in the space of three or four hours, for coldness of the extremities, failure of the pulse, and the most violent spasms, had taken place. In many of these cases, had medical assistance not been at hand, the scene would soon have been closed. Opium in a solid form, with warm fomentations to the abdomen, and gentle friction of the cramped extremities, were successful in relieving all. In general, before I was called, the stomach and bowels were freely emptied, which rendered medicine for that purpose unnecessary.— This disease always began after dark, and in all proceeded from the patients having eat animal food at supper. The bowel complaints which prevailed here were apparently simple diarrhœas, and were frequently carried off by a single purgative; but they in general left such a degree of weakness, as rendered the men unfit for duty during several days; for if they were sent upon deck in such a debilitated state, they almost always relapsed. The degree of heat was often so intense during

the time of our stay in this place that some of our men, previously in good health, fainted upon deck; they soon recovered, however, upon being carried below, and drinking a little wine and water.

For some time before we left Madras-roads the weather had got rather unfet- tled, with frequent heavy squalls, and rain towards the evening. On the day before we sailed, thirty-two invalids were sent on board from the naval hospital. They were seamen and marines who had been discharged from his majesty's ships in India. On the evening before they came on board, they had been driven ashore by a heavy squall of wind and rain in attempting to reach the ship, and were obliged to remain on the beach the whole night in their wet clothes. The consequence was, that several had slight at- tacks of fever, and some of dysentery, of which last disease two died. These men were the first who were affected with this dreadful malady, which afterwards proved so distress- ing to us. Inflammation, and its concomitant mortification, carried off the one; and the other, during the inflammatory stage, from the excruciating pain of his bowels, and continual tenesmus, which it was so little within our

power to relieve by the means adopted, slipped out of his hammock undiscovered, jumped over-board, and drowned himself—thus anticipating an event which would to a certainty soon have taken place.

After remaining a month at Madras, we sailed on the 13th of October. At this time many of our ship's-company were laid up with bowel complaints, which had now begun to assume the dysenteric shape. Upon the passage to Penang, or Prince of Wales's Island, which was about ten days' sail, they were beginning, however, to recover considerably; the weather being for the most part regular and cool, and the ship clear and well aired.

During this short run, I had an opportunity of observing the effect of attention to seamen, and of regular discipline. On the evening before we arrived at this island, we discovered a strange sail, which no information that we had obtained gave us the least reason to suppose could be a friend. Our ship was immediately cleared for action; and towards dark, when the stranger came within hail of us, every man, now ready to engage, appeared with determined silence and coolness re-

solved to support the conflict to the last. The cause of our alarm, however, appeared to be the Bombay frigate. The gratitude of the commander to his ship's crew, who to a man had acted in such uniform steadiness and apparent resolution to protect the property of the Company and owners, induced him to make a very animated and satisfactory speech upon the occasion, which was followed by the usual salutation of three cheers from the seamen. The Carnatic had been always, when the weather would admit, regularly exercised in the use of the great guns and small arms, and probably at this period of the voyage was in no respect inferior to any ship of war.—I will here take the opportunity of asserting, that those Indiamen which have of late been surrendered to the enemy without almost firing a shot have been totally neglected in point of discipline by their officers. All the Company's ships may and ought to be kept, upon every occasion, in a state little inferior to a man of war; and where it is not done, the men intrusted with the charge of them are unfit to hold such a situation of responsibility.

Upon our arrival at Prince of Wales's Island, the labour of our people was renewed, and

the ship during our stay here was considerably lumbered. Frequent squalls and rain announced the change of the monsoon, which completely altered the nature of the prevailing diseases; for almost in every instance they put on the form of dysentery. We remained at this island nearly a fortnight, when we proceeded upon our passage through the straits of Malacca, and arrived at that place about the 8th of November. The weather was getting daily more unsettled, and our people continued to be much employed upon deck, the ship being often obliged to anchor from an intricate navigation and light baffling winds, accompanied with intense heat in the day, and very heavy squalls and rain at night, with a degree of cold as sensibly felt as the heat during the presence of the sun. Dysenteric affections were now becoming more and more frequent, and more and more violent in their attacks. About this time the two invalids died, who dated the commencement of their complaints from what they suffered at Madras; and I am now well aware, that the measures employed in these two cases were by no means directed in a way that could afford relief. In fact, we had no regular nor systematic plan of practice, and knew not when we erred. The disease in those



belonging to the ship appearing now in every fresh attack with aggravated symptoms, several were soon in a state which occasioned great uncertainty as to the termination.

We remained only a few days at Malacca, and afterwards proceeded on our voyage with the honourable Company's ship Dublin. During the whole of our passage through the straits of Malacca, round Borneo, and through the straits of Macasser, the weather continued extremely unhealthy, sultry, calm and suffocating in the day, and squally, with torrents of rain and a great degree of cold, at night. Our sickness augmented in proportion, and several of the people were now added to our list; and others, among whom were some of the officers, were much indisposed. What appeared to every one most unaccountable was the state of sickness on board the Carnatic, while the Dublin was entirely exempted, not having a single man affected with the disease that ravaged the other ship.

About this time, owing to a most unfortunate indisposition of the surgeon, the whole duty of the ship devolved on me. We had now four officers and about thirty-five of our people laid up, most of whom were affected with dy-

fenteric complaints. Such a scene of sickness was what I found impossible to pay the necessary attention to, having, from my little experience of those diseases, no fixed arrangement, any nor determined plan of practice; and although the surgeon had been three voyages to India previous to this, yet his knowledge of the treatment of these complaints was so confined as to afford me but little satisfaction. I therefore requested the captain to procure me the assistance of the surgeon of the Dublin, that, by having the advice of another, I might at least proceed with more confidence. This gentleman had likewise been several voyages to India in the same capacity; but I found him also very defective in practical information: for he resorted to the opinion and recommendation of this author and that writer, and was as undetermined in his measures as myself, who had till now seen but little of the diseases of a hot climate.

Towards the middle of December, however, having got clear of the straits of Macasser, and the monsoon having thoroughly set in from the N. E. with fine, settled, and clear weather, and a steady and cool breeze, the sickness, which the exertions of the faculty here employed were unable to relieve but

in a very inconsiderable degree, and not at all to prevent, was, almost like a charm, removed; and from that period, if my memory does not fail me, not a single case of dysentery appeared, and those who were ill made a sensible approach every hour towards recovery, a few excepted, whose advanced state of disease left but little hope of affording them any relief, more particularly by the irregular and unsystematic proceedings which were had recourse to. Ulcers, which, during the continuance of the unsettled weather, remained stationary, or became foul and sloughy, leading me to suspect that there might be some scorbutic taint, now put on a clean and healing appearance, requiring little assistance from art. I remarked in general, during the prevalence of our sickness, that the violence and frequency of complaints could be traced to some remarkable severity of the weather, or to some great exposure of the people, which at this time was almost unavoidable from the ship getting under weigh and anchoring again, sometimes twice and sometimes thrice a-day. In no instance could I observe that the disease originated from infection, to which I was probably more exposed than any other individual in the ship, and yet I retained

the most perfect health. By this dreadful malady we lost, besides the two invalids before mentioned, six of our own ship's company; of whom five were carried off by the effects of inflammation terminating in mortification, and the other died in the chronic stage of this disease.

I mentioned before, that, although this distemper was so prevalent on board the Carnatic, yet the Dublin was without a man ill, and under the same circumstances of climate. But there were several things which tended to operate in the one instance, which in the other were wanting. The Carnatic's people, soon after their arrival at Madras, had rice served instead of bread (to which dry food they had been accustomed for upwards of eight months), which brought on an irritable state of the bowels, or predisposition to dysenteric affections. On board the Dublin, the seamen, during this time, had bread as usual. This, adduced as a reason, may appear, to those who have not been in the way of observing the effects of climate and diet combined, to have but little share in the production of such different conditions as we have exemplified; and some absolutely deny it. But I shall soon be able to prove, from

several indisputable instances, that it has a very considerable influence in such an unhealthy situation, and under such circumstances of labour and exposure: for a man, who has been in the habit of eating dry biscuit, will feel a sensible difference from immediately changing to an entire diet of boiled rice, even in regular states of the weather, and perfectly favourable to health; but if he is exposed to excessive heat and hard labour, immediately upon such a change (perhaps during a hot and sultry forenoon), a diarrhoea coming on will stagger his opinion, if he is inclined to think that it will be attended with no bad effects; and if at night he gets drenched in wet for four hours in addition, while at the same time the cold begins to pinch him, the nature of his disorder, being soon changed to a dysentery of the worst kind, will thoroughly convince him of his error; more particularly when he sees that other men, under the same conditions of climate, but provided with their accustomed diet of bread, fortunately escape. I am, then, inclined to consider this alteration in diet as a predisposing cause of bowel-affections in a hot climate. There is not an hostler who does not know, that a horse which has been eating grass is unfit to ride a long

journey, or to be exposed to a hot sun; and that, when he is intended for work, he should be fed with dry food, such as oats, hay, barley, or straw; and I cannot help thinking, that the comparison here brought is a very just one---for seamen on board of many ships are treated little better than horses, and labour far more.

Our commander, always studious to be prepared for every emergency, and conceiving that there was a probability of meeting with an enemy in our track, ordered the guns to be kept constantly run out, and the half-ports to be shipped; but these, as I remarked before, were ill calculated to preserve that warmth between decks which men who are cold and wet would require when they come below in the night to their hammocks, which are probably ill provided with bed clothes. These half-ports also admitted the beating rain, and kept the gun-deck, where the people slept, always wet. This pernicious circumstance was not, I believe, pointed out to the captain; otherwise I am sure that it would have been remedied: but at that time it did not strike me so forcibly as it hath done since, from having had another opportunity of observing this neglect to operate in a manner

equally powerful in the production of those diseases. The Dublin, on the contrary, had her guns housed, and could consequently always open or bar her ports at pleasure; and what proved besides a very essential benefit at such a time, that ship had her galley upon her gun-deck; both of which concurring advantages kept up that degree of warmth, that made men experience a kind of pleasure upon coming below from a cold and wet deck. These, alone, I conceive to be the causes which operated in affecting the two ships so differently.

After getting into the regular monsoon, and during the short space of a fortnight's passage to China, our ship's company had recovered almost a perfect state of health, and we had only, when the ship reached the port, about seven men upon the sick list.

Upon our arrival at China, about the latter end of December, the surgeon died suddenly, and the whole duty of the ship was now to be entrusted to me. The weather in general was very temperate and agreeable during our stay there, which was about three months, and we enjoyed during that time the most uninterrupted good health. The Dublin,

however, had now her turn of sickness in a slight degree ; an occurrence which confirms what I have already advanced upon the subject of diet : for, soon after that ship's arrival there, her people were served with rice in place of their bread ; while our's had become habituated to that diet. This change (for I conceive it merely the change, and no specific bad quality in a rice diet, unless when used at times of great fatigue), made at a time of labour and exposure, which almost always happens in harbour, will ever be found to be highly productive of disease. There are several situations at Wampoa, where the ships lie during a great part of the time that they spend at China, which, within the distance of a quarter of a mile, are as different in their degrees of health nearly as a low swamp is to a dry mountainous situation, and both operate in nearly the same manner. Where we lay at this time, when the wind was from the southward, which it was often in the day time, we had a fine, light, and cool breeze ; whereas the Dublin, and some other ships lying almost immediately under a small hill situated close to the river, had not, with the wind in this direction, the smallest circulation of air, besides having an intense heat reflected from this eminence, so that



their people at work upon deck were almost ready to faint at every step: these circumstances, although they have never been so particularly noticed, yet, are by no means to be considered trifling; for they are not so in reality, as they inevitably, in every instance, are the causes of disease, as I shall have occasion to observe more fully afterwards.

Towards the latter end of March and beginning of April, 1795, the weather again became unsettled, with great heat at times in the day, followed with heavy rain, and a considerable degree of cold at night, which brought on a few slight attacks of bowel-complaints that affected several of our people; but about this time we had got all ready for sea, and soon afterwards commenced our homeward-bound voyage. In running through the China Sea we had a fair, fresh, and steady breeze, with most agreeable weather, so that none of those disorders became an object of serious medical treatment.

A few days before we left China, our cooper's mate was added to the list of our losses. He had been taken ill during the

rage of our sickness upon the passage from Madras, with some hepatic complaints, accompanied with a disordered state of bowels. Although mercury was employed, yet it was not, I fear, carried to the extent that could have radically removed a disease which was in a very confirmed state when it was had recourse to. The symptoms, therefore, increased with various progress; he latterly became hectic, and died extremely emaciated.

About the beginning of May we arrived at Malacca, through the straits of which we passed in company with five other Indiamen. Here the captain, with his usual regard to the preservation of the health of his men, and dreading a long passage, at all events determined to be prepared against a recurrence of diseases in our voyage outwards, laid in a large stock of yams, which grow at this place of a very superior quality. He likewise paid great attention to getting on board good water, which, from being brought off to most of the other ships in bulk and in open boats, was often quite brackish. Our casks, however, were sent ashore in country boats, which were manned with the natives, and under the direction of our gunner, who

had orders to go as far up the creek, where the water was to be filled, as he could, that he might avoid the filth and nastiness of the town, which was situated on the banks of this rivulet; by this precaution we had very excellent water brought off for our ship. The gunner, however, from being out several nights, and much exposed to suffer from the cold and the rain, which fell very heavy at times, had a severe attack of dysentery; and as the practice here had recourse to give me some little idea of the most successful mode of treating this disease, I shall state the particular circumstances. This man had a particular aversion to salts, and it was with difficulty that I could get him to take any of the common purgatives, such as rhubarb or jalap with cream of tartar, from their occasioning very considerable gripes and sickness at stomach, and being often uncertain in their operation; I therefore gave him calomel alone as a purgative, in the form of pills, which in three or four days affected his mouth, and induced a little spitting. From that time the gripes and tenesmus gradually abated, his stools became feculent and free, thus rendering almost any other medicine unnecessary, and he speedily recovered. This was the first instance in

which the effects of mercury struck me in a remarkable degree, Still, however, I did not employ this medicine so liberally as I ought to have done, and was authorized to do from the success attending its use in this case; for soon after this event the ship's cook had an attack of a bowel complaint, which was treated with occasional purgatives, and an opiate with calomel at bed-time. Under this management, the surgeon of the Walpole, one of the ships in company, happening one day to come on board the Carnatic on a visit, I requested him to see this man: he desired me to give him the bark in substance, with small doses of laudanum. I had already seen the effects of that medicine, when prescribed by the late surgeon of the Carnatic. It was, however, tried; but I was soon convinced, by an aggravation of the symptoms, that I had adopted a wrong measure. I have mentioned these particulars in order to point out the great lameness, uncertainty, and indecision, in the practice of the medical men employed in the honourable Company's service, to take care of the health of British seamen, so necessary for the support of our country.

Some of the ships in the fleet were at this time very unhealthy, but I had only an

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opportunity of coming at the knowledge of the state of two, which were the Dublin and Duke of Buccleugh, Both these ships had been anchored in nearly the same place at Wampoa, under the influence of that rising ground which we have before described, where their bowel-complaints first began to affect them; and both had a change made from bread to rice at China, which we have already been led to conceive a predisposing cause, and it is probable was what rendered them so liable to suffer from the irregular and unpleasant weather which now prevailed. At this time also the seamen of all the fleet were a good deal exposed, and fatigued by anchoring, getting under weigh, and in working the ships in coming through the winding straits of Malacca.

Our passage to the Cape of Good Hope was rather a tedious one; and upon our arrival in that latitude, to crown our former troubles, the ship lost her rudder in a violent gale of wind. Our people were therefore in consequence much employed upon deck, and greatly harassed in the management of the various machines that were made to steer the ship, which brought on several slight feverish attacks. One man who had been particularly

active, and had exerted himself much upon this emergency, was seized with enteritis, which terminated in gangrene and death. Evacuations were not, I fear, so freely and early employed here as they ought to have been; and I sustained upon this occasion a great loss from our blistering ointment being now totally unfit for use. Every one on board was now put upon a quart of water a day, as it was doubtful, in our present condition, when we might reach a port of refreshment. After making a substitute rudder, however, upon the plan invented by Captain Pakenham, which steered the ship extremely well, we got into St. Helena roads on the last day of August, being nearly a month from the time of the loss of our rudder, and after having been almost five months at sea.

Notwithstanding so great a lapse of time, during which our people were confined to a salt diet, yet, owing chiefly to the attention of our commander in procuring a sufficient quantity of yams at Malacca to make a meal three times a week for almost three months, a few only had any symptoms of scurvy, and those in a very slight degree: amongst this number were the two men

who had been affected when the ship arrived at Madras. These complaints were so trifling, that every one had completely recovered by the use of fruit in less than ten days, which was the time of our stay in this island for the purpose of making a new rudder. This was not the case, however, with many of the other ships, one of which, the Lord Macartney, had nearly thirty of her people laid up with dysentery, some of whom were in a very advanced stage of the disease.

Our ship's cook, whose case I mentioned before, was, when we arrived at St. Helena, in so reduced a state, that I had almost, nay completely, despaired of his life, as he was an old man, and had been so long affected with this disorder of his bowels. He had been for some days previous to our reaching this island deprived of the quantity of wine which was daily allowed him by the captain, on account of the diminution of our stock; but I was now supplied with what quantity I might find necessary for him; and it was only at this critical moment that I reflected correctly upon the nature of this man's complaints--his appetite had been good, and his stools, though

frequent, had been fæculent and free, yet he gradually waſted and loſt ſtrength. I now reaſoned thus: There is no defect in the organs of digeſtion, no impediment to the paſſage of the fæces through the inteſtinal canal; but there is an obſtruction to the chyle's being carried in ſufficient quantity into the ſyſtem, the effect of the former diſeaſe, and proved by his looſing fleſh and ſtrength, and from the calomel having never affected the mouth in this caſe: therefore mercurial friction is alone to be depended upon. It was therefore begun, his ſtrength was ſupported by wine, and nourishing clyſters were exhibited, as he had now, from his reduced ſtate and confinement to bed, loſt his appetite. In three days a ſlight tenderneſs was felt in the mouth, he had recovered a little, and began to entertain ſtrong hopes: in ſix more he walked aſhore, from not being able at the time of our arrival, without aſſiſtance, to get up to ſtool, or hardly even to turn himſelf in bed: and in little more than a month after he began this courſe, he was perfectly free from a diſorder with which he had been affected for upwards of a year. I muſt not forget to mention, in relating this remarkable caſe, that this old man was extremely fond of money, and as little inclined to take



his departure from the enjoyment of it; he had, therefore, got a small investment on board, which he wished to dispose of at St. Helena, and would trust no one to make a bargain for him: to bring this to a good market was the great exciting cause that enabled him to go ashore, which he did to the astonishment of every one on board; nor was he hurt by this exertion. He had a great liking for cheese, and for some time lived almost entirely upon it, declaring that he found it of great benefit to him, and the only solid food that agreed with him. He was a Welchman by birth.

Even now, however, I did not employ mercury, in the liberal way that this and my former success demanded; for I soon after this lost a poor invalid by dysentery, who had never thoroughly recovered from the time of our leaving Madras: so that it is not the knowledge of a remedy being successful in the removal of a disease, but the employment, and the employment of it in a proper way and to the necessary extent, which is to perform the cure, and make the character of the judicious practitioner.

During our stay at St. Helena we had every attention paid to our situation by the governor that the island could afford. The ship's company had fresh provisions allowed them daily; and before we sailed our commander procur'd as many potatoes as furnished a fresh meal for the people twice a week during the passage home. Upon leaving the island, twelve Dutch and French prisoners were sent on board to be landed in England.

Soon after we put to sea, our carpenter was laid up with a pthifical complaint, which, upon our getting into a higher latitude, daily increased, and proved the cause of the death of an excellent mechanic. This man at the time of the loss of our rudder was confined to his cot, recovering slowly from a fever, and complaint of his breast, and was not able to sit up above an hour together. At the moment, however, of the report's being brought him of this accident, he started from his bed, put on a great coat, and instantly went down into the gun-room, where he remained till he had superintended his mates in stopping a leak, which was discovered immediately after the rudder went. On the next morning he got up

soon after day-light, and continued for a considerable time upon deck to make the necessary preparations for constructing a machine to steer the ship. He went on without medical assistance, in the inspection of the workmen employed in forming the several substitutes, which we tried before that of Captain Pakenham was made. Insensible to the existence of disease, and full of his great purpose, he daily appeared to recover, and, when we arrived at St. Helena, constructed, to his infinite credit, a rudder, which in every respect answered as well as the one which we had lost ; and what is still more remarkable, he finished his work from dimensions only, without a model, and shipped it at the first attempt. This business, however, being now executed, he appeared daily to sink under a load of disease, and died, considering his sphere of life, with as deserved *eclat* as the greatest and most renowned general.

About the middle of November we arrived in the river Shannon, after a passage of seven months and a half from China. Our ship's company were at this time in the most perfect health, and hardly a man had been taken ill from the time we left St.

Helena: those who were upon the sick list being old chronic diseases, the effect of another climate. The only one whose case now required medical treatment was a servant of the captain, who had been long affected with a dysenteric complaint. This man had several times, in the course of the homeward-bound passage, recovered a pretty good state of health, and has often induced me to think that he would get well: but he had hardly done his duty a month when he began to complain again. Mercury was never employed in this case, notwithstanding the excellent effects which I had observed to follow its use in those instances which I have already related; and I firmly believe, if it had been given upon this occasion, that the fatal consequences would have been prevented. He died about eight days after we arrived in Ireland.

The severity of the weather now laid up several with slight feverish complaints, which, however, required very little medical treatment, being generally removed by an emetic and sudorific draught. We remained in Ireland almost a month, without any particular circumstance taking place which would require to be noted here. About the middle of

December we failed in company with two frigates, and arrived in Long-reach towards the end of the month, after a voyage of upwards of two years, having generally had on board from one hundred and sixty to one hundred and seventy men, of whom, at different periods of the voyage, fifteen died: twelve of these belonged to the ship, and three were invalids whom we received at Madras,

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## LETTER II.

*Account of Diseases prevalent in the second  
Voyage.*



SIR,

ALTHOUGH I had not learned enough in the course of the preceding voyage to enable me to prevent several deaths, and to escape many an uneasy moment during the one which I was now going to undertake; yet I had acquired some experience which induced me with more confidence to accept the charge of the health of a ship, where I had in general, upon a former occasion, been very happy and comfortable. Accordingly, about the latter end of April I was again appointed surgeon of the Carnatic, destined for China direct.

In preparing and fitting out the ship for her former voyage, I had an opportunity of seeing the propriety and necessity of having

medical assistance at hand in the river, and therefore requested the captain to allow my assistant to join the ship soon after she came afloat. I had previously got our stock of medicines ready, and now sent them on board, giving orders at the same time to examine both the medicine and drug-chests, according to the list which I forwarded, that there might be none of the articles wanting, as I have mentioned to have been the case on our former voyage. We likewise on this occasion discovered a deficiency, the want of which, although trifling, would have yet not a little incommoded us, had we gone to sea without having it supplied.

The precaution of sending medical aid on board was found to be a very necessary one; for during the ship's stay at Deptford, about ten days after she came afloat, a man fell from aloft, and broke both his legs, one of which was a compound fracture. After reducing them, my assistant conveyed this poor unfortunate fellow to Guy's hospital, where he was left a patient. During the month of June, while the ship lay at Gravesend, I was informed by occasional letters from my assistant, that he had met with sufficient practice to occupy his time on board, the weather

being at that time very cold, considering the season of the year, with frequent heavy showers, so that feverish and rheumatic complaints often occurred; and in such a situation venereal affections are never wanting.

About the beginning of July I joined the ship, and a day or two afterwards the people were paid their bounty and two months' advance. On the day before this took place, I requested the captain to allow me to examine the state of the men who were on board, many of whom, from their miserable looks, strongly inclined me to suspect them to be much diseased. I was induced to think of taking that measure, from the number that we were obliged to discharge after we got round to Portsmouth in the former voyage. My proposal, however, was not acceded to, upon the idea that the seamen might, from its being a thing new, form some unfavourable conclusion, and thus probably take it into their heads to leave the ship; and at that time hands were difficult to be procured.

My conjectures respecting the condition of some were but too well founded; for, in two or three days after the ship was paid, we had several added to our sick list, two of



whom had suffered so much from the venereal disease that they were of little use to us during the whole voyage; others were apparently complaining in hopes of getting discharged, after having received their bounty and advance, which we found they had purposely given to some of those crimps who kept them in pay, and acted as their accomplices, lest the money should be demanded of them upon finding it necessary to discharge them. I determined, however, at all events, to prevent their imposing in another instance, at least for some time to come, by endeavouring to prevail on our commander to keep them on board; all of whom he did, except one most filthy and useless wretch, who was discharged at Portsmouth. On the evening that the ship was paid, previous to her sailing, two or three men contrived to make their escape with the money that had been given them, a practice, I fear, too general, and a kind of robbery, which some means ought to be taken to prevent.

On the 8th of July the ship sailed from Gravesend. In the Downs we were detained nearly three weeks by contrary winds, which at times blew a very hard gale, with rain, principally from the s. w. quarter. Twice we

got half way between this roadstead and Portsmouth, and were as often obliged to put back. Our third attempt, however, proved successful, and we anchored at the Motherbank about the latter end of the month. Here again, on the evening of our arrival, five or six more of our seamen contrived to make their escape from the ship. They were supposed to have been in league with those rascally crimps, who, in the middle of the night, which was dark, had dropped a boat under the bows of the ship, and carried those men off for the purpose of disposing of them to some other ships. The weather, during the first part of our stay here, was rather irregular and cold, with frequent heavy showers: but it latterly cleared up, and at the time of our sailing, the season was most delightful.

Towards the middle of August we left Portsmouth, all in pretty good health, having on board one hundred and forty men belonging to the ship, and eighteen Malay prisoners who were sent off to the ship from Porchester castle, as Lascar seamen, a few days before our departure, to be landed in their own country. Venereal complaints, as is generally the case upon leaving England, were what employed us chiefly for some time after

we failed; and we had also some of those men affecting indisposition, who had till now lived in hopes that they would thus get sent ashore, not wishing to leave the scene of their fraudulent practices. Uncommonly pleasant and mild weather, however, determined me to order them on deck, as none of their pretended complaints were at all likely to prevent them from assisting in the little duty that was now required of them; and, upon seeing that I was perfectly aware of their deceit, I heard nothing more of them for this time.

We were carried by a fine, fresh, steady breeze from the mouth of the channel as far almost as the equator, when we met with strong winds from the s. w. and squally weather, which drove us upon the coast of Africa, where we were baffled for nearly three weeks by light airs and contrary winds, without making hardly any progress. At last the long-looked for s. e. trade wind reached us, and we arrived at St. Helena in company with five other India-men about the middle of October in the most perfect health, not having a single man indisposed from the effects of the climate.

The ceremony, or rather foolish custom, being gone through as usual upon crossing

the line, during rather cold and squally weather, occasioned the indisposition of several men: one in particular was seized with acute rheumatism. After bleeding him, I kept up a gentle moisture upon his skin with antimonial medicines and opium, and at the same time carried the use of mercury, which was given in the form of calomel, so far as to bring on a slight spitting: he now rested well without opium; the pain and swelling of his joints left him gradually, and in a short time he returned to his duty in perfect health; neither had he in the course of the voyage afterwards the smallest complaint of this kind, nor any of those chronic pains which so often succeed to such violent acute affections. During my last voyage I treated our sail maker upon the homeward-bound passage from St. Helena in the same manner, and with the same success.

During the ten days of our stay at St. Helena, the state of the weather, as is almost always the case there, was very pleasant and healthy, from its situation being nearly in the midst of the s. e. trade wind, which constantly prevails. One of his Majesty's ships took eight of our best men from us before we sailed, and five contrived to make

their escape by seizing a boat in the night, and making for the shore. This loss distressed us so much, that we were obliged to make application to the governor, pointing out our reduced situation, who, in consequence, sent on board four foldiers from the island to assist in the duty of the ship. Our people had fresh provisions allowed them while we remained here, and our commander carried bullocks and hogs to sea sufficient for six days more.

About the latter end of October we took our departure from this little spot, all in excellent health. Towards the middle of November the ship passed the Cape of Good Hope with a strong gale and wet squally weather, which continued with little intermission till we arrived off the western coast of New Holland, when we altered our course, and stood to the northward. During the greater part of this period we had generally from six to eight men upon the sick list, laid up with slight feverish and rheumatic affections, chiefly owing to cold, or to their getting wet. All, however, recovered and did extremely well, without any dangerous symptoms appearing. Our ship's company during the continuance of this cold weather off

the Cape, and in running down our longitude in such a high latitude, had the same warm breakfast prepared for them which I mentioned to have been so beneficial in a former voyage; but, instead of flour, wheat was now boiled. It would be impossible for me to enumerate the many great advantages that accrue from this little mark of attention, to which men look forward with pleasure, and in consequence are doubly alert in the execution of their duty. At a time like this it is hardly possible for every man to get water boiled for the purpose of making a little tea; and when it is in the power to effect it, they are often obliged to wait probably nearly half an hour (the whole period allowed them for breakfast); which, to a man who on the preceding night has been eight hours on a cold deck, is not a little discouraging, and deprives him of a considerable portion of that time which he would often employ to more advantage, and moreover, in claiming his turn to the fire, he often gets into disagreeable quarrels and disputes. A pint of water should therefore daily be boiled for each man in the ship's coppers, that those poor fellows, when they are allowed to come below, might have their breakfast always ready, which I am sorry to say

they are at present often obliged to go without: nor is this to be considered one of the least of the exciting causes of scurvy.

As we proceeded to the northward, the climate daily became more mild; and about the middle of December we passed a vertical sun with a fresh s. e. trade wind. We had in a short time to encounter the effects of those parts where his influence had been but a little before exerted; for the weather soon became wet and squally, blowing extremely hard at times, with a heavy and rolling sea, from which some of the ships suffered greatly in their masts; a circumstance that in a great measure laid the foundation of many a future disaster, which we shall have occasion to mention in the sequel. As the fleet advanced on their voyage, the weather began to clear up a little, and on the 25th of December we entered the Straits of Floris, where in the afternoon we came to an anchor. Here it was determined to remain for a few days, that one of the ships which had sprung her bowsprit in the late squally weather might have an opportunity of fishing it; and the boats of the fleet in the mean time were ordered to go and examine the course of this

little known passage, which appeared to be rather intricate and dangerous. Most unfortunately, on the second or third day after the fleet anchored here, one of the ships, lying in a very strong tide's way, parted from her anchor, ran on board of the disabled ship, and carried her crippled bowsprit now completely away, so that this unlucky accident detained us for eight days longer before it was repaired. The weather during this time was in general rather hot and sultry in the day; and squally, with sometimes heavy rain, towards night. A few slight bowel affections were the consequence; all of which, however yielded to repeated purgative medicines, which never failed to give relief, and often in the first instance removed the complaint.

The loss which this ship sustained now induced the commander to go to Amboyna, that she might be able to get a new bowsprit fitted, as it was thought unsafe for her to venture into the China seas in her present state. Accordingly, after fixing the stump of the old one in the best way that they could, the fleet left the straits of Floris about the beginning of January 1797, and in a few days arrived at Amboyna. During the period of



our stay here, our people, having nothing to employ them but to provide our stock of water at their leisure, and keep the ship clean, were consequently seldom under any state of exposure or fatigue; and the complaints that occurred were slight, being chiefly diarrhœas, which were almost always removed by a single purgative. No fresh provisions were to be procured here for the ship's company, the officers even finding it rather difficult to provide themselves with a single fresh meal: fruit, however, was brought off in abundance. The weather still continued somewhat unsettled; hot and sultry at times, with frequent showers in the day, which, when they occurred, tended a little to cool the air: but towards night it often blew hard in squalls with heavy rain.

After remaining at this island a month, detained by some unforeseen circumstances, the ships sailed on the 3d of February, proceeding eastward upon their passage to China; and towards the latter end of the month they cleared the dangerous outlet from the Banda Sea called Pitt's Straits, where some of them ran considerable risk of being lost. On the evening before we were favoured with the N. E. monsoon, which happened a few

days after we got into the open sea, it came on to blow extremely hard, and about eight o'clock all hands were called to reef topsails. During the hurry and bustle which usually attends this operation, more particularly at night, and in the midst of a hard squall of wind and rain, a man fell from aloft upon deck, where he lay undiscovered a considerable time (it was supposed about half an hour); at last one of the people stumbled upon him in the dark, and in attempting to rouse what he called a sleeper out of the wet, which at that time fell in torrents, he discovered the speechless state of this poor fellow, and called out for help. The sufferer was carried below: upon being brought near the light the dreadful accident was perceived. I was immediately called; but had scarcely gone forward, when the man expired, breathing very laboriously. His head was opened next day, and I found the scull fractured along the whole extent of the frontal bone, transversely, with a considerable portion of the internal table of that bone depressed, the situation of which shewed that there could have been no relief from an operation, had there been time for performing it. Under circumstances where a ship is liable to sudden changes of weather, which almost

always occurs at a small distance from the coast, and within the tropics, upon the approach, and after the action of a vertical sun, our commander had in general made it a rule to reduce his sail before dark to such a degree that if taken suddenly with a squall there could be little apprehension of accident to the masts, and hardly any necessity for taking in additional reef; thus avoiding much exposure of his people and risk of serious injuries. Upon this occasion, I believe it was the uncommonly pleasant appearance of the evening, and the distance which we had got from the coast of New Guinea, that induced him to allow our sails to remain as they had been through the day. This, as it is a circumstance very materially connected with the prevention both of accidents and of sickness, hath led me probably to proceed a step farther than in a medical character it may be thought necessary that I should have gone: but I must, notwithstanding, take the liberty of stating, that there is not perhaps a point in which good conduct and precaution are so conspicuous as in this; for here the navigator, having occasion to reflect so often upon his situation, and to consider the different conditions of weather and his quantity of canvas set, is

under continual anxiety not to lose a favourable wind; and under an equal degree of apprehension for his masts, which are in many instances immediately connected with the preservation of the ship.

On the morning after this violent squall the wind sprung up from N. E. and continued with little intermission until we arrived at anchor in Macao-Roads on the 16th of March. Next morning we got under weigh; and on the 18th moored the ship at Wampoa, after a passage of seven months and eight days from England. We had now only four of our ship's company indisposed, whose complaints had chiefly originated from colds. No symptoms of scurvy was at this time to be observed among any of our people, who, although they had been almost constantly confined to salt provisions from the period of our leaving St. Helena, yet both at Floris and at Amboyna had very good opportunities of procuring fruit. From this circumstance of exemption, I should be inclined to suppose that scurvy may be prevented, and even cured, while the salt diet is continued, provided a quantity of fresh vegetables or fruit is made use of. This is a point somewhat essential to be ascertained, as we shall have occasion to

make some proposals intimately connected with the opinion here given.

We had not been long at Wampoa, before a violent and sudden change of weather, which commenced on the 22d of March, affected the comfort, and essentially the health, of almost every one on board. Our people, according to custom, were upon their arrival allowed fresh provisions; and rice was now served instead of bread. I am almost at a loss in this instance to assign with confidence any particular cause for the great degree of sickness that now began to prevail on board, as so many upon this occasion presented themselves, all probably having a share. About this time we had received orders from the committee of Canton, to get the ship in readiness for sea within six weeks, that we might save our passage through the China Sea—a thing next to impracticable, considering the kind of weather and season in which the duty was to be carried on, without the most essential injury to the health of all our seamen. The commanders, however, of some of the ships of larger dimensions than the Carnatic had declared it possible for them to do so; and on the part of ours, therefore, nothing could be said with apparent propriety.

Our ship's company were now obliged to labour almost worse than slaves, exposed at times to a sultry heat, and at times drenched in wet for nearly half the day together. Fatigue alone, independent of such states of the weather, could not fail to be a sufficient cause for the production of disease, to which it is probable our change of diet at such a time greatly contributed, at least in determining the kind of complaints that was to become prevalent. What likewise operated upon this emergency was the circumstance of our guns being constantly run out; and the half-ports, that were shipped, from being in rather an indifferent state of repair, admitting great quantities of rain, which during the violence of a squall at night kept beating in at the different crevices, and rendered our gun-deck very often wet, cold, and uncomfortable.

During this unhealthy period, our people were allowed, as usual, to go up to Canton upon liberty, from which hardly a man returned that was not affected with some complaint of his bowels. This is a practice which is certainly founded on false indulgence; for the fact is, that those men, instead of going up to get a few necessary articles for their homeward-bound passage, which they

could as easily get sent to them on board, take this trip to get drunk, which they almost all are during the three days of indulgence. It is related of a seaman, that, on the day on which he was to accompany his party to Canton, he happened to get some liquor, with which he began his career before he left the ship, and was carried up in the boat by his companions. During the three days of their absence, it seems they kept plying this man from time to time, and at the expiration of their liberty brought him on board as senseless as they carried him off. When he began to recover a little, he positively denied having been out of the ship to his messmates, and went up to the commanding officer to request that he would permit him to take his trip to Canton with some men who were going up that evening, stating that his own party had left him behind. Surely then a practice so destructive of health, order, and even of its own intention, ought no longer to exist.

An injury which we had sustained in our bowsprit during the blowing weather, that I mentioned to have disabled another ship in the same manner, now obliged us to unship and land it for repair. This job engaged a

party of our people ashore, who, from being much exposed during the wet and squally weather that now prevailed, were to a man laid up with feverish, catarrhal, and bowel affections. Of the people on board, those who were employed on deck, and consequently more in the way of injury from the vicissitude of the weather which now prevailed, were chiefly the sufferers. Of those at work in the hold, where they were more sheltered, few had any complaint about this time; but these men were chiefly quarter-masters, and were in general the stoutest and most able-bodied of the ship's company who were appointed to that duty. During a period of two months, we were seldom a day without the addition of two or three to the sick list; sometimes six or eight were laid up; and many, who had once had a severe attack, and had recovered apparently a pretty good state of health, being sent to their duty, were upon the first exposure, a circumstance at this time almost unavoidable, attacked with greater violence than at first; so that such was the state of the season and the labour upon deck, that although men had recovered and wished to return to their duty, I was under the greatest apprehension of allowing them; almost certain that in a



few days they would be reduced to a condition more dangerous than before. Being aware of this, I ought not to have been induced to deviate from what was strictly to have been attended to; for, in doing so, several relapsed; and a foundation was then laid for an affection which proved fatal to two or three, and reduced others to a situation from which they suffered much. I was, however, absolutely at a loss how to act. Men were wanted to assist in carrying on the duty of the ship, and I was anxious to contribute all in my power towards it by allowing none to remain under my care who appeared able to work. This simple precaution, and I must insist much upon it, of never allowing a man to return to his duty until he is in *every* respect capable of sustaining the effects of any kind of weather, will be found the most effectual means of preserving a ship in health; and, in fact, the speediest mode of removing disease, of reducing the number of sick, and the means of saving many lives: for I have in common practice observed that almost one third in such situations relapse, and that the second attack is generally more violent and more tedious than the first, and less likely to be relieved by medical treatment.

It gave me inexpressible uneasiness to be deprived of the cordial co-operation of an officer whose interference might have contributed much to divert the malignant stroke from many immediately under his orders and management. At this time the people on board the Carnatic laboured nearly eighteen hours out of twenty-four. I entreated that they might be allowed half an hour more at dinner;—it was denied, by returning me for answer that the duty of the ship must be carried on. Soon after this conference, I pointed out that many of our people were found lying about the deck at night, and did not as usual hang up their hammocks, whereby they were very liable to suffer from cold during the frequent squalls that happened, and requested that an officer might be ordered to see that every man in future went regular to bed. I know that it was the uneasy state of mind which the hurry and bustle on board occasioned to one of the worthiest characters, for whom I entertain the highest regard and friendship, that dictated the reply which was given me, and placed me under the necessity of going round the gun and orlop-decks, after all were gone to rest, with a view to enforce what should have been done by an officer:

and I often found not a little difficulty in the execution; for the men were so worn out, that many fell asleep sitting against a gun, and would have remained there through the night, until roused for the next day's labour as soon as light began to dawn.

Such conduct on the part of him who had the charge of the ship obliged me to take the first opportunity of expressing my disapprobation of the proceedings on board to the commander, who was at that time at Canton; and, in return, orders in writing were given to the different officers that my wishes should be complied with in every respect, and that all occasions of exposing the people should be avoided. This order was attended to with very evident advantage: for, although we had men taken ill almost daily, yet the number was greatly reduced upon the whole; and whether it was owing to the altered mode of treatment which was about this time adopted, or to the several attentions that were now paid, or to both, I can hardly take upon me to decide; but our complaints proved far less violent, and more tractable. I should not have been induced to touch upon the conduct of my friend, had I not determined to excuse no part of my proceedings, nor of any

other who may interfere with such an important subject as the prevention of disease.

There was at this time another ship at China, which, in point of sickness, suffered rather in a greater degree than the Carnatic; so that when the fleet sailed from hence they had upwards of forty of their people upon the sick list. The chief officer of this ship, a little before our departure, in hoisting in their long boat (which even with a healthy crew is a job somewhat laborious), finding that the remaining weakened part of his people did not exactly answer his expectations in point of celerity, ordered the boat to be lowered down again, and those poor wretches to exert their almost exhausted strength, at his pleasure, in getting her in a second time. Much has been said respecting the treatment of slaves; but there is not a slave in the West Indies, whose labour and, on many occasions, harsh treatment, is equal to that of seamen. Is it not most unreasonable, and much to be regretted, that those most distinguished supporters of our country should, at the risk of their lives, at a time when no urgent necessity calls for it, be obliged to labour at the discretion of men so inconsiderate and unfeeling as we have just instanced? The

behaviour of officers, therefore, is not unfrequently such as calls for speedy redress; and, as it is absolutely essential to the preservation of health, it requires to be publicly taken notice of, and pointed out in the strongest terms. While a ship remains in harbour, men ought to have a limited time, during which only they should be obliged to continue at work; for surely the life of a seaman is of as much consequence to the state as that of any mechanic or labourer on shore who has his stated hours of employment. In making this arrangement, it cannot be supposed that men should be prevented from being at a call in case of any sudden emergency.

About three weeks after we anchored at Wampoa, such was the degree of sickness on board, and such the debilitated condition of those who were able to keep the deck, that we were obliged to get fifty Chinese to assist in carrying on the duty of the ship. About this time also the first of our people died of a dysenteric complaint, and we had several others about thirty who were now upon the sick list, rather in a state of uncertainty as to the termination of their disease. My assistant, who, on our arrival here, was very

much indisposed, was now utterly unable to give me the least help: he had been affected for some time with symptoms indicating a chronic disease of the liver, chiefly brought on by indolence and want of exercise; for, having formed higher expectations from the voyage than were realised, he in consequence became desponding, and inclined to be negligent, and was latterly seized with this complaint, which had continued for a considerable time before he mentioned any thing of it to me. Want of proper attention to the mercurial course, which was prescribed, allowed the disease to make considerable advancement, which soon arrived at that state which baffled all attempts to relieve him. He died about ten days before we left China.

The station which we had occupied for anchorage at Wampoa placed us greatly under the influence of that eminence, which I had occasion to hint at, being so prejudicial to some other ships in a former voyage; for, while we lay here, from the wind being light and southerly in the day-time, it was often so intensely hot, and without the smallest circulation of air, that I have felt a kind of faintness from being only about five minutes

together on deck; and we may therefore very easily form some idea of the condition of men employed in such a situation through the whole day. During this time, another ship at anchor, about a cable's-length below us, had a light refreshing breeze, and remained extremely healthy; so that we see, by attending particularly to surrounding circumstances, it is possible to preserve a ship from disease, or at least to render those on board in some degree comfortable in their labour, while others more negligent or thoughtless are suffering. I must here touch a little upon the subject of noxious exhalations; what they are, or how they operate upon the human body, I could never understand; nor do I believe that those men know any thing of the matter who adduce them as a cause of disease. It is the different degrees of temperature alone that can or do operate morbidly, or in producing the healthy action: and it is particular modifications of it that determine to particular affections, I am, moreover, convinced that, by resting the explanation upon noxious exhalations, as the acting cause, men are induced to neglect the essential and real causes; that is, the preservation of an equal temperature, either by cloathing, choice of situation, or by a

given stimulus applied to the body, equal to the required changes. Where we now lie at Wamboa, the wind, from being light, and from that quarter which could not reach the ship in the day, made us suffer greatly from heat. At night it generally shifted to the N. E. and blew proportionally cold upon those in the greatest extreme affected by the previous action of the sun: and whether it blew in the direction of the river, or over a marshy ground, the effects were in proportion to the degree of cold which it brought along with it, and our people suffered in a greater or less degree. Thus we see, by attending to such circumstances, we shall often take means to counteract unfavourable dispositions of situation: whereas, by admitting the doctrine of exhalations, we remain satisfied that, although removed a little either in this direction or that, we are still exposed to the same cause. The fact, however, is, that we have, by this removal, got into a place of health and comfort, where we have in the day a free current of the surrounding medium to defend us from heat, thus preventing the effects of that debilitating agent; and in the night, knowing that it will be cold, and that it is this which we are so much in dread of we prepare our-



selves for it, and thus escape many unpleasant attacks of disease.

On the 25th of April we got under-weight from Wampoa, and on the 27th anchored at the Second Bar. About this time we lost another of our people, who, having recovered completely from a first attack of dysentery, relapsed, evidently from the effects of cold, being, when he returned to his duty, in rather a weak condition. After we arrived at the Second Bar, finding that my practice and ideas respecting the treatment of dysentery did not prevent its fatal ravages, I requested the surgeon of the Henry Addington to take a view of our sick. From this gentleman I received many clear, distinct, and accurate notions of our present complaints, and to him were many on board the Carnatic indebted for their future recovery. I can hardly express my thanks in sufficiently strong terms for the useful instruction which I received from him: in fact, he was the only man with whom I had ever conversed, that appeared to me to possess any sound and just opinions of the diseases, which I had so often observed to baffle the unmeaning and irregular proceedings of almost every other surgeon who had hitherto come under my eye. His practice was active

and determined: he knew the effects of his measures, and could, even in almost every instance of recent disease, say when complete relief could be obtained. I was put also by him into a regular train of doing my business, and afterwards found the duty of the ship, that had, to me, been almost incessant labour, capable of being carried on with the utmost ease. In a paper which that gentleman inserted, I believe, in the Gentleman's Magazine, he mentions not to have lost a man during two successive voyages to India, by the diseases of the climate. In the course of his last, however, many on board the Addington died; of which it would be very satisfactory to be informed of the cause. I know that, from the disastrous condition of that ship, her people must have suffered greatly\*.

Before I was acquainted with Mr. Liddel (for I shall take the liberty of inserting his name) I had employed mercury in the treatment of our prevailing diseases: but I now found that I had not carried it to the necessary extent; nor had I any idea of what

\* The deaths on board the Addington were chiefly from dysentery.

way I was to proceed, if the disease continued after the mouth became affected. This was now rendered perfectly explicit, and I went on with a confidence which I had hitherto been a stranger to. I now made it a point to affect every man's mouth as early as possible, sometimes within two, but frequently a peculiar constitution required three days—few longer—and in every recent affection with the most complete success. Doses of calomel, which I would not have ventured to give before, now became a common prescription with me; and they were such only as I found necessary to produce the desired effects, which I had hitherto failed in being able to accomplish. In every recent dysenteric complaint I began with twelve grains, which were repeated night and morning, generally with mercurial friction of the abdomen; thus assisting the action of my purgatives, and sometimes very effectually, till the mouth became sore. I then gave the solution of Glauber's salt or calomel occasionally, according to the affection of the mouth, if the pain or tenesmus remained troublesome; which however was seldom the case, being for the most part relieved, and often removed, as soon as a gentle spitting was induced. Previous to

this I was under some apprehension from cold, and the supposed injurious effects of mercury on the constitution, so falsely and strongly inculcated by many writers: but, on the contrary, I now found that the habit was in many instances invigorated, and I think I can say in all improved, by a gentle mercurial course. Opium, which I was obliged to prescribe to relieve the violent gripes during my former practice, I now very seldom made use of, latterly never, except in the chronic stage, wherein I have as yet not been able to fix upon any certain plan of treatment.—The people who now died were those who before this alteration of practice had arrived at a very advanced stage of this disease.

In the treatment of fever, also, what few correct ideas I had of my own were clouded by the many false doctrines and recommendations of authors, and by none more than by that of a celebrated writer, who so strenuously inculcates the early and liberal use of bark in the fevers of a hot climate, which he calls remittent: and although contrary to the practice with which I had been brought up, and to my own notions of the intentions of cure, yet in one instance, after emptying

the stomach and bowels, I was prevailed upon from the statement of that writer, to have recourse to the bark, which I gave both early and liberally, without waiting for a remission;—but, I am convinced, with very injurious effects; for the man, a native of India, in a great measure owing to this improper treatment, added one to the fatal number. Another case I was managing in the same way; but the alarming condition which my patient was in consequence soon reduced to, made me request the advice of the surgeon of the Addington. The bark was now left off; calomel and the antimonial powder were given in its stead—of the former six grains, with four of the latter, every four hours; adding also some sweet spirits of nitre to his drink. On the next day after the time of commencement of this alteration, this man was free from every dangerous symptom; upon his mouth getting sore, his fever left him, and he recovered rapidly without any other medicine. It is here worthy of remark, that the stupor and insensibility of the system required this, which may appear to many a large dose. Soon after the commencement of our sickness, being deprived of the help of my assistant, I found it necessary, in order that

the people might be properly taken care of, to get a sick birth erected, to which every one was removed who had the smallest affection of his bowels. In doing this I answered many an excellent purpose: here my attendants were always ready and present to assist every man who might be occasionally in want of them, and to see that nothing improper was made use of: for many men, from having a tolerable appetite upon their recovering a little, were often led to indulge in the common diet of the ship, which seldom failed to bring on a return of the gripes, and often a very serious relapse. I was, besides, thus enabled to carry on the duty of the ship with double ease and satisfaction. I never suffered a man now to go upon deck to stool; which before they were often obliged to do, exposed to the intense heat of the sun, and sometimes to heavy rain, until their reduced strength rendered them incapable of leaving their birth. This is a circumstance which should in the very first instance be attended to and remedied, as the means of preventing many serious evils.

Men were also, by having a sick birth, greatly out of the way of that noise and con-

fusion which always prevail on board of ships in harbour, thereby rendering them the most unfit place possible for men affected with disease, and confined to a sick bed.

All our convalescents complained that a rice diet affected their bowels; which obliged me to request that our commander would procure a stock of biscuit for our sick. My wish was complied with, and every one who had any dysenteric affection was allowed bread in place of rice.

At Wampoa particularly, and often at the Second Bar, the dysenteric complaints were accompanied with catarrhal affections, which, however, seldom proved troublesome. As this is a disease that never occurs but in changeable states of the weather, we may therefore reasonably infer that, from the two affections being so frequently combined in the same subject, a similar cause must have operated in a very principal degree in the production of both. It consequently follows, that, by lessening the effects of sudden vicissitudes of weather, either by choice of situation, or by protection of the body, a very

principal step will be made towards the prevention of this terrible malady.

Towards the middle of May two more of our people died, who had been laid up in consequence of going to Canton, where they had, according to custom, lived rather irregularly. Both of these men had arrived at that stage which rendered the effects of medicine very doubtful, before I was made acquainted with the mode of treatment which I have since employed with so much advantage and certainty of relief. To express what I felt upon the loss of the second of our men, and at the same time the prospect of adding to that number many more, would only be pointing out that want of firmness of mind which I was not till then aware that I did not possess. What chiefly gave rise to my uneasy state was my having entertained the idea, that ~~has~~ many had been so fortunate as to go an India voyage without the loss of a man, I might also by unremitting attention be able to bring my charge home in good health. Disappointed in this, however, I was now determined that the service should derive all the advantage which my unlucky situation could afford it; and at that time proposed to myself, with the first leisure, to collect my observations, as some little assistance to other



men, who might want, upon their first setting out in practice, what my experience had now taught me. Having in several other instances also been a witness of the sufferings of a most useful class of men, whose labours and vigilance had allowed me, during a considerable period of service, to rest in security and comfort, I conceived that I was in gratitude bound to contribute what I could to their health and preservation.

My quantity of calomel and Glauber's salts, the only two purgatives which I was in the habit of prescribing, and which I found best suited for common practice, were now almost expended; but I was fortunate in being able to get a liberal supply before we sailed from hence.

On the ninth of this month, owing to the unlucky wreck of his Majesty's ship Providence, and the return of her crew to China by a small schooner that had accompanied the ship, I had the good fortune to get another assistant; a young gentleman to whose care and attention much of our future health and exemption from disease and death was owing. Three seamen belonging to that ship, who had dysentery, we received on board, in hopes that by a speedy recovery they would soon supply the place of those whom we had lost.

On the tenth we left the Second Bar in company with thirteen other Indiamen and some small vessels, several of whom were affected in no less degree than ourselves with the prevailing diseases incident to that climate, which had been so unfavourable to us almost from the time of our arrival. We had now about thirty-four of our ship's company laid up, chiefly with dysenteric complaints; but there were none of them whose symptoms did not indicate a favourable termination, under the prospect of the advantageous change by going to sea. After we sailed, the weather continued tolerably pleasant for some time; but on the nineteenth a most dreadful gale of wind, here called a typhoon, attacked us, and continued to blow extremely hard for the next two days. The fleet in consequence of this were separated, and many of the ships in company with us suffered greatly in their masts: we were fortunate, however, to meet with no accident to the ship, but had several of our men added to the sick list, and had the progress towards recovery of many who were already ill, in a very considerable degree impeded. Finding the weather now, particularly at night, cold and moist, our commander, in order to support the strength of our much debilitated

crew (for there was not a man on board whose looks did not indicate an indifferent state of health), ordered the usual warm breakfast to be prepared for them, which he always desired to be got ready in such conditions of climate, and allowed each man also a pint of grog at dinner: he likewise ordered the bread which we had prepared at China to be served in place of rice. By these means, and by attention not to expose our people unnecessarily, we began at length to recover tolerably fast, and at a time too when many of the other ships in the fleet were daily increasing their number of sick; so that it is evident, men may by attention, even during an unfavourable season and an unhealthy climate, be preserved from disease.

During the late gale, one of the ships that remained with us got totally dismasted, and also lost her rudder, and, in addition to these disasters (probably the cause of them), was in a very sickly state. In rendering her what assistance we could, our captain's boat's crew were one day very much exposed during the hot and sultry weather, which succeeded to the late violent typhoon, and one of the men who had an attack of dysentery at the Second Bar was now in consequence

seized with every symptom of internal inflammation. He was bled freely, and the bleeding was next morning repeated. Blisters were applied to the abdomen, and calomel was pushed to affect his mouth: but my steps, I fear, were too tardy for such an acute attack; for mortification soon succeeded, and he of course died. This man, a few hours before he expired, still retained his senses. I happened about this time to go forward to visit him, and, after asking him several questions, he addressed himself to me in nearly the following words: "You know, Sir, that I have suffered a great deal since I was last taken ill, but I have not suffered so much from pain, as from the thoughts of being obliged to leave my duty at such a time when so many men are wanted, and the ship is so sickly, and the officers perhaps may think I am skulking: but I am in hopes now, as I feel no pain, that in a day or two I shall be able to go upon deck and assist a little." We are told that an Almighty Power was inclined to have saved the cities of Sodom and Gomorrah from destruction, provided ten upright men were to be found therein. Doth it not then behove us to exert ourselves to guard those from disease, among whom such a man as

this, and an excellent seaman, is to be found? The quantity of blood, which I took at twice, should perhaps have been taken at the first moment of his complaining to me. This man passed a very large worm after symptoms of gangrene had taken place: and in several others affected with complaints of their bowels, a similar circumstance occurred. Worms, I believe, are never to be found but during a debilitated state of the stomach or bowels; and, from the size of this animal, I am inclined to suppose, that this condition of the bowels must have existed in this man for some time previous to his being exposed to the more immediate effects of the inflammation, which proved the cause of his death. I am inclined to believe this an additional proof, that my ideas of a change of diet acting as a pre-disposing cause of disease in the several instances of sickness which have been adduced, are well founded.

The disastrous state of the Boddam detained our division about ten days, in order to conduct that ship back to Macao. We then proceeded on our voyage, in company with six other ships of the fleet that had not separated from us during the late gales, and on

the 1st of July passed the island of Formosa. During the next two days it blew tremendously hard, probably more violent than at first; and in this gale the Henry Addington had the misfortune to lose her rudder likewise; which proved another great cause of detention to the ships in company. On the 8th, a third gale, less violent however than the two preceding, came on, and continued blowing fresh in squalls to the 11th. On the 17th we experienced a gale of greater violence than I ever was a witness to, which separated our ship along with the Thames from the squadron. On the 19th, the weather having become more moderate, we proceeded upon our voyage without interruption. This desirable event brightened the countenance of every man on board, which was before dejected, desponding, and of the most pale and sickly hue; and our people now seemed to have pleasure in performing the duty of the ship. The weather during the rest of this month continued very unsettled, with rain pouring down in torrents; and during what short intervals there were, the sun's heat became extremely sultry and oppressive. The consequence was, that the dysenteric disposition still remained with us; and in several men who during this period had re-

lapsed, the disease had become confirmed, and arrived at the chronic stage ; which rendered our practice uncertain, and our measures of little avail. I particularly observed that medicine during this unhealthy period was very doubtful in its effects, and never followed by that relief which it produced in more healthy climates.

Soon after we left China, many of the dysenteric affections became complicated with intermittent symptoms, which in all assumed the tertian type. In the treatment of these cases I found repeated emetics, which were given upon the accession of the fit, to remove the disease in almost every case ; at this time, however, the mouth was affected with mercury. The bark was given in a few instances, but it generally aggravated the bowel complaint : in those in whom the disease was uncombined this medicine was of service ; but its power was chiefly evident in preventing relapses ; the emetics which were exhibited upon the approach of the paroxysm proving the principal means of stopping their progress.

About the beginning of August the weather began to assume a regular aspect, with a

settled and steady breeze from the S. W. quarter, an appearance which we had not seen since the 22d of March. On the 8th of this month we entered Dampier's Straits, and continued with various progress to explore our way through a navigation both intricate and but little known; and on the 31st, after passing between the islands of Floris and Timor, we reached the Straits of Allais with a fresh and pleasant breeze. At this place the commander had determined to stop for refreshment, and to repair some damages which we had sustained during the dreadful weather that we had experienced after our leaving China.

During this month we buried three of our people, whose complaints had arrived at that state which baffled every attempt to save them under the circumstances of our situation. Two of these men had been attacked with dysentery at China, before I came to the knowledge of what I have called an almost certain mode of treating that disease with success. They had returned to their duty after this illness; but whether owing to an imperfect cure, or to the effects of climate, or in some degree to both, is not altogether clear—they relapsed, however, and suffered much during



the late gales of wind, which in a great measure laid the foundation for the fatal issue. The third man had been several voyages to India, and had his constitution much injured by the climate and former sickness, and also by irregularity. During the time of his being on board the Carnatic, he had several very serious fits of indisposition, which he paid little attention to ward off, being often in the habit of getting drunk; and he appears to me to be the only man whose death could not have been prevented by active steps taken upon the first attack. He was one of those that I should have discharged, had I been allowed to examine the ship's company before they were paid their bounty at Gravesend.

Upon our arrival at Allafs, we had many of our people affected with scorbutic symptoms, and a few had the disease in an advanced degree: they were chiefly men who had been previously weakened by former attacks of those diseases which had been so prevalent on board, and from our ship's company having been so long exposed to a climate in an uncommon degree debilitating. It did not appear, in this instance, that the men who had been taking mercury were more liable to this

disease from that circumstance : on the contrary, I observed that those in whom the mercurial course had been pushed, so as speedily to affect the mouth, and thus give a check to the disorder before debility was induced by it, had but in a very slight degree any symptoms of this disease ; and in them the mouth was the only part wherein the scorbutic disposition was apparent ; so that mercury may be considered to have acted upon this occasion both indirectly as a preventative by the removal of disease and consequent debility, and directly, also, by its laying the foundation for an affection of the mouth, which its previous action on that part certainly appeared to favour. Two men who during the violent gales had been attacked by fever, attended with great prostration of strength, to whom I found the bark and the cordial regimen most useful, were those that suffered in the greatest degree from this disease. But I must here remark, that the symptoms of this fever were totally different from what commonly obtains the name of *remittent*. In this instance, the pulse was feeble, the skin had little increase of heat, and the patients were almost ready to faint upon being raised erect ;

and found inexpressible satisfaction from every dose of their bark and wine, which on account of an attending diarrhoea was joined also with an occasional opiate. In those cases of fever that occurred at China, wherein I gave the bark, every dose seemed to aggravate the symptoms, and the patients expressed the greatest reluctance on taking it.

At Allas our people were abundantly supplied with fresh provisions, vegetables, and fruit, so that the symptoms of scurvy soon disappeared in almost all who were indisposed at the time of our arrival. Three only continued to have some obstinate affections, which remained after the scorbutic diathesis was apparently removed. One of these men had laboured under this disease in the West Indies, where he told me that he had employed earth-bathing, and requested that I would allow him to go on shore for that purpose. I had little confidence in this remedy, for not having considered its principle of action; but as he seemed assured that it would be of service to him, from former experience, I consented to allow him to go: he moreover mentioned, that, if I would permit the other men who had the disease to accompany him, he would bring them on board much better.

This man's feet were cold, somewhat œdematous, painful, and covered with livid and copper-coloured blotches; the affection of his gums and petechiæ were removed, which change was also brought about in the other men by the vegetable diet and fruit, one of whom was dropfical, with œdematous swellings of his feet, legs, and thighs. It was about two days before we failed that these people went ashore, and under the direction of the conductor buried the affected parts for nearly half an hour in rather a moist soil. The dropfical patient was immersed up to the scrobiculus cordis. During the time that the affected parts were covered with earth, they said that it felt very cold: upon getting up, they went to the sea-side and washed themselves clean, and were well dried with a warm cloth. After dressing, they took a gentle walk, which produced a remarkable glow and increase of sensation in every part. When they came on board, in the evening, the guide of the party was very sensibly better, and the rest expressed great satisfaction, and hopes of getting well. In the course of the night, the man affected with the dropfical swellings began to make water freely, from the use of a diuretic draught, which he had hitherto taken without effect. On the next

day they went on shore a second time, and were buried as before; and in four days from this period, after we went to sea, these men were able to move about upon deck and do a little duty, the dropical patient being now almost free from his swellings.

The Thames, at the time of our departure from Canton River, was in a more reduced state from sickness than the Carnatic; and during the passage, hitherto having unfortunately continued to suffer, had lost many of her people. Such a prevalence of disease had entirely exhausted their stock of medicines, and obliged the surgeon to request that I would spare him what quantity of any purgative medicine I was not likely to want. Upon this occasion, he expressed the great loss which he sustained in being deprived of the assistance of calomel and the Glauber's salts, saying, that almost every other purgative tended in many cases rather to aggravate the symptoms, or at least was never succeeded by that relief which followed the operation of these cathartics.

Before we left this island, some boats arrived from the opposite shore of Sumbava, and brought us a large quantity of turtle,

which during a month of the passage to the Cape of Good Hope made a fresh meal daily for our ship's company.

On the 12th of September we sailed from this place in tolerable health; for notwithstanding our people had been a good deal employed in watering, stripping, and rigging the ship, yet, from the uncommonly fine and cool weather which we enjoyed during our stay, few had any complaint of consequence. Our passage to the Cape of Good Hope was uncommonly speedy, and upon the whole very pleasant, having had a fresh steady breeze during the whole of the run; and on the 23rd of October we anchored in Table Bay. In the course of this period we had several attacked with bowel complaints; and although I had seen the consequence of not pushing the mercurial course in every instance to affect the mouth, yet I was here put off my guard by conceiving that I might in such a favourable condition of the weather effect a cure by occasional saline purgatives, with an opiate at bed time (as, upon the first attack, those diseases only indicated a slight bilious affection). I was however deceived;—they terminated in dysentery, and, being in some degree confirmed before mer-

cury was had recourse to, gave me a great deal of trouble; and when we arrived at the Cape of Good Hope I had four of the men laid up. At their own particular desire, they were sent on shore to the naval hospital, where two of them died: the other two were sent on board in much the same state a little before we sailed, and was afterwards cured by mercury. The gentleman under whose charge they were placed had not at that time come to the knowledge of the effects of mercurial remedies in this disease. Almost constant confinement from the time of our arrival in China, and anxiety in the execution of my duty, had now very considerably injured my own state of health; and like almost every one on board, I was pale and emaciated, and had lost my appetite. By staying a few days on shore, however, which I found absolutely necessary, I soon recovered a tolerable good state of health.

While we remained in Table Bay, every possible attention was paid to our debilitated crew by their commander: bread was baked on shore and sent off to the ship daily, which was also supplied with mutton of the best quality; and, from having no-

this to fatigue them, they soon began to assume more healthy looks, and acquire part of their lost vigour and animation.

A few days before we sailed, the honourable Company's ship Cuffnells, one of the fleet that left China with us, arrived here. This ship had very imprudently touched nowhere from the time of their departure from Canton; and although they were one of the few that enjoyed a good state of health at that place, yet during their passage they had buried upwards of forty of their people, and had as many more now sick. The same ship lost eighteen of her men upon the outward-bound voyage, who died of scurvy; and it is probable (for I have not been accurately informed) that it was the same disease which now so dreadfully ravaged her. Here, then, is an instance of the loss of nearly sixty men from the inattention and neglect of a commander to procure proper supplies for his ship: I say neglect, for I have been credibly told, that upon the passage out he had it in his power to do so; and actually refused to detain his ship, lest two other Indiamen, from whom he had parted, should be able to reach the China market before him. Upon the passage home,



he had it as easily in his power as the commander of the Thames and Carnatic; but why it was not done, he must be better acquainted than I am. To me it appears that such a man ought never to have the charge of a ship, with whom no tie of humanity is binding; and surely, when we are almost daily presented with such calamitous events, too active and strict measures cannot be taken to put a stop in some degree to them. It ought never to be left to the discretion of a commander or an officer to make provision for his ship: he ought to have *positive orders* to that effect, which should subject him to punishment in case of neglect or inattention.

On the day before our departure from hence eight men invalided from his majesty's ships on this station were sent on board as passengers for England. At the time of our leaving Table Bay, on the 22d of November, we carried between sixty and seventy sheep to sea with us; and bread, which we had procured here, was now served to the people in place of rice, Every one had by this time acquired tolerable health, and had nearly established their former strength and activity. We arrived at St. Helena

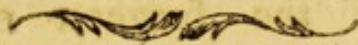
on the 3d of December, where we recruited our stock of water, and put to sea again on the 12th. During the passage to England we lost a native of India, who died of a fever. He had been seized in the cold weather off the Cape of Good Hope with a severe rheumatic affection of his joints, which reduced him greatly; from which he recovered so as to return to his duty, but remained weak; and soon after leaving St. Helena he was attacked in a similar manner, and the fever carried him off. I am here also inclined to believe, that, had I employed mercury in this man's case at the time of his being affected with rheumatism, I should have removed his complaints more completely, improved his constitution, and thus probably have prevented this attack of fever, which proved fatal to him.

Our passage to England was both very pleasant and expeditious, and without any material circumstance that requires to be taken notice of. On the 5th of February, 1798, we moored the ship in Long-reach, after a voyage of nineteen months; and, out of a complement of one hundred and sixty men, having lost thirteen by disease and one by

accident. The Malay Lascars, who were to have been landed in their own country, were brought home with us by their own consent, owing to the reduced state of the health of our seamen,

## LETTER III.

### *Observations.*



SIR,

IN the relation of the principal circumstances, which my recollection, assisted by some memorandums, at present enables me to lay before you, respecting my observations and transactions while employed in the honourable Company's sea-service, I have occasionally interspersed some remarks, as I thought they would be better connected with the particular subject which gave rise to them: but I have here also, in addition to these, to call your attention to some other matters, which I have been induced to conceive somewhat important; and, if put in practice, will, I am assured, not a little contribute to the comfort and relief of many who under the present system, are miserable sufferers.

You must be thoroughly acquainted with the nature of the situation of a surgeon of an Indiaman, and it will of course be needless for me to enter into a description of it further than is connected with the present intention, which is necessary for the more complete elucidation of the proposals to be made.

The pay of the surgeon employed in this service is so inconsiderable, that it is not to be wondered at if he directs his attention to the study and profits of trade; and his whole object, in general, immediately upon his appointment, is bent to ascertain in what way his *privilege* is to be best occupied. The making of any preparation for his more *immediate* duty is a secondary consideration; and he joins his ship more in the character of a *trader* than a professional man. In the course of the passage, his mind is entirely engrossed with the thoughts of a good or bad market; and, instead of writing his journal and inserting many useful remarks, he is busily engaged in preparing his invoices and arranging his accounts. Upon the ship's arrival in India, he is amongst the first ashore where he remains for the sale of his investment; and the charge of the health of the British seamen is intrusted to a young as-

sistant, who probably had just finished his anatomical studies, and is as yet a perfect stranger to the wants of a sick bed. Disease now begins to prevail; many are seriously indisposed; some die; and others are reduced to such a state, that, when the surgeon himself makes his appearance, upon the ship going to sea, any assistance that he can render is of little avail. His occupation now divided between his mercantile speculations and the care of the sick, renders the performance of both imperfect: but as money usually inclines the balance, the thought of the next market predominates, and many an excellent fellow is lost to his country from the little consideration which is paid to his case. The man who has once engaged in a trading concern must complete it, or else involve his affairs; and, during the ship's stay at the next port, the adventure for sale at home obliges the surgeon to commit the charge of the sick a second time to his assistant, and he remains immersed in purchases till the ship is ready to sail upon the homeward-bound voyage, sparing time probably once a week to take a step on board: and it not unfrequently happens during this lapse of time that many a good seaman hath been committed to the grave. As the medico-mercantile man went out, so he

comes home, visiting the sick, and having his thoughts engaged with his profits and losses; to-day writing his journal of the medical transactions, and to-morrow his waste-book and ledger. These are the men who lately applied to the Company for an increase of emolument. The picture which I have drawn I believe to be an exact one; and I know that it is not too highly coloured. It is surely then unnecessary to say, that some regulation and a considerable alteration are absolutely necessary. That the proper one would not immediately occur to you, from what I have now laid before you, I am far from supposing; but allow me, notwithstanding, to state what has offered itself to me upon this subject, and I leave it for you to judge of its merits.

The honourable Company, then, ought to consider, that they employ a surgeon, and not a merchant, for the preservation of the health of their seamen, and that his emoluments ought to arise from the exercise of his profession *alone*, to which he should be *confined*; and, until that is the case, deaths must and will be frequent in the service. Let the pay, therefore, of the man who fills this situation of trust be somewhat bettered;

and, if the general merit of those employed claim it, give them something to look forward to, which will thus retain men of experience in charge of the sick on board of these ships. As the seamen is now to benefit by the surgeon, let him pay for it, and let it be done after the following manner:—the different ships' crews are generally advanced two months' pay in India or at China, for which they are obliged to pay to the captain or purser three months' wages in lieu of interest, upon their arrival in England.—Let this now be done away with, and let the poor seamen have a little money without interest; but let him pay to the surgeon at such a rate as would be nearly equal to this expense which will be about one shilling per month. This, with a compliment of one hundred and twenty men, which is about the medium number of the crew of an Indiaman, will amount to six pounds; and if his pay is increased to five pounds per month, he will be amply recompensed, and stimulated on his own account to preserve the lives of as many as possible; and further, having nothing now to think of but his profession, I doubt not but he will act with that humanity which becomes the medical character. Let the pay if his assistants be such as to enable



him to mess with the third mate—it will add a degree of respectability to his situation and save many a young man from the contamination of loose and corrupt principles.— Upon the present system, the assistant-surgeon, on many occasions, must either involve himself to pay his mess at a table, where his rank calls him to sit, or join in all the blackguard scenes of a midshipman's birth. We have now provided very handsomely for both the surgeon and his helpmate; and, it is to be hoped, to enable them to fill their several departments, so as to leave no room for the least exculpation, should they fail in proper attention; and I am well persuaded, that the advantages of such regulations would soon become apparent.

The first thing which will occupy a surgeon, after his appointment, is to get his medicine-chest fitted up before the ship comes afloat, and he is personally to examine the condition of the several articles which are to be packed; for it too often happens, that little attention is paid to this circumstance by the druggist, who very often neglects to send on board many of the articles that have been ordered; and many that are sent are frequently found in rather an indifferent state.

It will be needless, I believe, to adduce further evidence for the necessity of the assistant's joining the ship, upon her coming afloat than the particulars mentioned in the account of my voyages, which sufficiently point out the propriety of having a medical man in the way at such a time of labour and exposure.

Before the people are paid their bounty and advance, the surgeon should receive orders to examine the state of every man on board; that those, the health of whom is likely to render them useless for the ordinary kind of East-India voyages, may be discharged. Thus will he save himself much future trouble, and actually increase the effective strength of the ship; and although this is a thing which is never attended to, yet I know nothing more essential towards the preservation of a ship in health; for during my last voyage I had four men whose names were not out of the sick-list for two months together through the whole voyage.

The surgeon has orders to visit his sick twice a-day. This ought strictly to be attended to, even if he has only one man ill; for he will often discover and prevent many

little things, by this regularity, which might in the end prove of very serious consequence. During the outward-bound passage, he will in general have little to employ him; but upon the ship's arrival in India, he may begin to expect a prevalence of sickness, and he is upon no account to think of quitting the ship to live ashore, for it is only now that he will have an opportunity of showing his discernment and attention. Instead of twice a-day, he should in this climate see his patients regularly every four hours; first in the morning about seven o'clock, before breakfast; again about noon; a third time about four o'clock; and again in the evening about eight; and he will often find his presence useful in taking a look round the decks between eleven and twelve o'clock at night, before he goes to bed. By adopting this latter practice, I once saved the life of a seaman at China, who had been attacked with a cholera-morbus:—he was seized after supper; every one about him was asleep; having got out of his hammock to go to stool, he had found his calls so pressing, that he sat down upon deck, and continued vomiting, till at length he was so reduced, that he could not call upon any one to give him the assistance which he ne-

glected to request in the beginning; and when I came along the deck, at my usual hour, I found him exhausted to the last degree; and he certainly would have been soon irrecoverable, had I not fortunately, in pursuance of my practice, happened to come at a timely moment to his relief.

The surgeon should now have certain formulæ of medicines always ready, that he may be instantly able to relieve any particularly pressing symptoms, which will at such times be found to occur. I shall mention a few of those that I found most convenient and best suited to my practice:

1. The solution of Glauber's salts with emetic tartar, to which was added some oil of peppermint.—2. The saline mixture with emetic tartar.—3. Calomel pills made with crumb of bread, and containing two grains each.—4. Small opium pills, containing three quarters of a grain of opium, with one and a half of calomel.—5. Emetics, consisting of a scruple of ipecacuanha alone; and some containing a scruple of this powder, with a grain and a half of emetic tartar.

By these means I was always prepared for the common run of my practice on board

ship; and for this necessary and essential arrangement I am indebted to a gentleman, whose name I have taken the liberty of mentioning in a former account. Should bowel complaints or fevers become frequent, the surgeon ought to have a sick birth immediately erected, being regulated in the choice of its situation by the prevailing cause of the present disease; and two attendants ought to be appointed, one of whom should be constantly with the sick, to see that his orders are properly attended to with respect to diet and regimen, which with seamen will be found a very necessary precaution. The surgeon is never to trust the exhibition of a dose of medicine to any one but his assistant, who is to pay attention to the minutest part of medical prescription: and here it will be proper to observe, that not a little depends upon the assistant's husbanding the stock of medicines with care, being attentive never to allow a single bottle to be left without being carefully stopped and covered; for, owing to this neglect, it not unfrequently happens, that many very valuable and indispensable articles are lost, and many a poor fellow consequently suffers. No man, who has any complaint of his bowels, should be allowed to go upon deck to stool;—in the

sick birth, or in his own, if there are few sick, he ought always to have a covered bucket with a little water, which the attendant should be made to empty regularly: the advantage of this will appear from what I have noticed in another place. In unhealthy situations, and indeed on every occasion, there is no one circumstance which the surgeon will find so conducive to health, to the removal of disease, and the prevention of death, as never to allow a man to return to his duty, until he is perfectly recovered. I know of no maxim that ought to be more impressed on a surgeon's mind than this; and yet it is so little regarded, that numbers have fallen victims to its neglect. I have stated the above necessary attentions, to show what is to be expected of a man who makes his duty his study; and that the necessity of the surgeon being so placed, as to be engaged in the way of his profession *only*, may the more evidently appear.

We shall now examine some particulars relative to the state of the ship's company, whereby it will become obvious, that several regulations for bettering their condition are much wanted. When a Indiaman comes afloat, every man who can find his way on

board is in general received, at present owing to the scarcity of hands; but, in time of peace, I understand that it is otherwise—none being then admitted, but seamen or able-bodied landmen. Many of the ship's crews at the present crisis are not unfrequently found martyrs to disease, which they labour to conceal till they have received their bounty and advance, when they for the most part take the first opportunity of showing it, knowing that they are now secure of an appointment, and are sometimes careless whether they are discharged or not, after getting such a sum of money. Hence the propriety of the surgeon's previous examination.

The mode of arrangement which is adopted in paying seamen money, at the time of fitting out, is fraught with many improper and evil tendencies, some of which we have already noticed. Men are thus provided with the means of exposing themselves to the infection of a disease much to be dreaded; and, instead of purchasing necessaries for the voyage, they only think of procuring liquor:—they get drunk, are always quarrelling, and often bring both themselves and officers into very unpleasant predicaments.—Under such circumstances, then, some regu-

lations may certainly be admitted. Men ought undoubtedly, to have such articles provided for them, as are likely in the course of a long voyage to render them comfortable, and to prove some protection to their health; and in this way should their bounty and advance be paid them: for, according to the present system, a man often goes to sea without a single garment belonging to him, but what he may happen to have upon his back. The purser, then, should be supplied with necessaries, contracted for by the company at a moderate and fixed price: a man ought, in this way, to have a good bed; he should have several suits of clothes, clothes adapted for every climate; and he might be supplied with a stock of provisions, such as tea, sugar, and tobacco, that would make his life at sea by no means an unpleasant one, independent of contributing in the most essential manner to his health. Thus would a stop, in some measure, be put to those scenes of riot and drunkenness so frequently to be met with on board of ship; and the industrious tradesman would receive what either falls into the hands of women of loose character, or the spirit vender. Order and regularity would be established; and men might, perhaps, from being for a time accustomed



to experience the satisfaction that would arise from that mode of life, become reformed, and probably be made respectable members of society.

By adopting these arrangements, a ship's company will in all probability leave England in perfect health, and in every respect well provided; and they will also have a surgeon interested in their welfare and preservation, the study of which will now be his sole occupation: they will likewise, I hope, arrive in India for the most part (probably always now, with the ordinary run of passages) free from disease; and it will then be necessary to exert ourselves to preserve them so during their stay in harbour. We will therefore suppose that the ship has arrived in Madras Roads, and I know of no difference in point of situation here, wherein a commander hath to exercise his discernment in the choice of anchoring ground, which is the first thing to be attended to upon all occasions. After this necessary arrangement, then, no one should be admitted on board from the shore, nor are seamen to be allowed to make any purchases without the sanction of their commanding officer, as it is but too well known that their discretion is not to be trusted.—

Men, according to the present mode, are in general employed at work through the whole day; and often without regard to climate, are exposed to every change of weather.—As I have never seen any necessity for this plan of proceeding, and as I know that the same duty may be carried on, and proper regard be paid to the health of the people, I beg leave to offer the following regulations upon this head, which will apply to almost every situation in a hot climate. Men are called at day-light in the morning, and continue at work till about eight o'clock, when they are ordered to go to breakfast, for which they are allowed half an hour: they return to their duty, and remain employed till between twelve and one o'clock, at which time they are piped to dinner; in the present climate we have before seen the impropriety of this mode of practice. Men, therefore, should now be allowed to leave off work for an hour and a half; and in place of dinner, each man ought to have half a pint of wine served him, mixed with a proportionate quantity of water (and we shall by-and-by point out the means of procuring wine): this he will drink—it will refresh him—and he will, perhaps, eat a bit of bread or a little rice with it, if a rice diet is served; but we shall also

point out a mode of procuring bread, and of having that article good during the whole voyage. This little refreshment will be found sufficient to satisfy the calls of appetite, which he may feel about this time, from its being his usual hour of dinner at sea; and after his rest of an hour and a half, removed also from the effects of the sun's greatest power, he returns enlivened and with vigour to his duty, and will perform more work before the evening than if he had been employed throughout the whole day; and, from his wine and water, with the bit of bread, will be doubly active and light. In the evening, when the labour and heat of the day are over, let him have his dinner after he has cleaned himself; and he will now eat with an appetite, and digest it well. Thus will be obviated that pernicious custom of eating supper, pernicious on this account: that if a man, under the circumstances which we have described, have eaten his dinner about twelve or one o'clock; which with us is the principal meal, it requires a great exertion of the digestive powers, consequently induces a considerable degree of debility, which in such a climate is never recovered from so soon, as to admit of animal food being again made use of in the evening. Hence the impropriety of the

practice must be evident; and its hurtful effects are also confirmed by experience—diarrhœa and cholera-morbus being so often the consequence. By the alteration however, which we have taken the liberty of pointing out, the stomach, from the moderate exercise which we have prescribed for it in the forenoon, hath its powers increased; and in the cool of the evening will be found well able both to admit and digest a hearty meal. Moreover, in this way do the inhabitants of almost every warm climate regulate their diet.

At such a period as the present, officers should be careful to have the whole deck covered with properly fitted awnings, which, I am sorry to observe, is in many instances neglected; and these awnings should be made of the strongest canvas, that they may be impervious both to the sun and rain. In fixing them, the greatest care should be paid to their being raised at a proper height from the deck, otherwise they render it hot and close, and thus in a measure destroy their own intention. As every ship is supplied with a fire-engine, this machine in hot weather, when there is little wind, should be employed to keep the awnings constantly

moist; a circumstance, if attended to, that will afford great satisfaction. In rainy weather a large curtain, made of the same quality of canvas with the awning, might be stretched along the outside of the rigging that is exposed to the wind, and fitted to the awning, which will thus effectually prevent those people who are employed upon deck from suffering so much as many of them do at present, and enable also the duty of the ship to be carried on without interruption.

We have now regulated the diet of the people; we have given them stated hours for work; we have protected them from the sun; and during hot states of weather, have kept them cool, by wetting the awnings and curtain, a thing which I must repeat to be the means of infinite gratification; and, lastly, we have defended them from wet and rainy weather. We must not, however, neglect to mention, that when there is a choice of situation, the commander should be careful to anchor his ship in a place which will render the climate as regular as possible, and will admit of a free circulation of air from every quarter consistent with the security of the ship. These circumstances should be more

particularly attended to at Wampoa; but perhaps there may be other places where the same strict attention is necessary, but none at present occur to me.

Some young, and not a few old, commanders may probably wish to know in what manner their predecessors and contemporaries of merit have conducted so successfully the economy of their ships, and to have all the information in their power respecting the means most likely to preserve the health and vigour of their crews. We have, then, *given* them healthy men, clothed them well, and provided several necessary comforts for them; we have appointed surgeons to the ships, who have only their duty to attend to, (and, it is to be hoped, the commander will take care that they execute it properly); for he should always make it a point to muster the sick regularly every day, according to the sick-list. Men will thus be always clean, and not tempted to feign complaints. As the seamen on board of East-India ships almost all sleep upon the gun deck, it should therefore be studiously suited to every condition of weather. In cold and moist states of the air, it ought never to be washed, but should carefully be kept dry, and scraped clean twice a

week; and it should after breakfast and dinner be always regularly swept. In washing the upper deck, which is generally done every morning during all kinds of weather, regard should be paid in winter, or in cold latitudes, not to expose men at such an early hour; as it might be as well performed after breakfast. In warm and dry states of the atmosphere, either within the tropics or during a mild summer season, the gun deck should be washed twice a week. Great attention should be paid to have the ports properly fitted, so as to admit no rain nor water at sea; and, when any by accident hath found its way into the ship, it ought to be instantly sawbed as dry as possible. It is a common practice, but rather an inexplicable one with regard to its effects in the preservation of health, to smoke some ships occasionally with gunpowder. Instead of this ineffectual method of proceeding, I would recommend, during damp and rainy weather, to shut all the ports, hatches, and scuttles, for an hour or so together, and to let fires be carried along the gun-deck, which will thus evaporate all moisture, and produce that condition which is found to be so healthy during a dry and temperate states of the air. This practice should be more particularly attended to after blowing

weather, when the ship almost in every part will be observed to be uncommonly moist and chilling.

The hammocks should be got up every morning before breakfast, and should be spread upon the booms, or over the long-boat, where they can be exposed to the action of the sun. After squally or wet weather, the bedding, blankets, and clothing, of all the seamen, should also be opened out to dry; and at the end of every three or four months, every hammock ought to be clean washed, —During rainy and unsettled states of climate, the hammocks ought to be taken down and lashed over the guns contiguous to the different births, where they will be out of the way of getting wet, and will admit of a free circulation of air between the decks. At sea, many of these things are in general so regularly attended to, that it may be thought superfluous in me to have mentioned the above particulars: but I must observe, that, along with many other very essential regulations for the preservation of health, they are totally neglected upon the ship's coming into harbour, where they are fully as necessary as at sea; thus in a manner acting as if men could not be affected by the different causes



of disease in such a situation. It is chiefly on this account that we have touched so minutely upon the subject; for more attention is by far necessary to be paid to the condition of men in harbour than on almost any occasion at sea, where they for the most part live regularly, have little hard duty, and are not often exposed in a great degree to the vicissitudes of weather. Particular regard ought therefore to be paid to keeping the gun-deck as clear of lumber, clean, and well aired, as if the ship was at sea. Some men, who are perhaps wanting in method, may think this an impossibility; but I have seen it done, and know that it can always be done with a little attention.

Almost all seamen feel a pride in being supplied with good, and even fine clothes, which will be found a great means of attaching them to a ship; and they will also, with proper measures, upon all occasions be even scrupulous of their regard to be clean. As we know of nothing, therefore, that so powerfully contributes to health in the kind of climate to which in India we are more particularly confined, I think that religious regard ought even to be paid to it, which we find to be the case in many warm countries; and I doubt not that this maxim is

inculcated from the necessity of the practice. On board of most ships, the men are generally mustered every Sunday at sea, at which time they are expected to appear clean; but during the rest of the week, little attention is given to what they wear. On mustering days, however, men should not only be desired to appear clean in their dress, but should be obliged to bring every article of their clothes in the same condition: and we would beg leave to recommend that each junior officer have his appropriate division of the people to attend to in this respect, and should be made accountable for any neglect in their part, of the general order issued by the commander. We would, moreover, wish that the same practice be continued in harbour, where, I think, it is more necessary to be attended to, from the great labour and dirty employment of seamen during their stay there, than almost in any instance at sea.

All occasions should be avoided of exposing the people during unsettled states of the weather, and especially those men employed in the tops, who should be called down unless particularly wanted aloft. But when exposure becomes unavoidable, the commander

is to fortify his people as much as he can against the dangerous effects of cold and wet; for example—as it often happens that men are called up in the night, during rainy and blowing weather, to reef top-fails—after this process is gone through, each man ought to be allowed a certain portion of the liquor which may happen to be used on board. In the cold latitudes off the Cape of Good Hope, and during such weather as we have described the Carnatic to have had upon her passage from Madras to China in her first voyage, and after leaving China in the second, men should have that invigorating breakfast prepared for them which we have already lanced out so much in favour of, and should likewise at dinner be allowed a little weak grog, or rather some wine and water. And here it may be right to point out in what way both wine and bread are easily to be procured for the seamen of the different ships that visit India, especially the latter article, in quantity sufficient for the consumption of the whole voyage.

As the Cape of Good Hope is now likely to be retained in our possession, wine, therefore, may be procured (I believe even at present) in such quantity as will be perfectly

sufficient for our purpose; at least it may soon be obtained by a little encouragement given to the farmers for the cultivation of the grape. The company, then, should contract for such a quantity as will be adequate to the wants of their ships, while they happen to continue in hot weather in the country, upon their passage out and home; and they should be ordered to touch at this place in order to take on board a stock proportionate to the number of their people: and orders also should be given that it be allowed to each man, both in harbour and at any particular time of fatigue, to the extent of half a pint in the forenoon, and half a pint in the evening or at dinner. Biscuit should also be baked here, and supplied to the ships by contract, sufficient to last them during their stay in the country; thus will this article of food be always in a sound condition, and thus although in a small degree, will the quantity of provisions be reduced which is carried from the mother country, and its price probably also affected.

As every ship that touches at the Cape can carry to sea about eighty or a hundred sheep, which will prove sufficient for a month's expenditure, there will then be no necessity,

with an ordinary passage from thence, to supply any of them with fresh provisions at such a place as Madras, where we have described the beef to be of so indifferent a quality; and, if this plan can be accomplished, I am well assured that it will be found in the highest degree conducive to health. As I am, moreover, of opinion, that scurvy may be prevented, and slight symptoms of this disease even cured, when men are living upon a salt diet, provided a small quantity of fruit is made use of; I therefore, think that, were this point thoroughly ascertained and established, any change of diet at such a critical time would be rendered unnecessary, and perhaps many of these disorders so destructive to seamen might be prevented. But the necessity of a change will not be so pressing, and may even be dispensed with, when men have been living so long on fresh provisions, as they will have been by our arrangement, after leaving the Cape of Good Hope.

It is further probable, that, if men at such a place as Madras were to have some fresh lime-juice and sugar added to their wine and water, a change of diet might also be made less requisite, or perhaps not at all required.

We would likewise recommend encouragement to be given for the feeding of bullocks at the Cape of Good Hope, which are of a large breed; and the meat of them should be salted in the winter, and bought by contract for the use of the company's ships.— From this circumstance it might happen that the expence of a chief article of food would be rendered more moderate to the labourer at home; at least the price of salt beef would be reduced in the purchase for the navy. The ships should stop in Saldannah Bay in winter, where, I understand, excellent water can be procured at that season; and in summer the weather will admit of their going into Table Bay. By this plan inhabitants will be called to a part of the country which wants and will admit of high cultivation; and ships will be perfectly secure at every season, which they are by no means at present, by going into False or Simon's Bay in winter. We must likewise mention that ships may be supplied at Canton, and, I am informed, at Bengal also, with excellent bread; at a very moderate price, if it is contracted for.

As it almost always happens that the water on board of ship becomes putrid and very offensive soon after going to sea, particu-

larly if it hath been put into new casks, or casks that have not been properly charred, attention should therefore be paid by every commander to this part of cooperage; and we shall here likewise point out a very easy mode of rendering this essential article sweet and agreeable, which was always adopted on board the Carnatic. The water intended for the next day was brought up early the day preceding, and exposed in a cask with a large scuttle cut in the bilge; in was every now-and-then well stirred round, so as to admit the escape of the putrid vapour; and the next day our people had water little inferior to what they use in harbour.

I would here beg to request that the foolish ceremony which is gone through upon crossing the line be abolished, as it is fraught with many very injurious and disagreeable circumstances; and we should likewise wish that seamen be no longer allowed to go up to Canton upon liberty (as it is called), but that they have proper necessaries purchased for them at a stated price, as we have proposed to be done at Gravesend, instead of intrusting them with money, which, it is well known, they never use with discretion. They can go occasionally ashore on one of the

islands contiguous to the ship, which being elevated and dry, will be a proper place to afford them sufficient exercise and amusement.

Every man, as we have already recommended, should have water boiled for his tea, both in the morning and afternoon, in one of the ship's coppers.

Accidents occur less frequently on board a ship than might be expected from the nature of a seaman's employment; and the greatest number that have happened during my service have been from negligence, and want of attention to a very simple circumstance, "that of not properly securing the gun-deck hatches at night," whereby men, in the dark, and very often when in liquor, by falling through, have thus fractured sometimes a leg, sometimes an arm, or a collar-bone, and have frequently received very serious injuries and wounds of the head, and often bruises, from which they have been long in recovering. These hatches ought therefore to be covered with gratings, as upon the upper deck, that a free circulation of air may be admitted below, when people are



sleeping there; and these gratings should be so secured by hinges, that, when opened, they may be a protection to the hatchway on each side; and thus, if a man stumbles, when this plan is adopted, he will fall against the perpendicular railing.

We have now only to request, that the company will be pleased to give such orders, respecting the seamen employed in their service, as will prevent commanders and officers from acts of oppression; but although we have stated some remarkable instances of such conduct, yet I would wish to persuade myself that, in general, they are rather unfrequent; and it is to be hoped that such arrangements will be made, as to allow those poor fellows stated hours for labour.

The company should, moreover, give positive orders to the commanders never to remain at sea above three months without a supply of fresh provisions or fruit; for notwithstanding ships have continued at sea for a much larger period without any symptoms of scurvy, yet the disposition to this disease is almost always about that time beginning to form; and we cannot, in every instance, too strongly enjoin the most strict attention

to be paid to the proper support of a vigorous constitution, for we shall often heartily wish to do it when it is not in our power to effect it.

‘ Adjuva, defunt multa.’

## LETTER IV.

### *Medical Remarks.*



SIR,

I HAVE reserved a particular account of my practice in the treatment of those diseases more immediately incident to an East-India voyage for a separate relation, and shall now, therefore, state to you in what I have been successful, wherein it appears to me that I have erred, and the inferences, which the apparent evidence on both sides hath induced me to draw, so as at this time to regulate my conduct in the prosecution of a curative process.

In the first place, then, as dysentery hath been the most frequent disease in my voyages, and the one wherein I have had the best opportunities for observation, I shall point out my progress through those diffe-

rent periods that have led to the condition which I now find myself in with regard to the management of it, and shall afterwards mention what few remarks I have been able to make upon the other complaints generally prevalent on board of ship.

When I began my practical career, the ideas which I entertained respecting the nature of this disorder must have been extremely limited and inaccurate, like almost every other young man upon his outset; and from few or no opportunities of seeing it treated, I had hitherto thought but little on the subject; so that an opinion, right or wrong, I was no judge of—could be swayed either this way or that—be easily prevailed upon to employ medicines diametrically opposite in their effects; and not knowing what intentions I had to answer, knew not whether to prosecute the course which I had entered with—alter it—or foresee, from the condition of my patient, that medical exertion would prove of little avail, in whatever way directed. Unluckily for me, under my present circumstances, I happened to be placed with a man, who, although he had been several voyages intrusted with the charge of the health of one of the company's ships, yet

had not in a single instance reduced his practice to any degree of simplicity capable of affording me that satisfactory evidence which partly experience, and partly the useful lessons of another man, have since taught me.

During my first voyage in the Carnatic, whilst my predecessor was surgeon of the ship, the first bowel affection that came under our treatment was an old chronic dysentery, with which the ship's cook was troubled at Portsmouth: occasional doses of rhubarb were given, and, on the intermediate days, the bark in substance with an opiate. As I was not in the habit at that time of noting down very particularly the various changes that took place, I can only state, from recollection, that this man constantly complained that the bark occasioned great heaviness, and sometimes sickness at stomach, and, unless when combined with the opiate, of its increasing his calls to stool. About this time, however, he was seized, as were several others (see the account of that voyage), with an erysipelatous affection of his arm; and if I rightly remember, the complaint of his bowels was now completely removed. From this time he recovered, and continued to do his

duty until our arrival at that sickly period of the passage between Madras and China, when he was again attacked with his old complaint, and in the same account will be seen the particulars of my success in the treatment.

While the ship continued at Madras affections of the bowels became very frequent, the management of which was entirely left to me. They fortunately happened, however, to be chiefly diarrhœas, and were for the most part removed by a purgative or two, conjoined with an opiate at bed-time. Upon leaving Madras, and between this place and China, the features of our prevailing diseases were soon changed, and assumed the dysenteric aspect; and it was now that the lameness of our treatment became conspicuous by the loss of seven men, who died by the effects of inflammation, terminating in mortification: the best proof possible, without entering into a minute detail, that our intentions of cure were either not diligently carried into execution; or were founded upon wrong principles. I have mentioned, in another paper, that neither the surgeon nor myself were aware of what changes were to be effected by our proceedings; for it

would often happen, probably, after pursuing the purgative plan for a few days (that is, by giving a purgative in the morning and an opiate at night) that without any satisfactory reason, we would begin with the bark conjoined with opiates in one case, antimonials or ipecacuanha with opiates in another; and, if the gripes, and tenesmus became more urgent, a variety of astringent and cordial remedies, such as the cordial confection in a chalk mixture with laudanum, were made trial of, giving perhaps at the same time an occasional purgative, which was sometimes calomel, sometimes a dose of Glauber's or Rochelle salts, with fenna or manna; and the tinctura sacra, lenitive electuary with jalap, or the oleum ricini, were also prescribed. It is true that many recovered: but I do not recollect a single case in this gentleman's practice which was treated according to any system: he simply gave out that this particular case was well adapted for that particular plan of treatment, without having any general intention to answer that I was informed of.

Upon the unhappy indisposition of the surgeon of our own ship, the surgeon of the Dublin came on board to my assistance. The

only difference which I found in the practice of these two gentlemen was, that the latter was not so fond of varying his prescriptions, and confined himself chiefly to the Glauber's salt and Castor-oil; but he was also an advocate for the bark, and the astringent plan occasionally. A favourable change of the weather, however, produced a sudden alteration in our condition of health, and did more in a few days than we could have effected in as many weeks, so that almost every man on board was soon in a promising situation.

After the charge of the sick had devolved upon me during our passage home, it is evident, from my history of that voyage, that I knew as little as the medical men above-mentioned: I moreover related, that I found another surgeon on board the Walpole, as defective in knowledge as myself: and now that I am but too well assured that there are many in the service of the same description, I shall surely be excused for attempting to point out to them an improvement and facility of practice.

Fortunately for every one on board the Carnatic, we continued tolerably healthy du-



ring the rest of the voyage. Off the Cape of Good Hope we lost one man, who died of internal inflammation, an evident proof that sufficiently speedy and correct measures were not employed for his relief. In the detail of several cases in my account of that voyage, the good effects of mercury are made very conspicuous: but still I had not penetration enough to determine me to use it in other cases that proved fatal by trusting to other means.

Soon after my arrival in England, "Clarke on the Diseases of a hot Climate," fell into my hands; and, being then but a late publication, I was induced to give into his principal opinions, and adopt his recommendations of practice, more particularly as his high encomiums upon the effects of mercury in dysentery called to my recollection how I had been successful by the use of the same remedy. I accordingly began my next voyage, determined in every case of dysentery to employ mercury: but I was not made aware by this book how necessary it was to affect the mouth within a given period, to avert the fatal stroke in many cases. In the fever called remittent, which hath generally been said to be so fatal in hot countries, I had

in like manner resolved, after evacuating the stomach and bowels, to use the bark in substance early and liberally, not aware—nor does the above author appear to be so—that it is the operation of the emetic and purgative remedies which hath given the credit to the early administration of the bark; for this medicine, although powerful in preventing the return of this and other fevers, yet will never be found to cure any of this type when present.

Upon the outward bound passage of my second voyage, several slight cases of dysentery occurred, wherein I regulated my practice so as to remove any occasional severe gripes, by purging, and in the intermediate days employed such remedies as it appeared to me would support the strength of my patient, and give tone to the stomach and bowels. I was successful, because I had little to do, the disease being unattended by any violent symptoms, and happening under tolerable favourable circumstances of climate. I was, however, proud of my practice and supposed cures, and began to conceive myself invincible. On the first day I gave the solution of Glauber's salts, which in general operated freely by stool, and at bed-time

an opiate with calomel was exhibited. If the gripes and tenesmus were not urgent on the next day, I gave pills composed of ipecacuanha, calomel, and opium, at an interval of three hours. The third generally obliged me to repeat my purgative, which was sometimes the Castor-oil. The gripes and tenesmus were again relieved, and the fourth day, admitted of my pills a second time. Very often the next purgative on the fifth day carried off the disease, or, a diarrhœa being induced, continued moderate under the use of the pills, and the patients got well, without the mouth, if I recollect, being affected in any instance.

Thus we got to China after rather a long passage, without the loss of any of our people by disease. But here a scene was soon opened, which convinced me that my ideas were by no means correct. The practice which I had adopted upon the passage to that place I now began to deviate from (the usual consequence of acting without principle); and, in one or two cases I tried the effects of calomel and opium combined, in expectation of effectually relieving the gripes, and also of keeping the bowels open, hoping in this way the sooner to effect a cure. I gave

these medicines, in the proportion of three grains of the former to a quarter of a grain of the latter, every three hours; but the result was very different from what I expected; this formula having operated, as if an opiate alone had been given, no sensible influence being perceivable from the calomel. The consequence was, that this improper treatment, and loss of the two or three first days, which should have been better employed allowed an impending inflammation to take place, which ended in the death of one of our people. Disease was now daily increasing, and becoming in many instances more violent: my curative indications, which I was formerly so elate with, began to fail me; they were not sufficiently active for the present aggravated symptoms; and my doses of medicines were often ineffectual, soon convincing me that my measures were not at all applicable; and it was not till I met with the gentleman whose name I have thought proper to mention, that I was put into the train which I afterwards followed up with so much success; and, as I have had no reason to alter the several ideas, which Mr. Liddel pointed out to me respecting the nature of dysentery, I shall now take an opportunity of explaining them.

I was now informed that I must expect to find this disease present itself in various shapes, and in different degrees, but that they were all at such an unhealthy period to be equally dreaded—the simple attack often more than the combined, because in the latter there is in general so much alarm as to induce the surgeon to employ powerful means for the removal: but in the former, the appearances are often so deceitful as to lull the practitioner into a fatal security, until the disease becomes confirmed, and the success of the treatment very uncertain. I was therefore recommended to purge freely, and to carry mercury with speed in every instance to affect the mouth, and was also desired to keep up the soreness of the gums, until a diarrhœa was brought on, which I was told to consider as the only certain criterion of the removal of strictures, or the immediate dysenteric cause. Thus far were my ideas, respecting the nature and management of this disease, simplified; and, being put into a proper train, a little reasoning soon afforded me that satisfactory evidence which I had hitherto so much experienced the want of, and enabled me to proceed with determined confidence in the execution of my measures. That the proximate cause of pure and un-

combined dysentery will be best explained by the doctrine of stricture in some portion or portions of the intestinal canal, is apparent from the phænomena occurring in a case of recent disease; for as soon as stricture is formed, there takes place an increased action of the lower parts of the guts, inducing almost continual tenesmus; and as no fæces can pass the constricted parts, the power of which is for a time suspended—nothing is discharged by stool but mucus, which soon becomes mixed with blood from the increased determination to the parts of increased action. This stricture may be contracted to a greater or less degree, thus at one time perhaps admitting some fæces to pass; while, at another, not the least appearance of fæculent matter is to be seen for many days; and it is probable that the gripes and tenesmus are proportioned to the degree of the stricture. The very accurate description given by Mr. Home, in his “Treatise on the Stricture of the Urethra,” will apply with great exactness to a case of simple and uncombined dysentery; morbid irritability operating in both instances to lay the foundation for the proximate cause of this constriction, which Dr. Cullen hath already hinted at in his investigation of the disease in question, but hath

not fully explained. This state of constriction is occasioned in the one instance—sometimes by gonorrhœa, and sometimes by too frequent and too long protracted connexions with the sex; and in the ~~other~~ most generally by whatever the stomach may propel in an improper state for the bowels to receive under certain conditions of climate, inducing diarrhœa, morbid irritability, and stricture. Was it necessary to reason further, we could account for all the various states that are found in the latter stages of this disease; but taking the case of stricture in the urethra as an example, all the phænomena of a dysenteric affection may be very accurately anticipated: but the indisputable evidence of dissection is the most convincing proof of the doctrine which we would here wish to establish, and which should be consequently kept in view by the practitioner.

other

Having thus, with apparent simplicity and satisfaction, consistent also with the principles of the animal body, ascertained the immediate cause of all the different conditions that may be expected from the presence and permanence of stricture—and being thus made acquainted in like manner with the exact state of the intestine at this part or parts,

which is the cause of all the symptoms—we will of course, while the disease is but recent or spasmodic, and it is yet easily within our power to restore the natural action before a morbid condition renders it perhaps impossible, make use of the most active measures to effect this purpose. We find therefore, at the constricted parts a want of action: restore this then, in whatever stage of the disease, and an essential step will be made towards a cure: it is even probable that very extensive ulcerations might gradually be healed up. But we find that there is an over determination of blood to both the contracted and excited parts, that is, to those parts below the stricture or strictures, which, without the utmost vigilance, may terminate in an inflammation in any stage of the disease, where all our efforts will be baffled irrecoverably: we are, for that reason, not to lose a moment in the employment of active measures. Repeated purgative have been found the only kind of medicine that is at all suited to the cure of this affection, although we might not *à priori* be directed to the use of such means; and those whose action is the most permanent, are found to be the most effectual, and are the remedies that should be had recourse to. Nor is external friction of the



abdomen to be neglected in uncombined cases, as it hath been discovered a powerful mode of exciting the regular action of the bowels. But we have also an over determination to conquer, a circumstance from which much is to be feared; and I know of no medicine which is more certainly likely to effect this last intention than mercury; but it must be pushed, that its effects may be exerted with speed upon the system, otherwise our practice answers no purpose. As I can therefore find a mercurial preparation perfectly adapted to answer my first intention, I employed this remedy for both reasons, and give it the preference. Calomel purgatives, then (suppose it a case of recent disease), are to be administered; and as they have to act upon a contracted part not possessed of its usual irritability, I order a larger dose than in any other instance, and this must be proportioned to the violence of the symptoms. In my practice I gave from eight to twelve grains of this medicine, generally the latter dose, that I might be sure of having my object effected; for although it might occasion two or three stools more than I intended, yet no bad effects ever resulted from it. Not one dose however, probably not two, perhaps not three, not even more, will be found suffi-

cient; so that calomel is, therefore, to be given dose after dose without interruption; that is, night and morning, accompanied by mercurial friction of the abdomen, which will be found greatly to assist both our views, until the mouth becomes sore. It will probably now happen that our intentions are completely answered; for, at the time of the mouths getting sore, the disease very often yields: so that mercury must be possessed of a powerfully antispasmodic or relaxing quality.—Diarrhœa now ensues, and continues generally for a longer or shorter period, according to the violence of the disease; and here we must particularly direct that this symptom be not interfered with, but rather encouraged by an occasional purgative, either Glauber's salts or rhubarb, as being the most effectual means of restoring an equal action of the bowels, which may now be considered to be somewhat irregular in their functions, and to require its use. Calomel will hardly be further requisite; but friction of the abdomen may be continued, if the affection of the mouth will admit of it. This degree of excitement upon the surface of the abdomen will stimulate the mouths of the lacteals, and will be found a most powerful means of restoring strength by a more free

absorption of nourishment. No animal food is during this time, to be made use of, for it will often bring on a return of every symptom that had been relieved by the previous operation of a purgative; and it is not until the diarrhoea hath disappeared, that this article of diet can be admitted without a risk of inducing a relapse, of which it is oftener the cause than almost any other circumstance. Hence the necessity of a sick birth and proper attendants; for whoever has had to do with seamen, must know they have no prudence.

The practice which we have here recommended is proposed to be employed in a simple case of dysentery—that is an affection wherein have taken place frequent and slimy stools often streaked with blood, and attended with tenesmus, sometimes with gripes, sometimes not, and a loss of appetite. But a more violent case often occurs, wherein every mark of inflammation threatens the patient; and symptoms may probably exist, which are but too strong a proof of its having already taken place. In this instance, therefore, the practice recommended by Gordon, in the treatment of puerperal fever should be strictly followed up. You are to bleed not to

moderate the symptoms, but at once to cure them, else you will certainly lose your patient: you are at the same time to purge freely with calomel, apply a blister to the abdomen) a powerful means after, in the removal of the proximate cause of dysentery), and by mercurial friction along the inside of the thighs, you must get the mouth sore as soon as you can for the removal of stricture; and both in this and in every other case of dysenteric affection, if possible, in the course of the second or third day, after your patient applies to you. You are not to think of losing time with opium, independent of the mischief that it will occasion; for it is a false idea, that the patient requires a respite from purging: he will not be debilitated so much from the operation of twelve grains of calomel, as he will from a single slimy stool, which invariably follows the use of opium.

It will often happen, that, although the mouth is affected with mercury, yet the disease continues, the gripes being perhaps the only symptom thus alleviated. Here the purgative plan is still to be followed up, by giving, as the tenesmus may require, the solution of Glauber's salt or calomel, according to the affection of the mouth, till a diar-

rhœa ensues, when we may conclude with assurance that the action of the constricted part is restored. The violence of the diarrhœa will in general be proportioned to the violence of the previous stricture; for it appears to be a law in the œconomy of living bodies, that, if the action of a part is suspended for a time, it hath for the most part its powers either increased or irregular, upon again being enabled to perform its functions, increased perhaps in proportion to the degree of suspension, and more or less irregular according to its degree of power obtained, provided no loss of structure hath been the consequence of its former condition; in which case, that loss must be restored before the organisation can be complete. I shall now conclude my observations on this disease by what practical remarks I have been enabled to make, in the course of rather an extensive field, for ascertaining some points of consequence.

From the many instances of this disease that have come under my care, and the different means that I have employed in my own practice for its removal, I am inclined to assert, that none will be found so efficacious as mercury; and, the sooner the mouth

is affected, while purging is had recourse to at the same time, the greater will be the certainty of a speedy and permanent cure.—Calomel is the form which I prefer, as answering the intention both of a mercurial, and being the purgative most permanent in its effects of any which I have ever tried. It will be found, however, not to agree with some constitutions; in which case I generally give the neutral salts, as they operate with little or no griping, and endeavour to affect the system as early as I possibly can by mercurial friction, carrying the foreness of the mouth to an extent proportioned to the violence of the symptoms, which is kept up till the disease is removed, and the patient's health and strength are nearly re-established, which will speedily take place even under the affection of the mouth. This is also the only means that I know of the most effectually to prevent a relapse, so frequent under any other mode of treatment, and even after a mercurial course, if it is not continued for the time specified.

I am inclined to assert, that this disease is never produced from infection, notwithstanding the high authority, which sanctions a contrary opinion; for I have had many op-

portunities of seeing it in all its stages, and in situations the most favourable to the communication of contagion, but never could, in a single instance, trace the disease to that source.

On board of ship, it is probably necessary that the idea of infection should be inculcated; because by that means, more strict attention will be paid to cleanliness both by the officers and men, which in no disease is more necessary than in this. It is also particularly requisite, that the commander and officers be made acquainted with the dangerous influence of the climate or the season by the surgeon, and strictly enjoined to guard those immediately under them, as much as is consistent with the necessary duty of the ship, from its hurtful effects; prevention being at all times more easy than cure.

I believe that this disease never becomes epidemic, unless in unhealthy situations and seasons; and then that it is in almost every instance the effect of imprudent or unavoidable exposure; in proportion to which, and to the resisting powers of the body at the time, the degree of disease is more or less violent.

I am persuaded, that, if men are a long time confined to the common sea diet, any considerable alteration made in the mode of living—as from biscuit to rice—in a climate, or during a season when this disease is likely to make his appearance, will greatly operate upon the constitution, and powerfully favour the exciting causes of it. It ought therefore to be strongly inculcated, that no change of diet can be made suddenly, without considerable risk, to men in a climate to which they are unaccustomed, and who, in the way of their duty, are unavoidably exposed to the vicissitudes of weather. This circumstance, so injurious in its effects on health, is very little attended to.

What renders dysentery so frequently epidemic, rather than any other disease of the body, is the great irritability induced by diet in the parts affected, which consequently renders them more liable to be deranged by being so easily acted upon by the prevailing influence of the situation or season.

When once this disease is brought on, there is no cause which so greatly aggravates the symptoms, or which in my practice hath so frequently produced relapses, as animal



food in a solid state. The patient's health ought, therefore, to be perfectly re-established before he is allowed to eat a single morsel, and then it should be in small quantities. In this disease no principal meal should be employed, as the organs of digestion and the course of the intestinal canal are always too much debilitated and deranged to be capable of converting into chyle a large quantity of food of any kind. Small quantities then must only be given at a time, and repeated as often as the patient may feel the calls of appetite.

If solid animal food be made use of in this disease, during its digestion it greatly increases the heat of the body to the feel of the patient, and still more to that of the bystander. It produces great heaviness, a sense of uneasiness, and an increased depression of strength in the patient, while it remains in the stomach; and, when it passes into the intestines, severe gripes are soon excited; and, if there be any tendency to inflammation, it is invariably called into action, unless evacuation of the bowels be instantly had recourse to.

As the action of a diseased part tends often to derange it more and more, unless

the affection proceeds from debility alone; so I have oftener than once seen very violent relapses ensue from men being allowed to move about too much, tho' considerably advanced in the convalescent state.

Would nauseating doses of emetics, if given in this disease, act in conjunction with mercury? Would they render its effects more powerful? Nausea produces costiveness—so does the mercurial action, by determining powerfully to the surface. Nausea renders the pulse slower, and diminishes the action of the moving fibre, but does not induce debility. Its use, therefore, in the removal of the proximate cause of this disease, may be considered some what ambiguous; and in those cases, wherein I have tried it, I was not sensible of its good effects. Nauseating medicines appear to produce a more equable circulation, and to diminish any increased flow to a particular part; but probably their effects ought to be longer continued, and more constant than is generally adopted in practice. A more or less powerful operation is to be expected from mercury according to the affection of the mouth.

In the disease which we are now treating of, if a moderate dose of calomel, such as we

have recommended, be given at a time when the gripes and tenesmus are violent, instead of increasing the number of calls to stool, the evacuations are rendered more free and less frequent.

The usual termination of a recent dysentery is a diarrhœa, which should be carefully looked after; for it very often happens that a practitioner hath nothing further to do than pay attention to the quantity and quality of the ingesta. The diarrhœa is only to be moderated by a very gentle purgative of rhubarb, or the neutral salts. No astringent remedy is even to be thought of, as mercury answers every intention in that respect. After a diarrhœa is induced, very small doses of medicine will be found to operate by stool.

There is often, in chronic states of dysentery, much difficulty in affecting the mouth, even although mercury be employed both externally and internally; but, till this takes place, the patient can never be pronounced to be out of danger, and the disease may always be expected to increase. In this condition of the affection, small doses of medicine are only required to produce evacuation by stool.

As climate determines the degree of violence in the symptoms of this disease, so nothing operates more powerfully in promoting the intentions of cure. In seasons, therefore, when this disorder becomes epidemic, a medical man will often be baffled in his most strenuous and best-directed plans to forward a recovery, while, during a favourable state of the weather, inactive remedies are almost always attended by the best effects. The difficulty of being able to bring about a favourable change in the chronic stage of this disorder, during an unhealthy condition of climate, will appear more plain, when we observe the slow progress made in other ulcers, which, under the best care and treatment, remain stationary.

When dysentery hath arrived at what is called the chronic state, no plan of cure can be trusted to, for all will upon occasion fail, even in the hands of the most attentive; so that rather an unfavourable prognosis may be given, unless when the circumstances of situation are particularly suited. In no disease, therefore, is it more necessary to produce a speedy termination in the beginning, and we have endeavoured to lay down rules to that effect.

Upon a sudden change of the weather in hot climates, you are almost always to expect dysenteric attacks; and the first bowel complaint that occurs should alarm you.

Fevers are said to be more fatal in warm climates than any other disorder. It will not however, appear in the account of my voyages to have been the case; and the few opportunities which my service hath given me of ascertaining with accuracy a certain mode of treatment, make me speak with the less confidence. Since I was appointed to the station which I now hold, my plan of practice has always been the mercurial, and I have hitherto been successful. In the first instance I evacuated the stomach with an emetic composed of ipecacuanha and emetic tartar (for I never give those medicines singly upon a first attack; but not trusting to the uncertainty of their operation by stool, I exhibit from four to six grains of calomel made into pills which never fail to produce the full intention. I then ordered from four to six grains of the same preparation to be taken night and morning, which generally occasion three or four stools; and this is continued, unless the feverish symptoms disappear, till the mouth

becomes affected; when the symptoms have thus been for the most part removed.

In the intermittent fevers which have occurred here, and which have always assumed the tertian type, I have followed the same practice, and generally exhibit also an emetic upon the approach of the fit.

It must, however, be observed, that these fevers, both remittent and intermittent, have been but slight. I am, notwithstanding, inclined to think, that the same practice, somewhat more active, would be equally successful in more violent cases; and in which the calomel might be combined with antimonial preparation. In my practice the operation of the calomel, always occasioned hot evacuations, which sensation continued till the feverish symptoms were removed; when the natural feeling returned. The patient never complained of being weakened by these evacuations; and by particular attention to their diet, none of them relapsed. The cases thus treated were the seapoys about the factory,\* and the seamen, lascars, and seapoys, who were sent to the hospital under my charge from the Company's ships which bring

\* At Buffora.

the monthly packet. I recommended the same practice to the surgeon of his Majesty's ship Trincomalé, which happened to arrive here at rather an unhealthy period, and had a great many of her people affected with fevers hepatic complaints. This gentleman followed it up attentively, and with universal success and satisfaction, having failed in many instances before by the employment of the bark.

Emetic tartar should never be given alone in a hot climate, from the great uncertainty of its operation, as an emetic; for it will be often found, although given with much attention, not to occasion the least sickness at stomach, and thus to pass by stool without your intention being at all answered; again, in other cases, its effects are sometimes so violent as to require opium to restrain them. When it is combined however with ipecacuanha, I have always derived the full effects of an emetic; but I never trust to its purgative operation, as I am always in the habit of exhibiting calomel with that view.

Under irregular intermittent symptoms, a physician may for the most part suspect internal disease, and this is the most effectu-

ally to be removed by mercury. In such a case the bark will never be found of any service, and will often do harm. As soon, however, as the mouth is made sore by mercury, all symptoms of disease are in general upon the decline, and in many instances are immediately removed.—The mercury should be continued proportionally long with the previous disease; otherwise, upon the mouth's getting well, you may expect a return of the complaint only to be removed by again having recourse to that remedy. The disease, which I have most frequently met with accompanying intermittent symptoms, hath been an affection of the liver. It will often happen, notwithstanding the mouth is affected, that the attacks of fever still continue; but here we may suspect some other concomitant disease, and the medicine should be continued if the mouth is but slightly affected. I continue my doses of calomel, and increase the foreness a little; if much, I give some other gentle purgative. I never think of exhibiting the bark. Thus hath my former experience, and what I have acquired here, modified my practice in the treatment of remittent and intermittent fevers.



Cholera morbus, in its attacks, kills quickly, unless medical assistance be immediately called. We seldom (perhaps never) find this disorder prevail unless during hot and sultry states of the weather; and it is in general proportioned in violence to the degree of such unhealthy conditions, which, by affecting the digestive powers, considerably impair their strength, and render them almost totally unfit to perform the office of assimilating even a small quantity of solid animal food, which the present state of the stomach seems averse to by craving for something of less difficult digestion, generally of a fluid nature, or somewhat stimulant, that may call its powers into action. We shall suppose, by way of example, that this craving for fluid is indulged according to individual circumstances; for the most part, soon afterwards, provided the body be at rest, a little inclination for solid food begins, if it should happen to be about the hour of meals; this is satisfied; but forgetting the previously debilitated state of the stomach, it is also too often exceeded, and charged with matter very ill suited for its present condition to act upon: the digestive organ having now more to perform than its powers so much weakened by climate, can accomplish,

great restlessness and a sense of uneasiness, with an increase of depression of strength, take place during the time of its remaining in the stomach, which is now becoming more and more irritable, with inclination to reject its contents; the same irritability and tendency to evacuation are now communicated to the intestines, which are by this time loaded with a crude and indigested mass the cause of their disorder; vomiting and purging now ensue, with every symptom of what is called the cholera; and the degree of irritation now induced is such, that, even after the stomach and intestines have evacuated the offending matter, the most simple fluids cannot be retained; and, unless medical aid is employed, irritability, increased debility, and *it* spasm, affect the whole system, and in a few hours every part seems unable to perform its functions in the smallest degree, although the organization remains perfectly entire, but in a state of exhaustion. It may happen that this condition is induced by improper food taken at any meal; but it hath always in my practice occurred from eating animal food at supper, under the influence of the climate in which we have mentioned it to be a prevalent disease.

During the action of vomiting, great quantities of bile are always evacuated, which hath been supposed to be of a more acrid quality than natural. This is mere conjecture, and, from many attending circumstance, seems to be by no means true. As it is, however, an idea which hath been entertained by men of eminence, and leads to a fallacy in practice, it will be necessary to state some of the facts which militate against this opinion.

The same circumstance, then, of an increased secretion of bile, takes place in sea-sickness; but no one hath ever attempted to advance that the bile in this instance is diseased, probably from its not effecting the intestines. This is easily accounted for: The remote cause applied only affects the state of the stomach; in cholera both the stomach and intestines are affected by the remote causes. The bile then thrown out is a consequence of the sickness, exactly in the same way in which it is the consequence of the agitation of a ship at sea, and is not at all to be taken into the account further than as a mere accident in the attack; for, if an opiate be given so as to remove the irritability of stomach, no more bile appears.—

Those who proceed upon the idea of a redundancy of bile requiring evacuation, will both lose much time, so precious in this disease, and render the employment of the means of relief precarious; which, had they been used earlier, would have been attended with almost certain success.

There are, therefore, two principal intentions only to be kept in view in the cure of this disease, which are, *First*, the evacuation of the digested matter which may be lodged in the stomach and bowels; and *Second*, the removal of irritability, which may be considered as the cause of any symptoms afterwards existing. In general, the first is answered before medical aid is called; and, should that be the case, to quiet the irritable state of the stomach and bowels is then the only indication to be fulfilled. The accidental symptoms that occur are always cured by a removal of the primary affection. The chief of these are spasms of the muscles of the abdomen and extremities, which, as they are always very distressing, should never be neglected. Opium will be found the only medicine that any dependence can be placed upon; and that nauseates least in the form of pills, which should always be made soft,

that their intention may be the more quickly answered by an easy solution in the stomach. As soon as this medicine begins to exert its influence upon the irritated stomach, the vomiting and purging cease, which are soon followed by a relief from spasm. But, although this takes place, it will be proper that this distressing affection be attended to at the first moment; warm fomentation of the abdomen, therefore, with gentle friction of the extremities, will be found to give great relief; and if a small quantity of vinegar be added to the fomentation, it will prove very refreshing to the patient. I have never found it necessary to give opium by clyster, that given by the mouth completely fulfilling my intentions. As soon as the stomach will retain it, wine and water should be allowed for drink in small quantities.

In general, where this disease is most prevalent, the atmosphere is very sultry and oppressive: great care, therefore should be taken that the air about the patient be cool and in circulation, which may easily be effected by sprinkling all around him with vinegar, and keeping the air in motion with a fan or cloth. When the patient is somewhat composed, he ought to be shifted, and

placed in a dry and comfortable bed, covered with clothes which are the least apt to conduct heat, as he will generally be found to be somewhat in want of this necessary support of life. As costiveness is very apt to succeed to an affection of this kind, attention should be paid to the state of the bowels, till they are again able, of themselves, to perform their proper functions; and during this time the diet should be light, somewhat stimulating, and carefully regulated. Perhaps a light decoction of the bark may also be found to be of service; but a portion of wine is generally more acceptable, and I think, as effectual. Such are my ideas of this disease, and such hath been my mode of treating it; and in every case that hath occurred to me, with the greatest success.

Hepatitis often prevails at a time when dysentery is epidemic; yet it appears to require a different modification of the causes existing to produce it. For instance, a man, who may probably have been previously relaxed in a small degree by heat, will, upon exposure to cold alone (more especially if the cold has been applied near to the seat of the disease), be liable to hepatitis. Should however, the degree of relaxation,

by previous heat, be very considerable under certain circumstances of diet; and should the body be thus exposed to cold and wet, and that perhaps for some length of time; an affection of the bowels will be almost to a certainty the consequence; and it may happen that symptoms of diseased liver will be a concomitant of the bowel complaint.

The treatment of this disease, in the cases wherein I have had an opportunity of observing it, was always tedious and uncertain, unless where early recourse was had to mercury; but, when this remedy was used, my most sanguine expectations were answered by a speedy restoration of health. When this medicine, however, was not used so as to induce a considerable affection of the mouth, or not employed as fully as would be done in the generality of venereal cases, the disease almost always recurred and proved fatal; nor have I ever seen any other plan of treatment that was attended with the smallest benefit. Other medicines may be used with a view of palliating occasional symptoms; but mercury alone should be trusted to for a radical cure. Active inflammation occurring upon the first attack, will require plentiful bleeding, blistering, saline draughts, with eme-

tic tartar, and a low diet; in a word the antiphlogistic regimen should be employed. But mercury should at the same time be carried to affect the mouth; for no active inflamed state of this viscus occurs in a hot climate, that does not leave such a condition, as is alone to be cured by mercury; and before this remedy begins to exert its influence, the active state of the previously inflamed parts is now such as to admit of its being employed with advantage.

As much hath been lately said respecting the effects of the nitrous acid in this disease, I shall insert an extract of a letter which I received from a surgeon upon the Bombay establishment, and which will place it (in some degree) in the light in which it ought to be viewed. “I have to thank you for the very excellent account which you have given me of the effects of the nitrous acid, and your consequent advice to me not to touch it; It appears to me, from trial, to be a very dangerous medicine: and had I not used it on myself, from the respect which I entertained for its author, I might have been tempted to trust to it in practice.”— This medicine, I am well persuaded, will never remove a diseased state of any part,



and should only be looked upon in the light of a very useful tonic.

Solid animal food ought never to be used while there is the least reason to suppose that any remains of the disease exists: for the great flow of blood sent in consequence to the liver, will not fail to rouse it into action; and thus, probably, by one false step, undo the work of many days, perhaps weeks. Whatever food is taken should be light and in small quantities.

Scurvy, even at this day, continues to make dreadfully fatal ravages, notwithstanding the correct ideas that are entertained of its nature. At present I have little to state in addition to what I have occasionally noticed on this head in our different relations. The principal part of the prevention will ever be found to depend upon the conduct of commanders and officers to their several crews in regard to diet, cleanliness, cloathing, and the avoiding of exposure to debilitating causes, by being attentive upon all occasions to support their strength and spirits, and to diffuse all that satisfaction and comfort which the nature of their situations will admit; for it will often happen that, although ships are

equal periods of time at sea, yet one will be found almost entirely exempted, while another hath this disease on board to a considerable degree; and I know of no better criterion to judge of the conduct of those in the management of them.

A ship should never go to sea without a stock of lime-juice, as it will be found the most pleasant remedy, and certainly the most effectual one. It would not appear to me, that the essence of spruce, which is now so commonly carried to sea, is possessed of any power of preventing the attacks of this disease, and ought only to be considered as an agreeable beverage, and as constituting a little variety in the sameness of a sea diet.

Several concomitant symptoms, such as rheumatic affections and dropfical swellings, will be found to remain after the scorbutic diathesis is removed, and should be treated in the same manner as former experience may be shown to be most effectual in these disorders.

Lues venerea and gonorrhoea are now so well understood, and the treatment of them so fully explained, that I do not conceive it

necessary for me to say any thing upon the subject. Some ideas respecting the particular nature of these two diseases have lately presented themselves to my reflection; but the want, as yet, of sufficient evidence prevents my communicating them through this medium.

I have thus touched as fully upon the nature of the prevailing diseases that occurred in my voyages, as the extent of my experience will admit, or the importance of the subject seems to demand; and hope, although many deaths must still happen, considering the imperfect state of medical practice, yet that some of my remarks may tend to save the lives of a few. Perhaps the plan which I have pursued, others of more extended abilities may be stimulated to follow and improve.

I shall here likewise add what my observations hath enabled me to state respecting the quantity of the principal medicines which ought to be prepared for an India voyage. The Glauber's salts should be considered as a chief article; and being the most general and best adapted purgative for ship practice, ought to be carried to sea in greater quan-

tity, than is commonly done. In a ship, the complement of which is about 160 men, not less than a hundred weight and a half will be found necessary. Of calomel, which is now ascertained to be a most useful medicine, not less than three pounds should be carried to sea. Fresh catharides, carefully bottled up, should be occasionally mixed with an ointment of ordinary consistence, as basilicon, and employed instead of the common blistering ointment, which is often found completely useless before half the voyage is over. I have not seen any situation wherein the quantity of bark, which is recommended to be prepared for an India voyage, is at all necessary; perhaps by the different and more effectual practice now employed in fever, not rendering at this time so necessary. Dulcified spirit of nitre, as it makes a very pleasant and beneficial addition to the drink of patients affected with the diseases of a hot climate, should be provided in larger quantity than usual: not less than a quart should be laid in. With regard to other medicines which are for the most part packed up for ship use, the usual quantities will be found perfectly sufficient: and as a surgeon seldom finds much variety of practice here, the more he confines his stock to ar-

articles of established and real utility, the greater quantity of these will he be able to furnish himself with, as he is only allowed a certain sum for the supply of his medicine chest. Not less than twenty-four-dozen of wine should be allowed on the account of the sick; as also a plentiful supply of rice for gruel and portable soup, as a most useful article of diet, than which nothing is more wanted at sea for men labouring under disease. No ships ought to be without a quantity of lime-juice on board, which, if not required medicinally, will be thankfully received by the seamen towards the close of the passage.

When further experience hath enabled me to increase or to confirm any points that appear to me applicable to the present subject, it will afford me great satisfaction to embrace the earliest opportunity of communication.— In the mean time, I feel happy in assuring you that, with true deference and respect,

I am, Sir,

Very obediently your's

JOHN MILNE.

*P. S.* The dull sameness, and perhaps, in many instances, incorrectness of expression, which must strike you in the perusal of these

papers, will prove a convincing evidence that I am but a young and little experienced writer. In prosecuting the plan, however, which I have laid down for myself, improvement is the principal object; and I shall endeavour to make my next more worthy of your approbation.

Extract of a letter, which I intended to have written you upon my arrival in England, at the conclusion of my last voyage, but which was prevented by some intervening circumstances.

“ The condition of most of the Company’s ships at present is such in the harbours of India, as to render them the most unfit situation possible for men to be confined to, who are labouring under disease, and such diseases as prevail in that climate.—At China I experienced this in all its force, and many other surgeons must have done the same; for it is almost impossible to avoid sickness while lying there.”

As a matter, therefore, of the greatest moment to the preservation of the lives of our seamen, I would request to be permitted to point out the propriety of having some place

near Wampoa, where men who are attacked with the diseases of the climate can be sent to.

An hospital boat would be the place best suited for that purpose, and afford men every comfort that could be found in an hospital ashore (but it is doubtful whether the Chinese would allow it to be erected): and, for the superintendence of this department, another surgeon should be added to the Canton establishment, who ought to be a man well versed in the diseases of the country.

THE END.

