

lateral incisors has dropped out, and the others are irregular. His voice is very indistinct. The ears, the penis, the scrotum, the testicles, and every other external part have their natural appearance. Pulse 100 and weak; tongue rather furred and aphthous on the edges; appetite good; bowels regular. No satisfactory information in regard to the origin and progress of the disease can be obtained. His master states, that, about a year before it began, he attended upon, lived with, and wore the clothes of another slave, in the last stage of secondary syphilis. About six years ago he first complained of his throat, which was found to be ulcerated and the uvula destroyed. Under a French surgeon, he recovered in three months, and continued well two years; at the end of which time he again complained, and two or three days afterwards his nose fell in. It is not alleged that he ever had primary syphilis, and not known whether or not he ever took mercury.\*

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ERRATA in the July Number.

Page 6, line 12 from the bottom, for  $\frac{1}{2}$  read  $\frac{1}{4}$ .

—10, — 16 from the top, for partitions read partition.

—13 — 17 ————— after desquamation insert—and the skin.

—19 — 4 from the bottom, for longest read largest.

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ART. II.—*Letter to Sir William Burnett, K. C. H., M. D. F. R. S., Inspector-General of Naval Hospitals and Fleets.*  
 FROM JAMES PRIOR, Esq. F. S. A., M. R. I. A., Surgeon  
 of Her Majesty's Yacht William and Mary.

MY DEAR SIR WILLIAM,—THE fitting out of a line of battle ship, wholly appropriated as an hospital for service on the coast of China, seems in every respect so judicious and humane a measure, that I am happy to give it the tribute of my sincere though humble commendation. I do this the more readily, from having, in a region not very remote from that in question, personally experienced the difficulty of treating extensive and obstinate disease with all the advantages I wished, in a single-decked ship actively employed in general service,—whose deficient resources for meeting the contingencies that continually occur are perhaps unavoidable,—and whose officers looking chiefly, though naturally, to the fighting efficiency of their decks, are unwilling to encumber them, or to appropriate the best situations for the reception of sickness, until driven to the last extremity. A vessel so appropriated in the situation alluded to would have been eminently

\* May not this be an example in a different island, of the *Ara mauny wanny* of the Singhalese?—"a wide-spreading ulceration of the skin," which "occasionally commits great ravages on the face," and which, as "seen in a number of Kandyans," is concisely described by my friend, Deputy Inspector-General Marshall, in his "Notes on the Medical Topography of the Interior of Ceylon," pp. 41, 42.

useful, and, from the nature of the service going on, and the numbers of sick, unfortunately amply occupied. Such remarks as that occasion, and the state of disease suggested, you will doubtless readily receive. I am far from thinking that I have any thing very new or important to say; yet, as being not inapplicable to the operation now going on in the Eastern seas, any thing bearing upon the point of the health and consequent efficiency of large armaments, may not be deemed unnecessary by those whose more especial province it is to guard against the contingencies attendant upon warlike service. A paper of some length on the prevailing malady we had then to contend with, dysentery, was indeed projected many years ago. The accidental loss, however, of some materials connected with it, and having commenced more extensive literary works involving much general reading and inquiry, and consequent occupation of time, added to the conviction that it had been very ably and satisfactorily investigated by two distinguished members of our service—Dr James Johnson and Mr Bampffield, deterred me from attempting to do inadequately what was already so well performed. To their volumes, particularly the former, the practitioners in the tropics must often recur. And though modes of practice may differ, since, in order to be effectual, I am disposed to think they should differ in different localities and under different circumstances,—valuable suggestions are to be gleaned from both. My own practice was unbiassed by the opinions of either, for their works had not then appeared. I write now chiefly from recollection, which is, however, pretty vivid, of what I saw and experienced; but it is not my intention, nor is the present communication the place, to enter much into detail.

Judging from the newspapers, which form the only source of my information on this occasion, the chief disease at Chusan and its vicinity is that already mentioned, and to it I shall confine myself. Fever simply, on a large scale, and of peculiarly malignant character, I did not see; for what occurred on board differed in no material point from the typhus of Europe. But from what came under my observation, and by what I could learn from the reports of the medical officers of the India squadron who had been longer in the country, dysentery was beyond doubt the more general, as well as destructive malady of the climate. Cholera had not then shown itself in the malignant form it has since assumed.

On the reduction of Mauritius in November 1810, the *Nisus*, in which I was embarked, having quitted England in her the previous June, remained at anchor in Port Louis for about three months. During much of this period about a third of the crew (that is above 100 men) were employed in various duties in the naval arsenal, and found means, in which you know they are not a little ingenious, of procuring access to spirituous liquors. Little, indeed, could be detected of absolute drunkenness, which

was sharply and undeviatingly punished; but I had sufficient evidence in what transpired occasionally, added to the number of bowel complaints, of their indulgence, notwithstanding every vigilance in the prohibited gratification. And this unfortunate propensity of our soldiers and sailors forms the leading evil which the medical officers as well as the officers in command have to meet, and if possible to avert.\*

The cases of cholera (in its European, not Asiatic character,) diarrhœa, and dysentery, amounted during this time to about sixty or more; the majority slight or of favourable character; while others presented every degree of severity. At first diarrhœa prevailed; this, if not speedily checked, put on the dysenteric character; and after the lapse of some further time the great majority of new cases that presented themselves assumed at once the form of decided dysentery. The degree of pyrexia was not great; the mind little if at all disturbed; and nothing could be traced of a contagious character. The tormina, tenesmus, borborygmi, dejections of blood in some cases, of watery or slimy matters, of mucus, or of mucus and blood in others, a troublesome degree of dysuria, pain about the umbilicus, and the consequent exhaustion, were, however, very distressing. Our loss, indeed, was small; one on board where they were nearly all treated, and two at the hospital. Two out of the three were addicted to drinking; the third was an elderly man, a foreigner, serving as a marine; and I may here remark that the more advanced in life, and the weak in frame, were especially open to the disease, and if not fatal to them, it was more prone to run into the chronic state than with those who were stronger or younger.

The indications I kept in view in the treatment were, in the first place, to remove probable offending matters in the *primæ viæ*, in case there had been no previous diarrhœa of much moment,—to promote the excretions of the skin and kidneys,—to obviate spasm of the intestines, (the most distressing symptom to the patient)—and to defend their mucous surfaces. The smallness of our loss I attributed to the prompt use of considerable doses of opium with a proportion of calomel not immoderate for a tropical region,

\* An amusing instance of the unwillingness of this class to admit the ill effects of their favourite habits, occurred to me a few days ago. A fine young seaman presented himself for examination preparatory to entering on board a vessel fitting out here, when, after a few questions, I found he had come recently from China in the *Conway*. He had suffered there from dysentery for about a week or ten days, but, as was obvious from his appearance, had long perfectly recovered. I inquired to what he attributed his own and the general illness at Chusan? “To the water, Sir.” “And something to the quality of the grog, I suppose?” “Why no, Sir, (smiling) the grog was not bad.” “Tell me candidly did you drink much of it?” “Not a great deal, Sir, I assure you.” “Yet I cannot but think the *Shamsoo* had something to do with it.” “Why, Sir, I should think not, for the Royal Irish drank like devils and they got off pretty well; while the Cameronians did not take so much, and they died very fast.”

namely, three grains of the former to seven of the latter; given commonly twice within the twenty-four hours according to the urgency of symptoms. So successful was this form of remedy in abating pain and spasm, and, in fact, all the most dangerous and pressing features of the complaint, that for a time I flattered myself with its being almost a specific when employed early, conjoined with great care on the part of the patient, strict confinement to his hammock, mucilaginous drinks, and an occasional enema to soothe and sheathe the rectum. If in five or six days no good effects were produced, and failure now and then took place as may be supposed, it was discontinued, finding further perseverance in those proportions do no good. But commonly the disease was so subdued or modified in that time, that the completion of the cure was left to nursing, diet, occasionally a little *Pulv. Ipecac. c.*; or *Ol. Ricini*, with in all cases never less than twenty or thirty drops of *T. Opii*, as circumstances seemed to require. Where failure occurred I sometimes omitted giving either ingredient of the remedy for a time, returning to them as I judged expedient in diminished doses, and substituting in lieu of calomel the *Pilul. Hydrarg.* with two or three grains of *Pulv. Rhei*.

In attempting to form an opinion of the immediately exciting causes of the complaint, I was led to believe, from the characters of the respective patients, and such other circumstances as bore upon the point, that out of ten cases, six might be fairly attributed to irregularities in food or drink; the remainder to exposure to the commonly understood influences of climate, such as heat, moisture, exhaustion, or other endemic causes. In corroboration of this it may be observed that none of the officers excepting myself suffered from it; and this attack I firmly believed and still believe, arose not from any contagious or infectious tendency in the disease, but from a slight deviation on my own part in the *ingesta*, or at least I was satisfied that a very slight irregularity in the latter was sufficient to reproduce it where a predisposition to the complaint existed. Previous to the reduction of the island I had experienced something of this in a slight attack in consequence of exposure one night in the boats when detached from the ship on service; but the crew had not then been attacked by it, and consequently there could be no ground for the belief of contagion. On the other occasion, to which more particular allusion is intended in proof of what slight causes frequently deranged the customary functions of the *primæ viæ*, I had dined with the chief of the Bengal Medical Staff, and partaken very moderately in the pleasures of the table, but was induced to mingle with the wine two or three glasses of claret, the use of which I had relinquished for the previous two or three months. On the following night, having put to sea in the morning to cruize off the island, I was attacked pretty severely. My assistant being left behind doing duty at the

military hospital in Port Louis, I was visited by the surgeon of the *Phœbe*, our consort in the cruize, the following and some other days; but, having perfect confidence in my own plan of treatment, I adopted it strictly, and in a week or ten days was convalescent. The severer symptoms were not of more than five or six days continuance, though leaving behind much general debility, and an irritability of the intestines that became extremely troublesome from very slight causes on subsequent occasions. The calls to stool during the attack were about twelve or fourteen times during the twenty-four hours; frequently a sharp spasm about the umbilicus; fulness about the cæcum; severe tenesmus; urine scanty; little or no pain on pressing the abdomen; dejections chiefly of blood and mucus; pulse commonly about 92; not the slightest affection of the sensorium at any time.

One of the most unpleasant effects of the remedy, or of the disease, (for both participated in the odium), upon myself, as well as upon others of the less robust order of frames, was the generation of flatus in the stomach to an extraordinary and most inconvenient degree, producing extreme distension of that viscus, and constriction about the superior portion of the œsophagus, so as to interfere, in some measure, with free deglutition; and there was much difficulty in dispersing it. The means used with this view were chiefly a combination of rhubarb, ginger, and cayenne pepper, in small proportions, given three or four times a day. I have since seen (and unhappily experienced) something of the same kind continue for days in attacks of highly aggravated dyspepsia. Distension from flatus, it is well known to every practitioner, is common in dysentery; but the opium I thought increased it. No other peculiar effect resulted from its use in the doses specified; and I may add that I was led to their adoption, as well as the proportion of calomel, by having, on two or three previous occasions, employed them in Europe with the best effects after the use of mild evacuants, where there existed severe spasms in the intestines, with a tendency to subacute inflammation; and as these seemed to me to be marked features in this disease, I thought the analogy sufficiently strong to warrant my having recourse to the same treatment. I was aware of its having been treated in India by much larger doses of calomel, though little on the subject had been then (1810) published, or at least fallen into my hands; and from that plan when tried, for I did make some trials of it, I saw much less advantage than from my own.

A run to the Seychelle Islands, thence to Madras, and the return voyage, improved our state of health. But a portion of the Cape of Good Hope squadron being ordered to follow its Commander-in-chief (Admiral Sir Robert Stopford) to join the expedition from India against Java, we sailed from Mauritius for that destination, in company with two other frigates, *President* and

Phœbe, about a week after our arrival in Port Louis. Crossing the Indian Ocean to run down the north-west coast of New Holland, the temperature decreased considerably, one of the effects of which was our encountering for a few days a current of atmosphere, often experienced at sea, giving origin to epidemic catarrh or influenza, though happily proving on this occasion of modified character.

It occupied just seven weeks to reach the Bay of Batavia. At this anchorage; at Cheribon, situated on the northern shore of the island; off Samarang; and at the entrance of the channel leading to Sourabaza near its eastern extremity, we spent six weeks more ere the reduction of the island was completed. From a concise memorandum still preserved, I find our sick list during that time numbered 138, including, besides our own crew, of above 300 in number, supernumeraries, chiefly marines, from other vessels, embarked to join the operations on shore. Of the whole number sick, 51 are noted as having had dysentery, of whom five died, 23 fever, of whom two died; and two deaths from phtthisis; which, being of some standing, cannot be put down fairly to the account of Java. The other diseases were diarrhœa, 17; pneumonic inflammation, 6; hepatitis, 5; minor complaints, 34. None of these proved fatal, though some were severe.

The extent of the sick list is to be accounted for by the very active service seen by our men. At Batavia the marines were disembarked without delay, and took their turn in the batteries and works before the enemy's entrenched camp of Cornelis. At Cheribon they were again sent on shore with above 100 seamen, part of the latter garrisoning the fort and works, while the remainder joined the marines in a forced march to the interior, in pursuit of a portion of the enemy's force said to have carried off the military chest, and some waggons of copper money. At Sausarang the boats were a good deal detached from the ship at night. At Sourabaza the marines and seamen were again landed, though without making any material stay on shore, from there being no resistance offered. In all these places the seamen were much in the boats, and their exposure unavoidably great on a shore proverbially unhealthy. The excitement caused by the very animating operations in which they were engaged, tended, no doubt, to ward off a still greater degree of disease than actually prevailed, and we were not there sufficiently long to permit this feeling to subside. Even on putting to sea in finally quitting the shores of Java, in pursuit of two French frigates, which had escaped from Sourabaza roads, and beaten off the Bucephalus, and in the passage thence through the straits of Sunda to Mauritius, and afterwards to the Cape, there was still before us the stimulus of a probable hostile encounter with them. It is a curious fact in illustration of this, that, among the marines, who had by far the great-

er share of fatigue and exposure on shore in the heaviest, yet most exciting work, no deaths occurred. One fatal case among the seamen had been stationed in Cheribon fort, the quarters of which were in so filthy a state that our men on first entering them were obliged precipitately to retire, being seized with nausea and head-ach; and, in fact, the scourge of pestilence which this neglect must have promoted, raged here a few years ago, and carried off many hundreds. Another seaman had belonged to a boat. But the march into the interior, in which marines and seamen, particularly the former, from the greater weight of their arms and accoutrements, suffered as severely for a short time, as it is possible to conceive, from sheer exhaustion, bleeding freely from the nose and ears, occasioned no deaths, and added only two seriously ill to the sick list.

The dysenteric attacks among our crew presented every shade of variety; many comparatively slight; others of the most serious kind, and running their course rapidly. Between several of the former, and those I marked as diarrhoea, the line of demarcation, it must be confessed, was not always very obvious; for the majority of the latter were attended by a greater or less degree of fever, and might perhaps be strictly classed as dysentery in its simplest form. Nature and the nosologists will often clash. Nice shades of distinction in these, as in other maladies, will be sometimes drawn by writers in the closet, which those who work laboriously by the bedside of patients in various and distant climates, and even in many localities nearer home, soon perceive can be traced with difficulty, or not at all. The degree of pyrexia was greater generally than at Mauritius; yet the mind continued commonly unclouded, even when life drew near to a close; an instance of which may be adduced. I was suddenly summoned by the report of increased danger to a young man who had been ill only a few days, and found that, having quitted his hammock during the momentary absence of the attendant, he could not be persuaded to be replaced in it. In reply to my remonstrances on the disadvantage to himself on continuing on the deck, he begged to be permitted to remain a short time longer, and then, fixing himself on his knees, commenced praying most fervently, which indeed proved to be the chief motive for quitting his bed; evincing in this posture, as he believed, more reverence towards God when upon the point of entering into his presence. On concluding this solemn and impressive duty, which was not till after many minutes, with more strength than I thought he possessed, he was removed to his hammock without repugnance; and, notwithstanding the seeming vigour indicated by the exertion he had made, expired in less than half an hour.

As a contrast to this, the tenacity of the *vis vitæ*, in another in-

stance where appearances indicated that its hold upon the corporeal tenement had ceased, was not less striking. A drummer of marines (an adult), whose life I took credit to myself for having saved more than once when in imminent jeopardy from the disease, at length displayed several of the usual preliminary symptoms of death, and seemed to have departed. So unequivocal did this appear, that I had intimated his approaching, if not actual dissolution, when, having returned to the almost lifeless body, as if loth finally to quit what had cost me so much trouble on previous occasions to preserve, I thought I perceived slight indications of the process of respiration still going on. Volatile stimulants, hot water to the feet, gentle friction, wine, &c. were used, the pulse returned, and he ultimately recovered so far as to be sent home. Two of the deaths, in fact, were from sheer exhaustion, the disease having ceased for some time. In other cases not fatal, the debility was so extreme for two or three weeks, that they might be said rather to exist than to live, and were perhaps only saved by supplies of nourishing food and wine from our and the captain's tables; sources which, in most of our ships when at sea, by this gratuitous aid, saved the lives of many seamen during the war.

Relapses were not unfrequent among the more weakly; yet of less fatal character than such attacks generally prove. Among these I was one; for which perhaps there were sufficient causes. On the storming of the enemy's position at Cornelis, 26th August 1811, the medical officers of the fleet were ordered on shore to assist in rendering aid to the wounded, and, having no place appropriated for their reception, had to find food and shelter for the night as they best could in the bustle and confusion succeeding an assault, and where accommodation could not of course be purchased. My first night was therefore passed on what sailors term "the softest plank I could find," under an open shade, with some medical officers of the Bengal army. Next day, finding there was sufficient assistance at the General Hospital at Weltevreden, I and the surgeon of the *Modeste* were requested by General Wetherell and the lamented Colonel Gibbs (who fell a General Officer at New Orleans, and to whom I was personally known,) to proceed to the little fort of Cornelis, near the centre of the enemy's late position, where several of our men, as well as prisoners, required prompt professional attendance. There I was actively engaged for some days with several amputations, and other serious surgical duties,—sleeping at night in an open verandah, selected as the only cleanly spot he could find by the assistant surgeon of a Bengal volunteer batallion, which had in the meantime returned from pursuit of the enemy, and the officers taken possession of the same quarters shortly after our arrival. At Cheribon I volunteered with the marines and seamen for the forced march already alluded to.

A second relapse there also was not matter for surprise, considering the unavoidable exposure incident to a life to which neither the men nor myself had been accustomed, and for which, from its temporary nature, but slight provision could be made. On some future occasions, particularly when subjected to exposure, I experienced discomfort from morbid irritability of the intestinal canal, yet fortunately without such serious symptoms as to disqualify me for duty.

In the *Nisus*, the degree of sickness and mortality was, with one exception, much less than in any other vessel of the large fleet engaged in the expedition. This exception was the *President*, one of our consort frigates on the voyage thither, which, as she had come under our orders, remained with us during our stay, and likewise departed in company with us on our return. She lost two or three less than we did. The *Phœbe*, our other consort, on the contrary, lost more; so did the remaining Cape cruizers, the *Scipion* 74, Admiral Stopford's flag-ship, and the *Harpy* brig, each in their proportions. The Indian squadron, particularly such ships as had been longest from England, were seriously impaired in efficiency by the disease. Commodore Broughton, its then Commander-in-Chief, when attending a court-martial on board the *Nisus* in Batavia roads, told me that his ship, the *Illustrious*, has been nearly ever since her arrival in India little better than an hospital ship; that medical skill, care or variation of treatment, or such changes in her interior regulation and discipline as were supposed to be advantageous, had not really diminished her large sick-list; that she appeared to be in his own phrase "saturated with disease." The *Lion* 64, which joined the expedition after us from the Malabar coast, also suffered much. Among the frigates, the *Leda*, *Cornelia*, *Bucephalus*, and *Hussar*, were said to be the worst, though all were sickly. At Banda, the *Piedmontaise* and *Phoenix* were represented as having been nearly unmanned by sickness.

The general prophylactic means employed on board differed little from such as are customary in a well-regulated man-of-war. Our discipline was of the strictest description; as much cleanliness and ventilation as possible, without running into the other extreme of too frequently washing the decks; as little laborious duty in boats as possible; an allowance of wine to their crews when obliged to quit their ships early in the morning; the cessation of work in the heat of the day when it could be avoided; and strict orders rigidly enforced against sleeping exposed to night dews, which the heat below induces men to do if not prevented by positive orders. The propriety of that arrangement in hot climates is, however, questioned by many old residents, and in various places the practice of the natives is no doubt the reverse. Much, I imagine, must depend upon the locality; and they alone

who inhabit it are necessarily judges of the effects. A point in which we differed from most other ships was in cleaning the lower deck,—where the crew, in cold climates, eat, sleep, and, in fact, wholly live immediately after breakfast, and allowing no person to remain there for the remainder of the day, till the time arrived for again retiring to their hammocks. By adopting this plan whenever the weather permitted, the air of the sleeping-deck was kept more cool and pure for the night. Refreshments of fresh meat and vegetables were of course procured whenever circumstances rendered it practicable.

In the medical treatment, my chief dependence for cutting short the complaint was the same as at Mauritius. I did not find it, however, so successful on the whole as it had been there, though I discovered nothing else so good; and it was something to encounter such an enemy with even a probability of advantage. I found it most prudent to lose little time by premising *Ol. Ricini*, or any other of the milder evacuants, excepting where they seemed absolutely requisite, but on the first symptom of complaint, when the patient was wise enough to give me the opportunity, at once to administer the remedy. Twice within the twenty-four hours I have already said was the maximum of its use. In this I may have erred, as there was no apparent objection in the consequences produced why it should not have been given thrice, or even conjoined with careful watching oftener. But the apprehension of accident, or some idiosyncrasy producing unexpected and unfavourable effects, by the too frequent exhibition of doses of opium larger than ordinary, deterred me from carrying it further. The experiment may be worth trying where we find the mortality, as lately at Chusan, so truly dreadful. I saw nothing to justify having recourse to general blood-letting. The general experience of the Islands I visited, in answer to inquiries on the subject, was against the practice. But, as it is difficult to believe that local inflammation is not going on in some degree where abdominal pain exists more fixed or more acute than ordinary, I should have applied leeches, without hesitation, in many cases, had those useful adjuncts to medical practice been at hand.

The same caution, or, if you will, timidity, which restrained me in venesection, prevented the external application of cold water, though the whim of a patient furnished, perhaps, a sufficient apology for the trial of that remedy to a very fearless practitioner. An officer of marines of the *Lion*, who was for a time embarked with us on service, complained of illness on our return to Cheribon, from the march I have mentioned, and consulted me on the propriety of having a cold bath, to which he had taken a sudden fancy. I explained to him its doubtful results; that, in all probability, if it did not cure, it might aggravate the symptoms, or en-

danger his life. Having, however, been brought up himself to the medical profession, though, as may be supposed, long out of its practice, he decided on indulging his humour without attempting to reason on the matter, and, as it turned out, with the happiest results. I had him removed from the bath (not the cold affusion, which, had I sanctioned the plan at all, I should have recommended), to bed immediately, took him on board next morning, and he was soon well,—not a little proud of the success of his own prescription. In this instance, however, the affection was more febrile than dysenteric, the bowels being but slightly touched; both symptoms were recent, originating, as I conceived, in fatigue occasioned by marching all the previous night and the better part of the day in the evening of which the remedy was used. In decided dysentery, therefore, this case, however gratifying to my friend, formed no safe guide to follow. I tried it, however, in two instances, but saw no sufficient good effects to induce me to persevere.

When the disease was not subdued in the first instance, and the patient survived the attack three weeks or a month, it might then be considered fixed in the chronic stage, still distressing and dangerous, or ready from very slight causes to become so. This was a sad state for practitioner and patient. Nothing, indeed, could be more thoroughly unpromising; for though life by good nursing, care, and attentive watching, might be preserved, a cure under such circumstances was nearly hopeless. Medicine, in fact, seemed to have lost their usual curative or ameliorating influences on the frame; and our general conclusion was, that, of all complaints the most intractable, was the chronic dysentery of the tropics. Sea air, though so salubrious in other maladies, could not cure this. Nor were the fine climate of the Cape of Good Hope, when we reached it, the comforts of a good hospital, and the skill of its surgeon, more successful; for he told me that in every instance such cases were obliged to be sent home. And it may be confidently pronounced that any one who has laboured two months under the disease, even when life is not in immediate danger, will not recover in the climate where it originated, but he should be sent to England by the first conveyance. This rule applies more forcibly to the men than to the officers, their privations and exposure being necessarily greater.

It is true that persons by care live for years even in this climate, suffering under a certain degree of the chronic malady, and still preserve life though preserving it miserably. The nature of our mission to Java, and the shortness of our stay, prevented me, as may be supposed, having much intercourse with the inhabitants. Accident, however, threw five such instances in my way; two at Batavia, one the occupier of a kind of hotel where we stopped on

a casual visit, and his next door neighbour; two at Cheribon, one of them in office under the president, the other in mercantile employment; and the President Mynheer Swalue, at Karaug Sambung, the village to which the pursuit of the military chest had led us. These persons had not only suffered a good deal but suffered many years; distressed, perhaps, for one, two, or three days within the week or fortnight, and the remainder of the time enjoying an interval of something like exemption and comfort from the more violent symptoms. On inquiring of Mynheer Swalue, very inconsiderately perhaps, why he did not quit so deplorable a climate where life was so precariously retained, he very promptly replied, as, in fact, I had been previously answered in Batavia, "whither was he to go?—He had quitted Holland about eleven years before and not then a youth; no one there now knew or cared for him; his property and connections were in Java, and there he must continue as long as it pleased Providence to permit him." Civilians, therefore, may exist in such a state of suffering; but it is different with the military classes, whose services being of various and migratory character, they cannot necessarily enjoy that quietude and exemption from privation and exposure which are within the reach of others.

Among the remedies employed in the secondary stage, my chief dependence was upon ipecacuanha. It was used in various proportions, and as variously combined as the customary supplies of a frigate permitted, in addition to the *Pulv. Ipecac. comp.* of the Pharmacopœia. Also on several occasions *Pil. Hydrarg.* with *Pulv. Rhei* in small proportions; *Ol. Ricini* and *T. Opii* similarly used; *Conf. Aromat*; and *Conf. Opii* in combination; astringents generally; the antacid earths; camphor variously combined; the mineral acids in *Infus. Lini* or some similar vehicle; *Zinc Sulphat.* in small doses administered in like manner; mucilaginous drinks generally; enemata variously constituted; fomentations; pediluvium; swathing the abdomen in flannel. The warm bath I did not use, or at least to any extent, from the difficulty of procuring it frequently in a ship where no express provision is made for the purpose; but I saw no reason to prize its remedial powers highly. In many instances, to soothe and moderate the most distressing symptoms, was nearly all that could be accomplished, which our advance from the Straits of Sunda to the higher latitudes of the Cape, tended obviously to aid. Experience, as already hinted, forced the conviction upon me, that a permanent cure from this stage was rarely to be expected on the spot. My chief aim, therefore, became latterly to support the system by the most soothing and nourishing means within reach, in order to gain time and give the patient a chance for recovery at home; and, with the disadvantage and discomfort inseparable from a cer-

tain degree of exposure of the persons in the customary calls of such a malady on the main deck of a frigate actively engaged in warlike operations, to be enabled to prolong life on any terms, was in some measure a triumph.

I attributed much benefit to an early and strict confinement to bed. This may seem a very superfluous recommendation to such as are chiefly conversant with civil life, or hospital practice; but it is not so at sea. The men, unless violently attacked at first, are often loth to undergo this restraint, added to the irksomeness of quitting their hammocks to answer the frequent calls to stool. Officers in command are likewise disinclined to it, unless where pronounced imperatively necessary on account of encumbering the fighting deck; while some are so intent on preserving the array of guns clear to the eye, as to permit only the vicinity of that noisy, and smoky, and therefore improper place, the galley, to be appropriated for their reception. Against the wishes of both it is frequently the duty of the naval medical officer to contend. But where, from one or other cause, the injunction was for a day or two evaded in part, or wholly neglected, I commonly observed aggravation of symptoms. An early application for medical aid was likewise of essential importance.

I had no opportunity of trying the effects of locating the sick and convalescents upon one of those uninhabited islets which stud the sea so abundantly in the vicinity of the larger Eastern islands; nor did I hear that any one else had attempted it. But the experiment may not be useless and should be made. The only objection is, that it may impair the efficiency of the vessel for a time by the numbers required on shore to superintend, wait upon, and guard the invalids. In the older voyagers we read of its frequent success in scurvy and fever, as well as in many minor complaints; and there is an unquestionable exhilaration to body and mind in treading the earth, or even in the eye reposing on its verdure and productions, after long confinement, and more especially sick confinement on ship-board. I confess I am not at all sanguine in its curative powers in dysentery; but it may prove a useful palliative. On the coast of China the plan will probably be adopted. Officers are naturally reluctant to part with their men by sending them at once to England, so long as a hope of recovery remains, on account of the difficulty of replacing them by others. The medical officer must necessarily consult this feeling as far as prudence warrants and life is not endangered; but his acquiescence should go no further; for it appears that, out of about 70 invalids sent home in the Conway recently, 22 died on the passage. Should the experiment, therefore, not succeed, it will serve to prove to those in command how necessary change of climate is, and still more how indispensable time is to the progress

of recovery ; for where the disease is of any standing it is in vain to hope that it can be speedy. Much may depend upon the spot so chosen, which obviously should be as remote as circumstances permit, from any vicinity where the complaint is prevalent. And I have mentioned an uninhabited islet from the conviction that it should be wholly interdicted to all, shipmates or natives, who are not in the immediate care or superintendence of the sick, to prevent the introduction of what may, from interested motives or mistaken kindness, mar the effects of medical treatment.

The possession of superior comforts and accommodation, added to greater care on their own parts, rendered the mortality much less in proportion among the officers than men. Not that they wholly escaped. An assistant surgeon on the medical staff of the Indian army, next to whom I had slept during my first night on shore in Java, was seized the following morning with dysentery, and expired in three days. The captain of marines of the *Illustrious* shared a similar fate, a victim to a high sense of duty ; for he had laboured under the chronic disease at Mauritius, but would not there, or at Java, remain on board when his men were fighting on shore. The surgeon of Admiral Stopford's flag ship likewise died ; as did the assistant-surgeon of the *President*, who accompanied me on the march from Cheribon. These came immediately under my observation. Among others, one of the first of whom I heard, and who was lamented with all the warmth due to a man of genius, was John Leyden, known for his general as well as poetical talents, the friend of Sir Walter Scott, and who had accompanied Lord Minto with the expedition from India. The reports received from our military friends in sepoy as well as in European regiments, spoke of serious losses ; the former, I believe more than the latter ; for, on our first visit to the city of Batavia, we met with more than a dozen human bodies floating down the river on the way to the sea—a common mode of disposing of their dead by Hindoos—while several had lodged near the banks, and were before our eyes in progress of being devoured by dogs and alligators. If this scene of one day formed any criterion of that of another, and our boats reported such to be the case, the mortality must necessarily have been considerable. I had no opportunity, however, of becoming acquainted with details. But, in reply to my inquiries many months afterwards at the Cape of Good Hope by military officers on their way to England, the statement was, that cases, whether of sick or wounded, in the general hospital at Weltevreden had not turned out well. Many of the amputations died from trismus ; others, and those the greater part, from dysentery.

I have already adverted to the absolute necessity of time as well as native climate for a cure when it has once passed into the

chronic state. The period required for this purpose will of course vary in different persons according to age and physical powers, which obviously influence its duration very much, but the term generally is not short. Accuracy on this point is, indeed, not to be expected. It is rarely possible to trace the medical history of men in the condition of soldiers and sailors, who, always careless or imprudent in their habits, give nature perhaps, under any circumstances, little chance of repairing the inroads of disease, and who, becoming partially better or tired of the restraints of an hospital, obtain their discharge as unserviceable, and afterwards shift for themselves so as to be out of the reach of inquiry. From what accident has thrown in my way, indeed, added to the account of some officers themselves, sufferers from the complaint, it is certain that two, three, four, and even more years, may elapse, under the most favourable circumstances, before a cure is accomplished. One of these, an acquaintance, a captain in the navy, whose first attack came on, if I remember accurately, after quitting Java, had been two years in England under medical advice without experiencing material amendment when I first saw him. In two years more we met again; he was then better, and soon afterwards, as I heard from his friends, wholly recovered; a blessing which he considered to be owing to the use of De Velno's vegetable syrup, recommended to him by some professional friend resident in (I think) Dublin. If the composition of this nostrum embraces, as is supposed in Paris's *Pharmacologia*, *Taravacum* (among other vegetable substances), and the *Hydrargyri Bichloridum*, we may admit that the remedy, in addition to time, had really produced some effect upon the malady.

As I mean this communication chiefly as a brief record of facts, I have not touched upon the debateable ground of the primary seat of dysentery, whether the liver or the intestines. Of the appearances after death in such cases as were under my own care, I can say nothing, for no *post mortem* examinations were permitted in the Nisus; one of those contingencies to which, as you are aware, naval medical officers are occasionally subject. But in those I witnessed at Port Louis hospital, and a few (only three or four, I think) at Weltevreden, the chief parts affected were the large intestines, presenting distension, ulceration in small clusters rather than in large patches, and erosion; and this agreed with the experience of others. The smaller intestines were more rarely diseased, or much less in degree. The liver might be deemed as in a state of some degree of congestion, perhaps a little softened, yet the actually diseased appearances in it were few; so that if it really gave birth to the complaint, no question could exist about its being the slighter sufferer from it. But, as the total absence on most occasions of the biliary secretion in the dejections renders it

certain that the functions, if not the structure of that viscus, are seriously deranged, there can be no solid objection to believing, that, in whichever it may originate, the diseased action is communicated from the one to the other, and that it can rarely exist long in either without both participating in the evil. Were personal impressions permitted to weigh largely in this matter, I should say, that, in my own case, which, though pretty sharp, was certainly not one of the severest, I had not the shadow of a doubt of the mischief being confined, in a great measure, to the large intestines; though I am sensible that the urgency of pain there is so pressing as to divert attention for a time from the subsidiary assimilating organs, which, though likewise affected, are so in a less degree, and give rise to much less of positive suffering.

I am not aware, having seen nothing of the kind, whether an account of the state of health of the forces of the expedition, and the various results, was ever published by medical officers of the Royal or India Company's army. Those of the navy were scarcely sufficiently stationary to pursue the investigation with the accuracy due to the statistics of disease, further than the experience of their respective ships furnished. Neither had they the means of knowing from authority details of the land service; nor could they, in fact, know more than what casual statements or rumours supplied of their own. No physician to the fleet, or other superior medical officer, was present, to whom it belonged officially to call for returns from the various ships;—one of those strange anomalies in our service frequently witnessed in the great naval operations of the last war, and continued to so recent a period as within the past year; but for which arrangement it should be distinctly understood the higher authorities of the navy solely, not the medical department or medical officers, were responsible. All the necessary information on this point, indeed, was sent home, and no doubt exists in the offices of the respective departments. From these, it might be a source of interest to trace out full returns of the numbers of European and native troops taken ill, the recoveries, deaths, invalids, and discharges otherwise, as well in the reduction of the island, as during our subsequent occupation of it. To those who may be carried by the course of service into the same or similar situations, such a document might serve as a useful guide, while it added something to the general stock of intelligence regarding casualties in fleets and armies employed in distant regions,—a species of knowledge which is less abundant, I mean the published portion, than could be wished. The returns that exist on the shelves of offices, or the information they convey, are either rarely accessible to the public and to the service at large, unless under special circumstances, or they are not often made known until the interest of the occasion has passed away, or

a diminished degree of attention directed to it. The particulars they furnish become thus less valuable than under a different arrangement. And as the operations of war necessarily carry us into dangerous and untried situations, in which, from their very novelty, something must be left to chance as well as to the skill and resources of those in authority, yet difficulties, obstructions, and evils are already half-overcome, by being prepared for them in the knowledge of what to avoid, and what to depend upon by reference to what has been done before.

I venture, therefore, to suggest for consideration the publication in future of a medical history of each expedition, derived from official sources, as speedily as may be, after its conclusion. This, indeed, may form a serious additional tax on the superintendents of such departments, whose daily labours are already much too various and onerous to permit more than an inspection of such documents. There is therefore the less probability of their giving us through the press, so often as could be wished, connected and practical views of the difficulties often encountered by armies and armaments, with the most advantageous means by which they should be opposed. Such duty, it may be thought, should devolve on the senior medical officer employed upon the spot in each fleet and army; and were he sufficiently unoccupied to have leisure for that purpose, he is doubtless the most fitting person; but while actually engaged on service, he has usually more pressing work to perform. The calls upon his attention are too numerous; the distractions of the moment too various, to surrender to thought that time which must be given to action; and from this cause it is that we have fewer such accounts from the medical officers of the army and navy than we otherwise should. These must, therefore, be commonly drawn up at home, and perhaps by more stationary official persons; the *disjecta membra* of numberless returns, reports, and details, methodized and digested in the quiet of an office where all the information bearing upon the subject is at hand. In fact, to obtain these returns in a complete state abroad is not always perhaps practicable; and of the difficulty of so doing, even upon the spot, when not clothed with official authority for the purpose, my own experiments may furnish an example. I had kept an extended journal of four years' cruize in the Indian Ocean, embracing all such occurrences and subjects of popular interest as came under observation, and though, among other things, the state of disease at Java formed one of the items, I could gain no precise information of the numbers of sick in more than two or three ships of the fleet. This arose from no disinclination on the part of the medical officers to afford it; but chiefly from the little intercourse of a private nature permitted by the active nature of our service; the difficulty of communicating in a large fleet on what was in my po-

sition merely a personal matter ; and the delicacy of soliciting from gentlemen to whom I was a stranger what I felt they had no right to give, and the motive for asking which might be misconstrued. To the Commander-in-Chief, indeed, such returns were duly made, and others sent home to the medical authorities according to the custom of the service ; but these were necessarily not available to other inquirers.

It might seem an omission were I not to advert in a few words to the discrepancies in the treatment of dysentery obvious in the works of medical writers. We can scarcely reconcile them otherwise than by supposing, that certain local, though unexplainable causes, produce diseased action in the animal economy, with some shades of difference in different places, and perhaps in the same place at different times. If this variation really exists, of which there seems to be no reasonable doubt, either in some little novelty of symptoms, or in the extreme aggravation of those already known, we can be at no loss to conceive why there should be greater or less power, and consequently variety, in the remedies employed according to the scene of its action or the degree of its violence. The usual dysentery of Europe, excepting such an epidemic as prevailed in Ireland in 1818, is not so fatal or protracted in duration as that of the Tropics. The dysentery of South America carries little more than half the mortality of that of the East Indies ; and that again has various shades of severity in the extensive and diversified regions comprised under that name ; while in the moderate though still warm temperatures of Madeira, the Cape of Good Hope, and similar spots, it is commonly rarer and milder than where the temperature is much higher. The history of fever is as full of dissimilitudes. That of Egypt differs from the usual fevers of the Mediterranean ; those from the yellow fever of the West Indies ; the latter from that of Sierra Leone ; and this again from the pestilential disease of the River Niger ; while nearly all of them vary many shades from the fevers of Europe. Were I disposed to generalize, it might be said that in Africa and America the sanguineous system is chiefly affected ; in Asia the chylopoietic viscera ; in the former the most fatal maladies are fevers ; in the latter, cholera, dysentery, and liver complaints ; and while the merely febrile class admits of some greater degree of uniformity of treatment ; the other, to which I particularly advert here, offers that extreme diversity to which allusion has been made, and the chief causes of which are perhaps to be sought in the probable variations of the complaint itself, according to the locality in which it prevails, as well as the number of organs affected. Thus we find it a more complicated disease, requiring so much more delicacy and tact to treat, and hence, no doubt, the frequent failure in the best hands of every mode of practice hither-

to devised. Remembering these circumstances, we may safely acquit practitioners of mere caprice in the number or nature of the remedies tried or suggested, and confess that our differences of opinion spring from the imperfection of our art; while this again is but the result of the laws of nature herself, which being constantly in process of change, they change likewise in part the diseased affections we have to remedy, as well as the animal frame where they are seated, though the causes or the precise extent of such changes are often hidden from our limited powers of perception. Numberless facts in the history of medicine teach us the existence of such variations nearer home. We need travel no farther for an illustration than the treatment of a complaint which falls frequently under the observation of every practitioner. In the latter half of the last century, some of the most distinguished physicians treated acute rheumatism from the first by the use of bark, with a degree of success so remarkable as wholly to relinquish bleeding. If this be true, and we cannot reasonably suspect mistake or deception from Sir Edward Hulse, Drs Hugh Smith, Fothergill, Fordyce, Swediaur, Haygarth, and others, what can we conclude from the different, and, as we suppose, improved practice of the present day, but that the disease, or human constitution, has undergone a material, though imperceptible change?

The question to which I have now adverted, of certain localities in tropical regions of apparently similar character and climate giving origin to a different class of malady,—as in one place chiefly to fever, and in another to dysentery or other disease,—offers an ample field to the inquirer into medical topography. Here it is necessary only to advert to it as a subject for curious speculation. Few can have been in such countries without having their attention drawn to the fact; but whence those differences proceed, or how brought to act in their peculiar way upon the animal frame, or why one prevalent disorder in a particular spot subsides, as we occasionally find, to make way for another, defies the keenest observer. We all know, indeed, that the general health of a community improves with the advance of civilization. We know, likewise, that, from the same cause, the acute and fatal malady of the ruder condition of life subsides into the more chronic or modified affection belonging to a period in which the comforts, arts, and appliances of a more polished state are better understood and practised by the inhabitants. It is obvious that a country well cleared of wood and jungle, well drained, well cultivated, and a people enjoying the conveniences, and fully appreciating the advantages of the municipal system and strict police regulations of polished communities, will experience less of all disease than where contrary habits and circumstances prevail. It will likewise be of a less fatal description. Thus fevers, as they are commonly the

first and most serious scourge of new settlements, are also the first to subside into something of a mitigated character, or possibly assume a new though less destructive form. So dysentery has in other spots settled down in time into chronic diarrhœa, or affections of the liver.

As an example of these changes I may instance the city already mentioned, the capital of Java. The state of health at the period of our visit was much superior to what it had been even fifteen or twenty years before. Fevers, I was assured by some residents, and concurrent testimony fully confirmed the statement, had subsided one-half within the previous forty years, while dysentery, though modified in character, had not diminished in the same proportion; though it was likewise true that, in the same period of time, the population had dwindled from about 165,000 down to about 55,000 persons. These accounts, though necessarily vague, yet furnish a sufficient approximation to truth to prove that changes are going on; and that time, perseverance, and intelligence, applied to the circumstances in which we are placed, will render the most unpromising spots habitable, if not altogether healthful. Were a conjecture to be hazarded on the cause of the slighter diminution of dysentery, we might assume that the atmospheric poison which had produced fever, becoming subdued in virulence by the improved condition of the surrounding country, and no longer capable of influencing the sanguineous system, has yet power seriously to derange the functions of the *primæ viæ* and digestive organs; while the habits, or perhaps injudicious diet of the people, applied as it necessarily is to the immediate seat of the disorder, may tend to keep up the irritation, when, from whatever cause, it has once appeared. As one of the minor matters for remark, on the character of their cookery for example, it struck me in Java generally, that there was used much less of Cayenne pepper and the warmer spices than in English India; while many of the dishes were spoiled to our taste by swimming in oil or melted fat. So much obscurity, however, attaches to the whole inquiry as to the causes that make certain spots apparently similar, the one to be healthy, the other the reverse, or to produce diseases of different character, that the boldest theorist may be indulged in his conjectures whatever they be. It is, indeed, a fine and nearly untrodden field for an essay; and the medical philosopher who handles it successfully is certain of insuring fame. It is true that much time, labour, and observation, must go to the solution of the question. Nor may we ever certainly determine, whether it be simply heat acting upon moisture of peculiar character; exhalations or miasmata from decomposed vegetable and animal matters; impure water; peculiar atmospherical currents; certain habits of the people; addiction to particular qualities of food, fruit, or other

ingesta ; or to what many persons are disposed to attribute it, a peculiar and subtle vapour of volcanic origin escaping in certain districts, from the surface of the ground. All these causes have been supposed to influence the unhealthiness of this great capital of the eastern possessions of the Dutch ; and, as I ventured, when on the spot, to make some general observations on what I saw in a work not medical, and therefore not likely to be known or remembered by those whom the question professionally interests, I make no apology for transcribing their substance here.

“ The canals to which allusion has been made, I am told, are less numerous than they formerly were ; and it is perhaps to be regretted that General Daendels, the former governor, who seems to have possessed the inclination as well as the power, did not wholly obliterate the nuisance instead of merely doing it in part. They are about forty feet broad and two or three in depth ; some with a languid stream ; others with little or none, particularly in the Chinese suburb, where one or two were covered with green scum, to which a powerful sun speedily gives life and action, and a few of them exhaling offensive odours. Certain bad qualities are attributed by visitors to the trees lining some of the streets, such as preventing a free circulation of air, and forming receptacles for the concentration of noxious vapours arising from the canals. These objections carry little or no weight, for these agreeable ornaments are too few in number to produce any serious effect ; and, admitting they attract such exhalations and retain them till finally dispersed by the wind, the argument would be rather in their favour than otherwise. I can vouch that there is no want of a free current of air in the streets, for while rambling to and fro during the fiery sea breeze, I found it necessary to secure my hat firmly on my head lest I should lose it.

“ After all, it will be matter of much difficulty to fix the exact causes of the unhealthiness of Batavia. Its low situation, the adjoining swamps, the moisture of the rice and paddy fields acted upon by the sun, the nature of the system of gardening with tubs of filth, the vicinity of particular manufactories supposed to be deleterious, the luxuriance of vegetation, and the canals,—all seem insufficient to account for the fact ;—for a hundred other spots in the island labour under similar disadvantages with comparative impunity. Every one here is aware that several parts of the coast of Java are inimical to health, while, as they recede from it towards the interior, this tendency decreases, and even twenty miles distant from the capital the situation is deemed salubrious. Yet the chief apparent causes operating in the one place seem as active in the other. Whence, then, this difference ? Probably some other agent ; for the vicinity of the sea is more cool ; it enjoys the full benefit of a pure breeze, and in the majority of countries is sought

as a restorative of health. On the other hand, this coast is usually flat, extensive tracts are uncovered at low water, and much of the shore has been gradually gained from the ocean. Near Batavia this is strikingly the case; and a peculiar vapour of greater density than ordinary is observed to arise and hover over the newly uncovered land, which requires a brisk wind to disperse. Either this must have a different origin from what it commonly has, or we must suppose, which is not probable, that mere evaporation from salt water marshes is so much more poisonous than that from fresh; because the latter at a distance from the coast is comparatively harmless.

“The conjecture of a volcanic vapour is strengthened by accounts of the shock of an earthquake which occurred here near seventy years ago, raised the bed of the river, formed a bar at its mouth, and by which some extent of land was gained from the sea. Shortly after this event the mortality for a time in the city is stated to have fearfully increased. It is remarkable that Banda and some other islands to the eastward, I was assured, offer similar phenomena of the seemingly deleterious effects upon human life of a vapour supposed to be volcanic, though possibly quite as likely to arise from other causes, issuing from the earth; while it appears certain, that several portions of the coast of South America permanently, uncovered by a receding ocean, are also known as particularly unhealthy. Bantam in this island is another example of the same peculiarity. Stagnant and impure canals are therefore probably but subsidiary to other more potent causes of mortality; and we may presume the inhabitants think so, or otherwise it is inconceivable they should not long ago have been filled up. Such a suggestion was thrown out, and partly, as already hinted, acted upon. And as a measure of precaution we may be induced to complete what has already been begun, sparing, perhaps, one or two of the principal; for no scruples of delicacy should be permitted to operate in abating, not merely a nuisance, but a probable assistant to pestilence.

“Whatever be the primary origin of unhealthiness here, an Englishman will believe that the diet and habits of the residents assist the poison of the atmosphere. They eat abundantly of animal food commonly immersed in fat melted to oil; they delight in hot and hearty suppers, that being the favourite repast of all classes of the whites; they sleep constantly after meals, as is usual with all foreign colonists in inter-tropical countries, and therefore probably not a source of injury in itself; and frequently drink freely of fermented and distilled liquors to accompany the pipe,—the companion of almost all their hours, whether devoted to pleasure or business. Oleaginous matters have been considered by some useful in dysentery; but the results would imply that such is not

the case in Batavia. The infatuation for ardent spirits, of soldiers, and sailors, chiefly natives of Northern Europe, who came hither in the service of the Dutch East India Company, occasioned the loss of thousands of that valuable but commonly thoughtless class of men; for where they were enabled to get intoxicated for a penny, which is the case in this city, it is in vain to hope they will forbear. Eastern sailors, being much more abstinent, are likewise much more free from disease. From the same cause, no doubt, as well as from the less exposed nature of their duties, women of all classes and colour suffer infinitely less in proportion than men. I had no means of gaining access to the register of deaths, but I was told by an intelligent inhabitant that there were distinct gradations in the scale of mortality. Europeans are, as may be supposed, the greatest sufferers; next creoles and half-casts; and then Chinese; the natives proper, or Javanese, the Malay race, Baliars, Buggese, Amboynese, and other natives of the eastern archipelago, of whom there are great numbers here, do not suffer materially. The degree of heat is seldom distressing, considering the latitude 6–10 S. longitude, 106–51 latitude; the city being cooled by the sea breeze. Fahrenheit's thermometer in the shade usually ranges on shore between 80° and 88°; at anchor in the bay the former is the general temperature beneath the upper, and consequently more exposed, deck of a ship. In the rainy season, I am told, the streets are frequently ankle deep in water, and towards the end of this period the mortality is more considerable than at other times. On the whole, however, it is gratifying to hear that this is much less than it was thirty years ago, or even half that space; and it may be hoped that, under an enlightened English government, always attentive to the subject of health, and a police more than ordinarily strict, it will admit of still further decrease.\*

Although more than thirty years have elapsed since the foregoing passage was written, and above twenty since it was published, the subject of atmospheric phenomena, as the primary cause of disease in the locality there mentioned, or in others, remains nearly as it was. Analysis in the most competent hands has failed to detect those minute variations in the air we breathe, which, nevertheless, unquestionably exist, as we feel by their obvious influences on the human frame; nor shall we probably be better informed until the science of pneumatics make many strides in advance of its present state, by the possession of finer instruments, or more delicate tests for that purpose, than she at present possesses; or until some fortunate discovery more fully unveils to the diligent inquirer that still obscure department of natural knowledge. Then, and perhaps not till then, we may probably be more successful in

\* Voyage in the Indian Ocean in 1810–11, 8vo, pp. 84–85, 1820.

diminishing the access of disease, by knowing more precisely from what it proceeds.

That more has not been attributed to the quality of the ingesta received into the stomach in producing or keeping up dysentery, than really belongs to it in general opinion, I have had another corroboration since the preceding pages were written; indeed, within these few hours, in the verbal account of an intelligent officer just returned from active service in the China expedition.

He says there seems to be but one opinion, that the chief cause of the disease arose from the inferior quality of provisions supplied to the troops. Much of the animal food had been imperfectly cured in India, and portions of it had become, in his own language, "rotten;" even a slighter degree of decomposition than this implies, I am satisfied, from what I witnessed in 1811, would have had its effect. His statements otherwise were appalling. Out of about 890 men in one regiment, less than thirty were at one period returned fit for duty,—and of those about 500, or nearly so, eventually died. Compared with this, the plague is a mild disease;—and, in fact, we are informed by some records of the French army in Egypt in 1799–1800, that more deaths occurred from dysentery than from plague.

I cannot conclude without repeating my satisfaction at the *Minden*, being appropriated to her present duty, and fitted, as I understand, with all that can be supposed calculated for the preservation of human life, and the prevention of human suffering. No class of vessel can be more useful where warlike operations are going on, and no English armament should ever be dispatched without so unostentatious yet useful an attendant. She forms a travelling and safe hospital, rarely in danger of interruption from an enemy. She is placed in no jeopardy by adverse circumstances, such as the miseries of retreat before a superior enemy's force. She may be made a depot for medical officers and medical stores, ready for transference to any quarter. She comprises within herself more comforts and accommodation than military hospitals on short and occasional expeditions commonly possess. She follows with facility a coast line of operations, chooses without disturbance to patients the most favourable position for health, receives casualties as they occur, and thus renders the fleet more efficient, by clearing it of the incumbrance of the disabled and diseased. Whenever there is sufficient accommodation she can perform the same kind offices for the troops. In the late Syrian campaign, such a vessel would have been invaluable. All private accounts are loud in lamenting the want of such an appendage, which they agree would have saved many lives and much distress; for in several ships men were dying from disease within a few yards of the guns roaring in action; while the want of accommodation in others for

the numerous dysenteric cases thrown suddenly on board them for conveyance to Malta hospital, added to the peculiar calls attendant upon their complaint, for which any but a ship appropriated for the purpose is so ill adapted, gave rise to scenes which it would be painful to detail. The authors of so dire an economy could have no idea of the miseries they entailed upon its victims.

I rejoice likewise that an inspector of hospitals goes in her. Good service must be rendered by both, if the views and wishes of that officer be met with that ready concurrence, and in that conciliatory spirit which such a service demands, and which is, in fact, essential to his and her complete success. It is to be hoped that this is but the commencement of a system (I mean more particularly the appointment of an inspector, for all the stations do not require at all periods an hospital ship, though all expeditions certainly do), to be acted upon invariably in future wherever there is a Commander-in-Chief. Let the medical staff of a fleet or station be no more shorn of a legitimate head or chief, than any other department, or given in charge to irresponsible persons, or what cannot be generally understood as an unaccountable principle of naval economy, left absolutely in no charge at all. Let us hope we shall never again witness the extraordinary spectacle lately exhibited of a large Mediterranean fleet containing twelve or thirteen thousand men, with numerous sick and many wounded, without a single superintending medical officer, who, by superior rank, could control or direct a junior, if he chanced to find him entertaining unsound theories of disease, or following injudicious practice. It is difficult to understand how a system so imperfect and unknown to any other branch of service in Europe should have been permitted to exist so long in the British navy; and this, too, against the expressed wishes and remonstrances of those who best understood the matter,—the medical officers. An omission so strange may imply marked confidence in the general character and talents of those gentlemen; and such confidence, I am proud to say in my experience of the service, has been fully deserved. But while it indirectly complimented their efficiency, it proved seriously injurious to the interests of the body. It interfered with that claim to promotion which the senior surgeons of the service, of fair professional and literary acquirements, had a right to expect; and while it exacted from them the highest degree of skill and responsibility, withheld the reward. Let me further add, it injured science, by preventing an observant medical officer, vested with the requisite authority, from gaining those enlarged views of disease which, thorough acquaintance with the interior of a fleet, must ever afford to one in that position, so much better than to him who has merely charge of a single ship. It likewise precluded the surgeon of superior talents from the opportunity of making his acquirements known to

an official chief on the spot ; and, on the other hand, by the want of this constant and prudent supervision, gave tacit encouragement to indolence or negligence, if any were so disposed. Superintendence, seniority, gradations of rank, and of course of responsibility, are as necessary in the medical as in other departments, however high the personal character of the gentlemen who composed it. Without such authority and distinctions, no military body can have its full measure of usefulness or weight in general opinion. The authorities at the Horse Guards saw this long ago, and acted upon it accordingly. Those of the navy could not be so convinced ; nor had the medical officers influence enough to overcome a resistance opposed, as well to their wishes and interests as to the solid advantage of the service at large, although very little observation sufficed to show how well the contrary system had worked in the army. In it the arrangements were much more complete. No unhappy parsimony was permitted to interfere with its usefulness ; no disposition evinced to deprive the medical officers of the rank or respectability accorded them in civil life, or in all civilized communities ; no remnants of barbarism shown, in what many of its members supposed, their studied neglect or depression ; no attempt made to class men of education with illiterate and inferior persons in military rank ; nor were they sent forth into service without professional seniors in authority to whom appeal for advice and assistance could be made when emergencies occurred. In a word, the land service, unlike what the medical officers of the navy believed theirs to be, was not starved or depressed by imperfect or mistaken views of those who governed it. It is not necessary to do more than to hint how ample, and how properly so, would have been the medical staff of an army comprising the same numbers of men as the late Mediterranean fleet. Whereas in it, as we have seen, there was not one controlling professional authority.

I need not point out to you the necessity for such superintendence. But to others in authority, it may be a point of duty to say, that it is not to be measured, as has been hitherto too frequently done, by the sum it may cost, though, in fact, that sum is so small as to form one of the most trifling items in the expenses of a fleet. But we must estimate it by the good that may be accomplished or the evil prevented, as regards the health of large bodies of men congregated together under trying circumstances, and exposed by their calling and position to nearly every injury and disease to which the human frame is subject. The field for medical practice is consequently large, such as practitioners in civil life rarely witness. Extensive and obstinate disease is often found to prevail ; and where, as we continually observe, the remedies useful in one spot or country are less so in another, it falls

more especially within the province of the local head of the department to give his labour and skill to the consideration of such as may be exhibited with more advantage. Professional character not merely renders this becoming on his part, but the simple fact of his position as chief makes such devotion of time and talent imperative. And in no way or place, perhaps, can humanity be more evinced, or science benefited, than where, in addition to such efforts in such an extensive field, he selects from those under his orders able and diligent men for carrying into effect his views, whether of prevention or cure. In the navy, the absence of a chief on foreign stations has thrown this duty commonly upon the subordinate, that is the surgeon; and this responsibility has occasionally elicited talent and high character. But he, having no charge or authority beyond his own vessel, could carry his skill or ingenuity, however marked, no further; and as the exertion was voluntary, he might choose to do neither beyond what the strict routine of duty required. In fact, we often find that it is not always those who mingle most with disease that either describe it best, form the most correct ætiological views, or point out the most efficient remedies. To do either well requires not only a person who possesses the opportunity of seeing it, but likewise an enlarged and philosophical mind to turn the occasion to advantage; one grounded in general knowledge, who, diligent in observing, has likewise leisure and inclination to think upon what he witnesses; to investigate, to compare, and collect (if I may use the term in this sense) varying cases; to draw inferences, such as circumstances reasonably justify, without his attention being distracted or diverted by details that may safely devolve upon others. The naval and regimental surgeon must unavoidably be much occupied by details. His position requires it. But it is not necessarily so with an inspector of hospitals. Here, therefore, is the primary utility, in addition to presumed general ability and experience, of the presence of such an officer in every squadron.

The evil he may prevent besides the positive good he may do, must not be forgotten. Happily there is nothing to fear from ignorance or incapacity; for few bodies of men have been more laboriously, though unostentatiously, useful in the most trying situations, or better qualified to be so, than that to which we have the honour to belong. But there may be something to fear occasionally from self-will in peculiar opinions, something from pertinacity of temper, something from that disposition to theorize which prevails still more extensively on shore than afloat, and leads or misleads, ingenious men to indulge in speculations that more sober observation may not warrant, and thus arrive perhaps at plausible, though erroneous, conclusions. Theories are very favourite and amusing playthings to active imaginations; and when merely contemplated

or evolved, not acted upon, may be safely left to the indulgent favour of their authors. But when brought into operation in the practice of physic, they may occasion, if unsound, extensive mischief ere their fallacy become obvious. A heavy responsibility, in fact, rests upon any medical writer of note who broaches new professional doctrines without having devoted much thought, time, and inquiry to the subject; for it is no light matter to remove our settled landmarks of disease, without having something indubitably good and true with which to replace what may be swept away. All this is familiar to the profession. But as it may not be so to others, who may, nevertheless, influence or control professional arrangements, an anecdote may suffice for such instead of an argument.

An assistant surgeon of our service in India, of good attainments, a fair classic and mathematician, and well read in his profession, had adopted from the perusal of some French works the atomic or adynamic theory of the dysentery then prevailing in the fleet. The conclusions he drew were, that the usual medical treatment was erroneous; that its frequent ill success proved it to be so; that in fact, tonics, stimulants, &c. formed the only correct mode of meeting the emergency. He could not be convinced of the fallacy of his views, complained that he was not permitted to treat the sick as he wished to do from scientific inductions or on fixed principles, and ventured to hint to the surgeon of his ship that he had either formed no certain opinion upon the complaint, or a very injudicious one. At length he was himself taken ill; an opportunity had now arrived when he could no longer be thwarted or opposed in his wishes; for, however authority might interfere in his treatment of others, he could at least treat himself as he pleased. Cinchona, as the most favourite and available tonic, formed his chief dependence, and this remedy he used with all the zeal of an enthusiast and the perseverance, as it proved, of a martyr, for in a few days, though the attack was not originally severe, he died. No better illustration can be given of the errors which clever men may commit, and of the propriety of every such men being controlled by age and experience. Had the surgeon of the ship been in any way removed, this gentleman would probably have had an acting order to do the duty as such, and might in that case have made some havoc among his patients, not as we have seen from want of knowledge, but rather from knowledge misapplied; and, however other medical officers might have disapproved of his system of practice, the absence of a superior in rank left them wholly without power to prevent it. This is one of the cases against which a controlling medical authority alone can guard; and is of itself the strongest argument that no station, at home or abroad, however small the numerical amount of ships employed upon it, should be left without one.

In an arrangement so imperfect as this was, it is understood you had no voice. It rested, as financial matters must commonly rest, with higher authorities, who, probably conceiving it less a point of professional importance than it really is, looked merely to the cost and not to the practical utility of the presence of a medical officer of higher rank than surgeon. I am happy to see that this mistake has passed away with those who chiefly displayed it, and that the members of our corps may in future look forward to that advancement accorded to all other branches. The naval service is in a long and large arrear of debt to the medical officers. Let us hope that what has been so long withheld, or not acted upon, will be repaid by the just and liberal spirit of the enlightened noblemen who now presides at the Admiralty. By this, and this alone, can the disgust engendered by a sense of what was deemed protracted neglect, be wholly dispelled. When this is fully carried out, and a few other objectionable points which still exist removed, medical men of high character will not only enter into the service, but what I deem of much more importance, they will remain in it, for that I need not say has been the great difficulty. Some anomalies also now observed will then disappear. For instance, we see a surgeon of thirty-five years standing and still serving under a pendant, of varied and responsible service,—of fair professional merits,—of irreproachable character,—possessing high testimonials,—whose literary productions drew warm commendation and patronage from men of the greatest talents, and holding the very first positions in this country\*—and who was, moreover, the senior surgeon afloat on the birth of the heir to the throne, which gave promotion to other senior officers in active service;—this gentleman remains still unpromoted; an omission, which, as no other individual unites similar claims, can only have occurred, it is presumed, from being overlooked amid a number of applicants.

But I reserve a full inquiry into the working system of our service for another opportunity, and more space than may be allowable on the present occasion.—I have the honour to be, my dear Sir William, your very faithful and obedient servant,

Woolwich,

JAMES PRIOR.

14th March 1842.

Allusion having been made to the completeness of the hospital ship for the fulfilment of the duties to which she is destined on the coast of China, it may not be uninteresting to the medical reader to detail a few of the particulars of her establishment; and

\* Among many others who might be mentioned were the late Earl of Liverpool when at the head of the government, Mr Canning when Foreign Secretary, and the present (as well as the late) Sir Robert Peel.

satisfactory to the public to know, that nothing has been neglected which, to a considerate humanity, seems necessary for the recovery and comfort of the brave men who are fighting the battles of their country in a distant and unhealthy region.

The *Minden* is a 74, deprived of one tier of guns, for the purpose of making more room for the accommodation of the sick; built in India; roomy; well adapted for her new employment; and commissioned as a fifth rate, with 280 men. She is fitted for the reception of 200 patients, and ventilated upon the plan of Dr D. B. Reid, who went to Plymouth, where she was fitted out, to make the necessary arrangements.

The hospital establishment consists of one inspector of hospitals, one surgeon, five assistant surgeons, one surgeon's clerk, (that officer having charge of large supplies of medicines and stores, and being accountable for their care and distribution); one ward-master, (in lieu of matron); sixteen landsmen as nurses, (four of the number something better paid than the others); three washers, (men's wives,) besides servants to the medical officers, and necessary mess attendants. All matters relative to the hospital are necessarily under the control of the inspector.

The supplies of medicines, of surgical instruments, of bedding, linen, washing machines, portable water closets, and stores of various kinds for all probable wants, are liberal. The cradles are as usual of iron, well secured to the deck, and fitted with rods so as to prevent the sick being thrown out by the pitching of the vessel in stormy weather; a provision likewise extended to some of the utensils. There are likewise twenty cots for such as may require them. A number of light screens, placed as may be necessary, to defend patients from currents of air unavoidable on the deck of a ship, where ventilation is so necessary. A boiler for warm water and pipes for its conveyance, supply a certain number of baths. Books for the perusal of the patients have been selected by one of the chaplains of Greenwich Hospital.

Supplies for victualling the sick are in charge of the purser, who thus acts as purveyor, delivering them daily upon the requisition of the surgeon, and superintended by one of the assistants. The stores of this description sent on board are said to be about 70,000 lbs. bread and flour; 55,000 of beef; 7000 of Scotch barley; 5000 of salt; 9000 of vinegar; 1500 of tea; 8000 of sugar; 400 gallons of wine; 6500 lbs. of soup and bouilli; 2000 quarts of gravy soup; 1000 lbs. calves'-feet jelly; with such other things as are necessary under the scheme of hospital diet; and in addition to these, there are three tons of patent preserved potatoes; one for the *Minden*, and two for the use of the remaining vessels of the fleet.

A variety of other conveniences and comforts customary in such

establishments on shore, besides strict regulations, always enforced in the navy, regarding cleanliness, clothing, bedding, victualling, the care and distribution of stores, and the duties of the various officers, render her the most complete vessel of the kind that ever quitted England.

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ART. III.—*Observations on the separate and combined actions of the Muscles of the Eye and its appendages, with their uses and physiological employment in the animal economy.* By EDWARD HOCKEN, M. D., M. R. C. S. L., F. R. M. C. S., &c.\*

THE contents of my present paper include a consideration of the physiology of the orbital *obliqui*, and four *recti*, the *orbicularis palpebrarum*, *levator palpebræ*, *ciliaris*, and *tensor tarsi*, both separately and in combination. The subject has been rendered uncertain by the number, diversity, and unphilosophic character of the opinions which have been from time to time promulgated on it by different teachers. I will endeavour in the following remarks to found my opinions and explanations on an unprejudiced and strict observation of nature, without reference to any speculative notions. I shall commence with the oblique muscles.

The diversity and contradiction which exists in the received opinions concerning the normal functions of the orbital oblique muscles, incontestibly proves that little sound discretion has been employed in this investigation, the results of all of which have been most unsatisfactory. Many physiologists formerly imagined that the superior oblique turned the eyeball upwards; and hence the absurd appellation of *musculus patheticus*, which was given it. The principal opinions which are at present entertained are, *first*, that the superior turns the globe downwards and outwards, whilst the inferior directs it upwards and inwards—an opinion most nearly allied to truth, as I shall show, and one held by the greatest number and best authorities of the present day. *Secondly*, Mr Duffin tells us that the superior oblique rotates it downwards and inwards, the inferior in the contrary direction, viz. upwards and inwards. In his book on Strabismus, he says, “towards the nasal canthus and upwards.” *Third*, Mr Walker asserts that the superior oblique turns the axis of the eye, that is to say, the pupil, directly inwards; the inferior in the opposite direction, and likewise turns it inwards. *Fourthly*, some learned authorities imagine that the superior turns the eye upwards and inwards, and

\* Read at the Royal Med. and Chir. Society, May 24, 1842.