George Johnston
June 1855

NOTES

ON THE

EPIDEMIC CHOLERA.

BY

R. HARTLEY KENNEDY, M.D.

&c. &c. &c.

LATE PHYSICIAN-GENERAL AND PRESIDENT OF THE MEDICAL BOARD, BOMBAY.

"But not to argue about what has been much laboured on, and to desist before, by arduous investigation on all sides, complete weariness is produced, can only take place among indolent and effeminate men. For it is necessary, in things of this kind, either to learn or to find out the manner of their subsistence; or if both these are impossible, then by receiving the best of human reasons, and that which is the most difficult of confutation, to venture upon this as on a raft, and sail on it."—*Phædo of Plato.*

SECOND EDITION, REVISED.

LONDON:
SMITH, ELDER AND CO., 65, CORNHILL.

1846.

London:
Printed by Stewart and Murray,
Old Bailey.

TO THE

MEDICAL AND PHYSICAL SOCIETY OF CALCUTTA,

THE FOLLOWING WORK,

WITH EVERY HEARTFELT WISH FOR THEIR PROSPERITY
AND USEFULNESS,

IS

RESPECTFULLY INSCRIBED,

BY

THEIR FAITHFUL SERVANT AND ASSOCIATE,

THE AUTHOR.

PREFACE

TO THE SECOND EDITION.

THE following pages are reprinted from the work which was originally written as the author's official report of his personal experience as a Medical Officer on the Bombay establishment, enlarged into a popular form, and published in Calcutta in 1826.

At the time of publication, he was seriously assured, by parties who were generally considered to be very competent advisers, that his work would never be read, that it had appeared too late to possess any interest! — that the disease had run its course, and was extinct, or soon to be so, and to be no more remembered!—his published opinion proves that he then thought otherwise, and twenty years' experience shows him right, at least on one head,—and *that* by no means the least important, in which it was his peculiarity to differ from some of his colleagues.

Retired from professional life, he has now no personal object to answer in presenting his volume to the public; but the accounts received of the

ravages of Epidemic Cholera in every part of India during the months of April, May and June last, are of so painful a nature, and men's minds appear tossed on such a sea of uncertainties, and that, too, upon a subject where decision and energy, and a correct course properly timed, are of such vital consequence, that he feels himself in a manner called upon, as the performance of a duty, and in the hope of usefulness, to solicit, once more, the attention of the public to his views on this frightful disease.

The experience of twenty years, since 1826, has afforded him very many* opportunities, both as a practising and a superintending medical officer, to witness the ravages of Cholera under every aspect, and in its worst epidemic form; and studiously avoiding, as he hopes he always has endeavoured to avoid, any bigoted views in favour of his own theories, and thinking only of being useful to others, he still feels no desire to alter a single opinion delivered in 1826; and prefers to reprint this volume, with its many deficiencies, from the original edition, rather than to revise and alter it, by more carefully studied composition, into what might have the appearance of a new work.

* See note F at the end of the volume.

CONTENTS.

NOTES

ON THE

EPIDEMIC CHOLERA.

INTRODUCTION.

The commencement on any subject respecting which so much has been written as the disease now under my consideration, is not regarded by me as an easy or desirable undertaking. Thus these notes have been more than once examined for arrangement, and as often have been laid aside, from the disagreeable impression that the publication would leave me but the alternative of two dilemmas, either of threatening to fatigue my readers with a worn-out subject, or of assuming to myself the capability of communicating new information, on what bears the appearance of exhausted matter; or at least of presenting what is already known in a new form of more useful and scientific arrangement.

But these discouragements must present themselves on the threshold of almost every literary undertaking; since happy is he whom fortune or accident directs to a subject which proves something new under the sun. I will therefore content myself with this consolatory hope, that even if I should prove utterly unsuccessful in my desire to present a new view of this important and interesting subject, I may at least enjoy the praise of good intention, in having endeavoured to be useful, by imparting the result of my reading, my experience, and my observations.

The plan which I propose to myself is simply and briefly to state what I have seen and done, and what I have thought I saw in the practice of others; accompanied by illustrative arguments, borrowed from other diseases and striking facts, gathered from the statements of eye-witnesses, or briefly extracted from authentic documents; and then my theory, as grounded on such foundations, respecting the nature of the disease, and the safest system of treatment.

The commencement of the Epidemic in the zillah of Jessore, about a hundred miles N.E. of Calcutta, in August 1817; how it travelled across the Peninsula from east to west, against the prevailing winds, which are westerly, and reached the Bombay coast exactly in one year; the wide and continually

spreading range of its progressive course; the lamentable desolation it occasioned, are already published; nay, the public papers even are sufficient and striking records. I therefore pass this as an unnecessary occupation of the reader's time and attention. Nor yet again shall I stop to examine minutely the voluminous publications which have been put forth: referring only to them when it cannot be avoided, I take it as granted that these works have met the serious consideration which the subject, and their own intrinsic excellence deserve; but although no one can be louder than myself in their praise, yet I will venture without reserve to state my belief, that the majority of those who peruse them will rise from the task with a conviction that the subject is still an open field for philosophical discussion, and that the detail of decisive facts, leading to practical results, continues a desideratum.

It was in July and August 1818, that the western coast of the Peninsula was first visited by this awful scourge. Month after month, during the preceding year, fresh accounts reached us of its progress westwards; and the general alarm and horror were excited to the utmost, when every hope that the disease might terminate, with each change of season, was at last extinct, and its victims were observed to be already falling: then, indeed, the

consternation which pervaded every class of society manifested itself, without disguise and without restraint.

Those who enjoy the happiness to have escaped personal knowledge of the calamity of a residence in "the city of the plague," can with difficulty form an idea of the state of mind of its inhabitants: the first feeling of dismay, the reflux of levity, the agitation and bustle at the commencement, and the immediately following unconcern to all that is going on; the mild workings of charity; the cautious guarded intercourse with others, maintained by selfishness; the active energies, in short, of the good, and the heartless indifference of the bad, are all presented in their several extremes. The limits of virtue and vice are not here so nicely blended and intermingled, like the colours of the rainbow,* for any difficulty to exist in distinguishing where the one begins or the other ends; on the contrary, both are in full relief, and too clearly defined for the possibility of an error; and neither the one nor the other affects, or wishes to affect, the character of its opposite. This, under the native theory of fatalism, and their superstitious feelings towards

* In quo diversi niteant cum mille colores,
Transitus ipse tamen spectantia lumina fallit:
Usque adeo quod tangit idem est: tamen ultima distant.
Ovid. Met. Lib. vi. 65.

the demon of the pestilence, whom they were far more desirous to propitiate by sacrifice, or soothe by prayer, than to avert by precautionary measures, which bear the appearance of presumptuous resistance to the Deity, operated in a most destructive degree: the disease rushed onward like a land flood, and swept off its victims without an effort to preserve them, save in the arrangements, and expenditure, and humanity of the British Government.

Among the European portion of the society, the precautionary arrangements were at times almost ludicrous. One had notes ready written, addressed to every medical officer within reach, announcing his being attacked; and these, placed on his desk, were to be forwarded by his servants the instant he should fancy that he felt, or they should see that he exhibited, the symptoms. Another would have a cauldron of water bubbling and boiling day and night, that he might ensure the advantage of an early recourse to the warm bath; others mulcted themselves of the savoury and stimulating portion of their diet, and shunned the good things of life; and others, with a real hydrophobia, abstained from thin potations, and argued that the constitution needed reinforcement; whilst all furnished themselves with medicines, and not a few kept constantly about their person a *quantum suff.* of poison, "after

the old Roman fashion," only that in this case it was marked "Cholera dose."

These, however, were venial and harmless follies. It requires no extraordinary knowledge of the mode of action in the human constitution, to understand how sudden departure from established habits is almost the surest mode of predisposing to an epidemic, and that there is no passion of the mind more debilitating than anxiety and fear.* But as no philosophy, not even in the strongest minds, enables us to look unmoved on the uncertain but constantly impending danger; and as our frailty, our impotence, and nothingness never stand confessed in a more impressive form than when there is no object presented to our view but death, and no subject for our thoughts but yawning graves, our wisdom in such a situation is humbleness of spirit and resignation to the Divine will, and in this calm temperature of mind, to occupy ourselves as entirely as possible with the duties of the passing day, and leave to-morrow with its cares to Providence.

Among the Native population, superstition ar-

* See Celsus de Medicina, lib. i. cap. x. for a rule of conduct during an epidemic. The whole of the advice is good, especially the "et, ut supra comprehensum est, vitare fatigationem, cruditatem, frigus, calorem, libidinem: multoque magis se continere, si qua gravitas in corpore est," &c. &c. &c.

rayed itself in its most disgusting and debasing attributes: religious ceremonies, rather as magical incantations than in the spirit of devotion, were every where resorted to. But if nothing further had been thought of than frivolous changes of apparel, or the wearing of amulets, there would have appeared little to condemn: but the ostensible, unconcealed object of every magic rite, is to purchase for the sacrificer, not an actual release from danger, but to transfer it to some less liberal sinner,—the principle acted on being this, that the fiend of destruction needs a certain number of victims, and the supplicant cares little who suffers, so that he be permitted to escape. To refer to the particulars of these demoniacal proceedings would be to weary my readers with offensive details; but I cannot past over, as a singular coincidence with the Mosaic institution of the scape-goat* directed to be let loose in the wilderness, loaded with the curse of the sins of the congregations, the similar ceremony practised in some places here, of dedicating a buffalo to the spirit of the plague, and turning it loose into the woods. Wherever the poor brute directed its course, the population rose in a body to drive it back into the forests. It was

* See Mead on Plague, for a singular account of a human sacrifice under similar circumstances, and a most curious and learned note respecting it.—Dr. Mead's Works, 4to. 1762, p. 245.

not only supposed to be accursed, and bearing the curse and punishment for the people, but the pestilence was expected whenever it was seen; nor was the district relieved from alarm until the devoted beast had been destroyed by tigers, or sank exhausted under the pitiless persecution which goaded it from village to village.

This, however, was nothing compared to the conduct of some wretches of both sexes, who, affecting to be possessed by the demon of the plague, carried terror whithersoever they proceeded; and by their frantic gestures and language, had more the appearance of maniacs labouring under delusion, than impostors pratising on the credulity of others; the more especially as avarice does not generally appear to have been the motive of their conduct, but rather the desire of notoriety, as it were, or that diseased state of mind which sometimes leads half crazed individuals to extravagances of conduct, for no apparent object but to attract attention.

In the cantonment at Seroor, forty miles north east of Poonah, and the old head quarters of the Bombay Dekkan division, the very outbreaking of the disease was accompanied with a singular circumstance of the above character. A female, declaring herself to be an Avatar of the fiend of pestilence entered the bazar or market street. She was almost naked; but her dishevelled hair, her

whole body, and her scanty apparel were daubed and clotted with the dingy red and ochry yellow powders of the Hindoo burial ceremonies. She was frantic with mania, real or assumed, or maddened by an intoxication partly mental, partly from excitement from drugs. In one hand she held a drawn sword, in the other an earthen vessel containing fire (the one probably a symbol of destruction, the other of the funeral pile). Before her proceeded a gang of musicians, pouring forth their discords from every harsh and clattering instrument of music appropriate to their religious processions. Behind her followed a long line of empty carts; no driver whom she encountered on the road daring to disobey her command to follow in her train. Thus accoutred and accompanied, her phrenzy seemed beyond all human control; and as she bounded along, she denounced certain destruction to all who did not immediately acknowledge her divinity; and pointing to the empty carts which followed, proclaimed that they were brought to convey away the corpses of those who rashly persisted in infidelity. No ridicule, no jest, awaited this frantic visitant, but deep distress and general consternation. The outcry and clamour of alarm were not long in reaching the officers on duty; and the goddess was instantly apprehended and confined, and her mob of followers dispersed. But unfortunately she was no

sooner secured, than she herself was attacked by the disease; and being less cautiously observed when under its influence, she contrived to escape, and was never afterwards heard of. Whence she came, or whither she went, remained a mystery; and this detestable delusion had a serious effect on the feelings of the mob.

In the cantonment near Severndroog, in the Southern Konkan, the same mockery was attempted. A band of impostors of both sexes, escorting a party of females, some of them young girls of ten or twelve years of age, were spoken of as being in the vicinity. These females were infuriated with intoxicating drugs, and as it afterwards appeared by the confession of one of them, had casually fallen in with these vagrants, and had been seduced by the love of novelty, or bribed by promises, or awed by threats, to join the party. Though the respectable natives of the district complained to the officer who commanded the brigade, none dared, or none would, reveal their actual place of haunt, nor was it discovered by their exertions. The object here was evident. The poor females, who personated the demons of the disease, were the dupes as well as the mob, and their brutal companions were levying contributions, as they prowled through the country: they were immediately apprehended, and carefully watched until all were sober. The males were then pub-

licly flogged in the bazar of the cantonments; and the females, being cautioned of the consequences of future attempts at similar imposition, were set at liberty, after the whole gang had been exhibited and proclaimed through the neighbouring villages, as a set of miscreant wretches below contempt; and their dismissal was with ridicule and scorn, rather than serious punishment. The salutary example prevented the repetition of such disgraceful scenes, and saved that part of the country from such distress; but gangs of the above description continued to infest the native states, and without doubt reaped a rich reward of their impudent impostures.

In the Island of Basseen, which is the nearest to the continent of the Bombay cluster, there occurred a more tragical, but equally characteristic circumstance. An unfortunate creature, residing at the little village of the Duntoora Ferry, about forty miles from Bombay, was most inhumanly butchered. Either the malice of private enmity accused him of being possessed by the demon, or his own folly may have induced him to assume the character, without his courage or talents being equal to carry him triumphantly through the part he had undertaken. After many secret attempts for his destruction, which should have warned him to fly for shelter to the closely adjacent island of Salsette, he was finally assailed in open day by the whole population

of the village; and whilst a crowd of females, his mother, wife, sisters, and children, in vain threw themselves about him to protect him, their shrieks for mercy were disregarded, and the unhappy victim was beaten to death with bludgeons before his own door; and his corpse, as a thing accursed, was towed out far to sea, and sank with heavy stones in deep water. Such an outrage could not pass unnoticed by the British magistrates; but the ends of justice, it is to be regretted, were defeated by the means: nearly one hundred people received sentence of death, and were of course all pardoned after a short confinement.

I am aware that these circumstances have nothing in common with a mere medical treatise; but since the view I wish to take of the subject is philosophical, as well as therapeutical, I avail myself without hesitation of a licence of digression, whenever I feel that what I write is at least a page in the history of the human mind, without being altogether irrelevant to the subject under discussion.

CHAPTER I.

HISTORY OF THE DISEASE, AS IT HAS APPEARED UNDER MY OBSERVATION.

I WAS stationed in the city of Surat in the year 1818, and it was in the end of August that the Epidemic showed itself at that place. Whatever may be the native feeling toward our judicial, financial, or political systems, there can be but one opinion, if they ever take the trouble to think at all, respecting the measures resorted to by Sir Evan Nepean's* government in Bombay, on the breaking out of the pestilence. No expense was spared, no suggestion was disregarded, no means left untried. The magistrates of the respective zillahs were instructed in the arrangements proposed for the city and island of Bombay, and were left to apply the same, or other expedients, as best suited the localities of their several situations, and were indulged with almost unlimited authority for their expenditure.

* See note A at the end of the volume.

The city of Surat was found, after a most careful census in 1815, to contain less than 140,000 inhabitants. It is situated on the southern bank of the Tapty river, distant about ten miles from the sea, and in a country so singularly level, that for thirty miles north, forty miles east, and fifty miles south, not a single undulation of ground rising to the height of twenty feet above the surface of the plain, is anywhere to be seen. The figure of the city is nearly what might be drawn by describing an irregular circle, and cutting out with a wavy line one-third, a sharp winding of the river appearing to scoop out about that proportion. The castle, a Mogul building, is situated at the apex of this bend of the river, and commands two reaches, and seems to have been the centre whence the circle for the fortifications was struck, it being almost exactly a mile distant from the eastern, southern, and western gates. Such an area would, of course, if thickly peopled, contain a much vaster population; but a large space consists of gardens and extensive burial fields. Appearances, however, are not wanting to support the tradition of its having been peopled by double the present number of its inhabitants, in no very remote antiquity: an inference which, as the city is not ancient, not having existed more than 300 years, may be safely drawn from the vestiges of streets, whose sites are now pasture ground, and the countless tombs which are everywhere scattered without order over the whole

area of the suburb. This geographical sketch is perhaps desirable, as Hamilton's Gazetteer, which seems the latest authority, continues to repeat the erroneous idea of old travellers that the population might be moderately estimated at 600,000 souls. Notwithstanding its being so much inferior to what it is reported, Surat is still an immense and populous city; and in such a place it was justly apprehended that the pestilence, when it once broke forth, would rage with the inveterate malignancy peculiar to the polluted and stagnant atmosphere of walled cities and a dense population; and a more than common anxiety was evinced to meet the danger with every possible arrangement for the relief of the afflicted.

The medical officers then in Surat were Dr. Sutherland Meek, superintending surgeon of the province of Guzuratte; Mr. Francis Cruso, garrison surgeon of Surat; myself the civil surgeon; and Dr. William Lambe, assistant-surgeon of the 2nd Battalion 3rd Native Infantry: of these I am now the sole survivor, and I cannot register their names without adding the respectful tribute which is due to the grey-haired wisdom and experience of Dr. Meek, matured in the course of more than thirty years service; to the sound practical knowledge of every branch of the profession, which Mr. Cruso possessed, and which he obtained by apparently never thinking of any earthly subject, either for pleasure or profit, but his duty; nor yet without my poor endeavour to save from being entirely

forgotten, the many promises of future excellence which were disappointed, when that amiable and talented young man, Dr. Lambe, was cut off in the spring-time of life, and in the outset of a career of virtuous usefulness. These acknowledgments to the virtues of my friends are so perfectly just, and will be so entirely felt to be such, by all who knew them, that I beg to be indulged in the melancholy feeling, which must so naturally pass over me, when drawn by my subject to the mention of their names.

To return to the history. The city was marked out into four divisions, and one allotted to each of us. Extensive premises in centrical positions of each portion were hired as hospitals to receive such as should be brought thither; and ample establishments were provided, calculated for every emergency, and embracing the most cautious regard for religious prejudices, and caste regulations. Finally, all the native practitioners of physic, that is to say, all the better class of *barbers,* (for the razor and lancet seem allied in the infancy of art throughout the world,) were taken into Government pay, and placed under our tuition and superintendence. These, to the number of about fifty, were instructed to the best of our power in the symptoms and treatment of the disease, were supplied with written instructions and memoranda for reference, and furnished with medicines; and thus provided, were stationed at the points, which made them to be equally distributed,

as far as that was practicable, throughout the city; and their names, places of abode, and stations, were made known by public proclamation, or placards put up in the most public thoroughfares, that none might remain ignorant of assistance being provided, and the place where it was to be sought. Ourselves were employed all day in making the circuits of our districts, or in attendance on our hospitals, whither morning and evening reports were regularly brought us from each of our Native assistants, of the number of applications which had been made to them, and the result of their practice. From these statements a daily report was formed, and forwarded to Dr. Meek, who transmitted a general abstract of all the returns to the magistrate, for the information of Government. I have somewhere read, that if by any revolution of fortune the British power in India were to be overthrown, from the parsimony it has evinced in public buildings, there would be scarce a relic left of its having ever existed, when the few servants of Government were once ejected. Without pausing to argue on the policy which such an observation would seem to recommend, I am unwilling, for the honour of human nature, to suppose that the remembrance, even of this one instance of the paternal feeling of our Government towards the governed, is likely to die away with the generation which has witnessed it.

The epidemic, in its westward course from Bengal, reached Malliagaum, the capital of Kandeish, in the

middle of July. That fortress, which is about 150 miles eastward of Surat, had just been surrendered to Colonel McDowal; and the relics of its brave garrison, amounting to about two hundred Arabs, were brought down to Surat, to be thence conveyed home to their native country by sea. It was to the arrival of this party from Kandeish that Dr. Meek attributed the introduction of the disease. They were of course prisoners of war, and in confinement; but though lodged in a barrack a mile distant from the municipal jail,* where the two first cases which we heard of occurred; yet there can be no doubt but a daily communication existed, from the police guards which were stationed over both being, in the order of reliefs, alternately in the barrack or the jail. However that may be, the two first cases were prisoners in the latter. They were taken ill together, and both died the same day, after about twelve hours illness. The report of this melancholy event was like the signal gun for the medical department to fly to action, and for the rest of the society to tremble, each for his own safety.

No sooner was the occurrence of the disease known, than we were all assembled in the jail. Never had dying men more prompt and anxious attendance than these poor prisoners. Intense curiosity to

* Mr. Smith's Letter, Madras Report, page 34, mentions a similar occurence, at Massulipatam, on which he founds a very fair argument for the non-contagious nature of Cholera. We considered the circumstance accounted for, as above stated.

watch the progress and result, operated with humanity to rivet our attention: nothing was left untried that we could imagine might prove beneficial; nor did their miserably destitute condition occasion any assiduous tenderness to be omitted. Phlebotomy and the warm bath to mitigate the spasms, scruple doses of submuriate of mercury and tincture of opium, to allay the irritation of the stomach and bowels, with stimulants *ad libitum,* to excite the failing powers of the constitution, was the system we had been instructed to pursue; and as our poor patients had no officious friends to interfere with erring zeal or false kindness, they were treated in every respect *secundum artem:* but nothing appeared to have the least effect; nature never rallied, hope never deceived; the patients fell weaker and weaker, and grew colder and colder: death gradually stole on, and when the poor creatures expired, it rather seemed as if they had been so many hours dying, after many weeks of disease which had worn out the energies of life, than the fact, that those few hours had been the short and only transition from apparently perfect health to dissolution. It is enough to make my heart ache, to think how many similar cases I have since witnessed.

Happily for the city, it was the will of Providence that the disease should show none of the calamitously desolating prevalence with which it had raged at other places; and the alarm gradually died away; when it

was found that the cases were by no means numerous, and occurred chiefly among the most depraved of the most miserably poor. But although the epidemic was not carrying off its thousands, still the endemic fever, which always prevails towards the termination of the rains in Guzuratte,* was singularly destructive. The pestilence had not spread, nor did the general average of sick appear much to exceed the customary numbers for the period of the season; yet the mortality was unprecedented, every disorder seeming to assume from the first a tendency to a fatal termination; and it was observed by those whose habitations were within sight or hearing of the main

* Though Guzuratte may emphatically be pronounced the land of fever, it would seem, from the "Letters from the North of Italy," addressed to Mr. Hallam, that the people of Lombardy suffer in nearly a similar degree.

"But it is not only to places acknowledged to be infested with the malaria to which the common intermittent fever is confined. This is general almost throughout Italy, and more particularly in the rice grounds, and in low countries like this, which are intersected with wet ditches.

"It is indeed so common at Abano, that I believe twenty persons in this house have had it since I have been established here. A few days ago I saw a poor infant lying under a sack in the convulsions of an ague fit; and the next morning meeting another child, whom I knew to be its brother, and questioning him about the health of the poor little animal, to the demand of 'How does your brother do?' he answered 'Which brother, sir?'—'Your brother that has the fever?'—'There are *five* of us in the fever, sir?'—'Why, how many are there of you in all?'—'*Seven*, sir.'—And I believe this would give a fair idea of the bills of health of Abano, as far as respects the children of the poor."—Letter 10th, the whole of which ought to be carefully perused by every surgeon who has duty within the tropics.

outlets of the city, that the streets were not unfrequently crowded with funerals, and the mournful burial cry of the Hindoos, "Ram Bhy! Ram!" was sounding incessantly through the day. After the lapse of two months, the pest establishment was paid off, and matters returned to their ordinary course.

This was my first opportunity of witnessing the disease. During the cold months from October to February, we had no alarm; but in the heat of March and April 1819, the Cholera was again to be noticed in every hospital report, but happily without any wide spreading destruction. The cases were not exceedingly numerous, nor did their occurrence continue after the first fall of rain in June; but it was again remarked, that the mortality from other causes appeared unprecedented. Two kinds of fever are endemical in Guzuratte. From September to December, intermittents prevail, and in October we have nearly every fourth person disabled; but in the heat of April and May, when the thermometer in the open air is from 80 to 90 at midnight! bilious fevers are frequent, and though not so generally prevalent, yet, from their more virulent character, they occasion, at least, an equal number of casualties. But the usual average of deaths, always greatest at these periods, was increased,* in a prodigious proportion, during

* The same observation seems to be made by every writer on epidemics.—See Mr. Duffin's letter, dated Nov. 3d, 1787, in the Madras Report, where he remarks:—

"Every precaution is taken by the commanding officer to have the men's barracks and privies kept clean, which I hope will be a means

the intervals when cases of Cholera were of occasional occurrence.

I was accidentally the sole medical officer for duty in Surat in October 1819, my colleagues having been promoted to higher appointments, and their successors not arrived. At this period the epidemic for a few days seemed impending, and it came first under my observation as before, in a manner which would have appeared extraordinary, had not cooler inquiry cleared up the difficulty. The two first cases were privates of his Majesty's 47th Regiment, of which a detachment was in the garrison. They were

of the disorder not raging with such violence as it has done at Arcot. But there is something in the air, which I cannot describe, nor the sensation it occasions, in the evening particularly, which both officers and men (indeed every one in the place) are sensible of, a cold damp chill pervades the whole body, and a listlessness, and want of appetite is complained of by all. We have every reason to wish for the letting in of the rains, which alone will free us from the noxious miasmata."

Again, Mr. Craw's Letter, Bombay Report, p. 45:—"There is amongst us all at this station, however, a wonderful predisposition to disease. Some are affected with severe headach, pains of the eyes, rheumatism, and spasmodic affections of the neck, and loins, and legs; others with pains at the stomach, nausea, griping pains, or twitchings in the abdominal muscles, want of appetite, and irregularity in the alvine discharges; and some with sudden catchings in the muscles of the legs when walking, or a subsultus tendinum in the arms and fingers."

And for other epidemics, Mr. Rush observed, "that at Philadelphia, during the epidemic of 1793 (yellow fever), the persons who enjoyed the best health, and even the negroes, had the conjunctiva of a yellow dye, and the pulse extraordinarily accelerated."—Humboldt on New Spain, B. v. c. 12.

attacked together in the morning: one died in the afternoon, the other a few hours after.

These poor fellows had lived in the Castle, and it seemed as if they could never have had more than a casual intercourse with the native population. But it appeared that on the evening preceding their death, they two together had been in the bazaar on leave, and had indulged freely in a native house of entertainment; but whether the catastrophe of their death should be attributed to excess, or to disease contracted by intercourse with the diseased, I acknowledge myself unable to venture an opinion.

We were again providentially preserved from the sweeping desolation of the pestilence. Only five cases occurred among the Europeans, and but a few, without any casualties, in the two native battalions then in the garrison; nor did the city population seem severely affected, although it was apparent the mortality was greater than usual. But this show of the epidemic I have always considered as the prelude to one of the two particularly distressing instances of it that have come under my observation, and which in both cases appeared to equal the melancholy histories given us of its visitations on the opposite side of India, or in the Gangetic provinces.

The second battalion third regiment Native Infantry was at that time in the garrison of Surat; and during the short prevalence of the epidemic in October, eight cases of Cholera had occurred in it.

The symptoms were in no instance severe, and all recovered; but at the end of the month, and early in November, there appeared in the corps no traces of the disease; at which period, being relieved by another battalion, it marched from Surat to Baroda, the place of rendezvous, where a field brigade was then forming for operations on the north-western frontier. I had in the mean while been promoted from my appointment at Surat to the medical duties of the Baroda Residency, and joined my new station on the 30th November, which was a few days subsequent to the arrival of the second battalion third regiment at the same station. On my route from Surat to Baroda, a distance of ninety miles, I neither saw nor heard of a case of Cholera, nor do I believe it was anywhere raging as an epidemic at that time in the province. Judge then my astonishment at finding the battalion, which I had seen a fortnight before, march from Surat, leaving behind the sick and invalids, in all the pride and strength of perfect military efficiency, now almost disabled under the influence of the disease in its most malignant form, the casualties being eight or ten daily, and one day fifteen, out of a total below a thousand. On all the first cases medicine appeared to have no effect. Mr. Cotgrave, assistant-surgeon of the battalion, pitched his tent close to the hospital door, and never quitted his place of duty day or night. Dr. Mylne, superintending-surgeon, gave up every other occupation to labour like a regimental surgeon; and as this was

the corps in which I had myself served as assistant-surgeon for five years, and almost every individual in it more or less knew me, and was known by me, I had a more than common interest in rendering every assistance in my power.

In the mean while the weather, as is usual in the first weeks of December, was delightfully pleasant; I would say remarkably so, being rather cooler than generally prevails until January. There was really nothing to which, by ever so far-fetched a reasoning, we could ascribe the situation of these poor people. The rest of the cantonment enjoyed perfect health, though breathing the same atmosphere, drinking water from the same wells, and procuring provisions from the same bazaar; whilst the most unrestrained intercourse existed betwixt the infected battalion and the other two healthy battalions of the station. The city of Baroda and its suburbs were reported to be unaffected, nor have I ever learned that the disease then existed in any of the adjacent villages; and yet this solitary, insulated body of hardy soldiery, in all the vigour of manhood, and exciting preparation for field service, encamped upon a dry and open spot of as healthy ground as any in the neighbourhood, within the lines of a populous cantonment, and only a mile distant from one of the largest cities in India, seemed devoted alone to the pestilence that walked in darkness, and the destruction that wasted at noon-day, without any assignable cause, but that the seeds of disease might have been sown in their constitution

during the month of October in Surat. Finally, the pestilence ceased as inexplicably as it had commenced, after having in less than three weeks nearly decimated the battalion.

I was travelling in April 1820, and by an error in my original plan, had crossed the country in two different directions. This, although it gave me the inconvenience of near ninety miles of road instead of fifty, enables me to say, that I think if the epidemic had then been prevailing in the Purgunnah, I should have heard of it. No application, however, on account of Cholera was made to me by the villagers as I went along, or in any of the places where I halted for the night. But when I reached Broach on the Nurbudda, I found the disease raging there most destructively. Mr. West, the garrison surgeon, assured me that the casualties were not less than twenty daily, the population of Broach being below 40,000. I was so situated that, independent of the time I had already lost, I had it not in my power to prolong my stay to observe the progress of the disorder; a circumstance which I have often regretted, for the cases were for the most part of the coup-de-soleil character, a form of the disease which in all the reports I have read does not appear to me to be understood. I saw enough to convince myself, though I fear scarcely enough to satisfy others; but it was during this short and casual opportunity that I finally made up my mind as to the correctness of the theory on which I had hitherto acted, timidly and undecidedly,

but on which all my subsequent practice has been founded; and I can conscientiously aver, that though I cannot positively say whether my patients have recovered by my treatment, or in spite of it, yet that I may venture to consider a greater majority as having been saved, than I am inclined to think would have been the case under the former system.

The second of the afflicting visitations I have witnessed occurred in April and May 1821, under the following circumstances. The second battalion, second regiment, which had been stationed several years at Malwan, on the Konkan coasts, very near Goa, was ordered, in the course of reliefs, to Baroda. The flank companies, completed to two hundred men, had left the head-quarters at Malwan in December 1820, and had been in the brilliant expedition to Arabia under Sir Lionel Smith, from which duty they returned in March; and landing at Bombay, were thence sent to Guzuratte without rejoining their head-quarters, the battalion being under orders for relief. These two companies were thus a little in advance of the corps. They arrived at the port of Tankaria Bunder about the middle of April, whence they marched to Baroda, a distance of about forty miles, in four days. On the second march, the epidemic appeared among them in its most malignant form. It was not raging in the village where they were halted, nor in any through which they had passed, in its general epidemic character; but it was certainly existing, and cases which might be

termed sporadic were occasionally occurring. Their first march was from Tankaria to Jumboseer, ten miles. The day of halt there, all were well; but the day of their departure they were attacked at their next halting ground; and after their departure, the disease appeared epidemic at Jumboseer: the inhabitants of which place attributed the calamity to this detachment, whilst, on the other hand, the detachment considered it amongst themselves as contracted on the march. It continued in these two companies about a fortnight.

The head quarters and remaining eight companies of the battalion, landed at Tankaria about ten or twelve days after the first detachment. They had no sooner moved to Jumboseer than they were attacked. Being anxious to get under cover, they hurried on to Baroda, where, however, they continued for some days to labour under the disease; the two parties together burying two officers, and upwards of one hundred men in three weeks, out of a total strength of about a thousand.

But, what is still more singular, one boat of about eighty tons, on which baggage had been embarked, and which had only a party of about twenty privates on board as a guard, was driven by some accident or change of weather into one of the ports below Demaun, and the passengers immediately landed to refresh themselves on shore. They took up their abode in a grove near the village, where they remained under the trees. In this situation the disease

broke out amongst them, and, in a few days, more than two-thirds of the party were destroyed by it. Thus whilst the air and climate of Guzuratte, in latitude 21°, with the sun vertical in May, or the miasma capable of conveying the disease to others, latent in the inhabitants, were thus noxious to constitutions habituated to the mild sea-breezes and softer atmosphere of Malwan, in latitude 16°, and under the influence of both monsoons,* these causes seemed to exercise no particularly evil influence over those who were inured to them. The officers and troops stationed in the province were as healthy as usual, and those at Baroda looked with astonishment, as well as deep concern, on the sufferings of their newly arrived comrades. The disease was not prevailing, nor did it spread beyond the new comers, and with them it seemed to cease, before their constitutions could have been expected to assimilate to the local climate or contagions. It must not, however, be forgotten, that of one thousand men, two hundred

* The rainy monsoon commences at Madras, latitude 13°, in October, when the rains are ceasing in Bombay, and north of 15°, on the western coast. Hence the line of demarkation betwixt the two seasons, viz. betwixt latitude 15° and 14°, enjoys a considerable proportion of the cool breezes and rains of both, occasional showers falling eight months of the year. This produces an amenity of climate, and general healthiness very uncommon in India. Malwan is without doubt the most eligible station on the Bombay establishment in point of climate, and probably the best spot in India for an invalid to resort to, whose constitution is shaken, but not yet broken, by fever or dysentery.

NOTE.—Written before the discovery of the several mountain Sanitaria on the Himalaya and Neilgherries.

had just returned from Arabia, so that the mere change of climate from Malwan to Guzuratte cannot satisfactorily explain this case. But in what view are we to consider a miasma (supposing it to be such) borne about by a community, apparently in perfect health, sufficiently active to infect, and at once destroy, two-thirds of a boat's crew; men of the same habits, character, and blood as themselves, at the village below Demaun; and carry off one-tenth of a battalion, one hundred and fifty miles further north, at Baroda? Or how, on the other hand, can we describe, or imagine, a provincial climate producing such effects on strangers, yet natives of the same region, whilst its millions of healthy inhabitants breathed in an atmosphere, so polluted, with impunity?

The Cholera was scarcely noticed, and never occurred as an epidemic in the Baroda districts during the years 1822 and 1823. An occasional case was here and there heard of; and, after any great festival, when the whole population had been exposed in their all-night processions to the exhaustion of fatigue and vigils, and the more intemperate to the effects of debauchery, it would seem to re-appear, and excite a momentary alarm; but I never heard of it under any other circumstances.

The year 1824 was a year of drought, and consequent failure of harvests; so that from July of that year to the July following, provisions were doubled in price. A larger class of inhabitants consequently became subjected to the evils of scanty

and bad diet, than would have proved the case in happier seasons; whilst the lowest of the poor must have been reduced to the last resources of hunger for their subsistence. Under these circumstances, in the heat of April and May 1825, the Cholera was again epidemic, and swept off great numbers, whilst the mortality from other diseases was evidently greater than usual: a fact, however, which the famine may explain.

Lastly, in April and May of this year (1826), the Epidemic raged with more of a pestilential character than I had as yet observed at Baroda. It seems to have been prevalent throughout Guzuratte at the same time; and the destruction of life, if the grand total could be collected, would no doubt present a most distressing subject for our reflection.

Baroda is a walled city of great extent and population, and is the capital of the Mahratta sovereignty in Guzuratte, which was acquired early in the eighteenth century by the Guicowar family, and is still held by their descendants. A native census rated the population in 1818 at about one hundred and fifty thousand souls: but as this estimate was founded on no better criterion than their usual one, when it is to be done on a large scale, of calculating the amount of salt imported into the city, and the quantity which it may be presumed each individual is likely to consume, and thence, adding for children, drawing a loose result, it may be pre-

sumed that little value for accuracy is to be placed on so rude an estimate; though it should be mentioned, for the information of those who have never been in close communication with natives of India, that this species of census is not so widely inapplicable to obtain a moderately correct average as it appears: for as salt is too bulky to be smuggled, and a necessary of diet to all classes and ages, the actual consumption forms a sort of guide to attain a general notion of the numbers of consumers. My opinion, after seven years residence in the city, is, that the above estimate underrates the population.

A vast mob of ill disciplined, or rather undisciplined, soldiery must of course be attached to the court; and the pampered menials, half military, half domestic, of the prince, and his chieftains, must form a dissolute and idle crowd, whose character and habits exercise a considerable effect on the morals of the city. Independent, however, of the general laxity of a capital and a garrison, the practice of using opium as a stimulant is prevalent to a most extraordinary degree; and to which I have been obliged to pay most particular attention in my attendance on cases of Cholera: for sixty drops of tincture of opium would of course have little operation on a stomach habituated to receive from half a dram to one or even two drams of the drug itself daily. I have often felt surprised that I have not observed this important circumstance alluded to in any of the reports, for the use of opium

and drugs of similar properties prevails throughout India.

Among such people, it may well be supposed the epidemic, when it once established itself pestilentially, would operate most destructively; and as the Mahratta government took no measures whatever for the relief of the diseased, the mortality during the two months of its prevalence, must be considered as exceeding the result of its destructiveness, when falling on the British dependencies.

On this occasion, however, a circumstance occurred, which shows how many contingencies are to be kept in our consideration. It had been hitherto observed, that Mahomedans, as feeding on a more invigorating diet than Hindoos, were less liable to Cholera; but this year, the month Ramzan* occurring during the hot season, the Mahomedans were now the chief sufferers. The debilitating effect of the fast enjoined in the Koran to last during the thirty days of this moon, operates to such a degree, that I have frequently found it difficult to recognize, at the expiration of it, the countenance which had been quite familiar to me the month before. During this period, no conscientious believer receives either

* The Mahomedan year being calculated by lunar months, and no intercalary periods ever allowed for, they lose eleven days yearly; and consequently, in thirty two years, the seasons have made the circuit of the year, and a complete year is lost for calculation, compared with the solar calendar. The month Ramzan, in this year (1826) commenced April 9th, and concluded May 8th.

food or water betwixt his lips from dawn of day till dark, or as they express it, "from the sight of the white thread, until it is no longer seen:" that is, they tie two threads, one black, the other white, round the wrist, and from the period of there being light sufficient to distinguish the colours, until the twilight at evening is fairly closed, is the period to avoid food; but as soon as it is dark, food is lawful. The rich evade inconvenience by eating and drinking, and watching through the night, and shutting themselves up in the coolest recesses of their houses to sleep through the day; but the poor, who cannot thus reverse the hours, suffer dreadfully; for few even of the most abandoned but undergo a degree of mortification, by at least making a show of abstinence. Thus by a change so sudden and so complete in their habits, their constitutional powers are impaired, and the intense heat, during a month in which the thermometer must have averaged 85° in the open air at midnight, and 95° at noon in the best houses of the city, would be beyond the strength of the poor fasting, thirsting wretches, whom business forced out from under the shelter of their houses.

This then is the history of the opportunities I have had of witnessing the disease under consideration; and it seems to me that I have had it under my view in all the forms it assumes, both as epidemic and sporadic, or as modified by the seasons, or altered in its course by the habits and constitution of the sufferers.

CHAPTER II.

THEORIES RESPECTING EPIDEMIC CHOLERA.

I HAD originally intended to have laid before my readers the details of cases in the order they occurred to me: but that, whilst it would have been the history of my opinion *ab ovo*, would have been to fatigue unnecessarily by the prolix narrative of circumstances which each in succession ceased to be of the importance wherein they first appeared.

I had also intended to have given my own ideas and ground-work of practice, without referring to those of others, and thus have endeavoured to keep them clearly distinct, and unencumbered with extraneous matter; but though I should thereby have gained, as to brevity, I should have lost by the absence of immediate reference to authorities: and further, as others saw the disease many months before me, and formed opinions coinciding with those on which I have acted almost from the first, or theories that may be adduced in support of mine, and registered those opinions in letters which were subsequently published, (though I never saw them, nor

in fact heard of them, until my own ideas had already taken the course they have ever since pursued,) I feel obliged briefly to refer to them, and to give what I may term an abstract of the theories which have been published respecting Cholera, lest I should be accused of assuming the merit of originality, whilst others had formed corresponding ideas, and had probably been only deterred by an accidental variety of cases from advancing to the same results.

This reduces me to the necessity of taking a rapid review of the statements and opinions that I have had an opportunity of examining. I am anxious to pass over this discussion with the utmost despatch, and hope therefore to be excused, if I appear not to pay to the subject the attention it merits; but since my chief object is to address those whom I consider tolerably familiar with it, I am fearful of wearying them with quotations.

I have unfortunately no copy of the Bengal Report; but the letter sent from the Medical Board of Calcutta to Dr. Meek, dated September 4th 1818, conveys all the information they had to give, and nearly as fully as it could be given, nothing being wanted but an Appendix of authorities and original documents. I have consequently little reason to regret my wanting it, or to wait until I could procure one. This letter appeared in fact so clear and full to the Bombay Medical Board, that they in their Report preferred quoting from it, to making

out a description of their own of the disease; thereby paying the compilers the acknowledgment it deserved.

The Medical Board of Calcutta then, may be stated to have given their opinion in this letter, that the Epidemic was considered chiefly as a visceral disorder, and that the symptoms of cerebral affection appeared to them only occasional and secondary. As this their theory is the one most commonly acquiesced in, I purpose merely to discuss the latter first, because it has occupied my attention more than it seems to have struck others, and requires more consideration than it has yet received; and secondly, because I really cannot correctly understand how either the symptoms can be philosophically explained, or the diametrically opposite treatments which have been boldly recommended as successful, can be reconciled to any known theory, of any analogous operations of nature, unless we consider some nervous shock similar to concussion of the brain to be what Lucretius calls the Lethi Fabricator. To refer, therefore, to this letter, the Medical Board, in the midst of an accurate and interesting history of the symptoms of the disease, express themselves thus :—

"The powers of voluntary motion were in every instance impaired; and the mind obscured. The patient staggered like a drunken man; or fell like a helpless child. Headache over one or both eyes, sometimes, but rarely occurred.

"In a few cases the hands were tremulous; in others the patient declared himself free from pain and uneasiness; when want of pulse, cold skin, and anxiety of features portended speedy death."

In the history of *post mortem* examination, it is observed:—"The brain was generally of a natural appearance. In one or two instances, lymph was effused between its membranes, near the coronal suture, so as to cause extensive adhesions. In other cases the sinuses and the veins leading to them, were stuffed with very dark blood."

I am not desirous of arguing against an officially delivered opinion, coming from the Medical Board of Calcutta, otherwise than with the most respectful deference due from me towards characters of such eminence; and I feel to the fullest extent how much my single judgment must be outweighed by such high authorities: but when I find myself, in the language of Cicero, "Hesitans, dubitans, circumspectans, tanquam ratis, in mare immensa vehitur," whenever I am called to a case of the epidemic; and when I hear the ablest and most valued of my professional friends expressing themselves in the same state of hesitation and uncertainty, it must be evident how little that is decisive has yet been given to the public, and how necessary it is for any one who differs from his neighbours to publish his reasons for differing. I rely, therefore, on the courtesy of the board for their excusing my remark, that since the most eminent surgical writers mention having

seen patients die of epilepsy, or apoplexy, or blows or falls, where the most accurate investigation could discover no diseased structure or organic lesions of the brain,* the practitioner may be satisfied when he sees the symptoms of cerebral disorder, without demanding absolute demonstration in former practice, of diseased structure, following a paroxysm of too rapid progress for any important organic change to have taken place; and I think he will find them satisfactorily detailed in the extracts I make from the letter alluded to.

The opinion of the Bombay Medical Board is delivered in very expressive terms, and is exceedingly worthy of imitation by professional writers. There is such a mania for philosophical jargon now abroad in the world, that it is at times no easy matter to translate the phraseology and discover the plain English of your modern philosophy. Near the conclusion of their interesting summary, the Board observe :—

"Concealed from our view as the exciting or proximate cause of this formidable disease may ever remain, we have only to observe its effects; and the united testimony of all who have witnessed it seems to show there is a *somewhat* which presses heavily and suddenly upon the vital functions, and on many occasions resembles the effect of a poison taken into the stomach, or applied to the blood; but whether it

* Pott's Surgical Works, vol. i. p. 266. Bell's Surgery, vol. iii. p. 325.

acts more immediately upon the circulating system or the nervous, we cannot determine. The various modes of attack, which have given rise to the division of the disease into species and varieties, would lead to the supposition that sometimes the one and sometimes the other may be the case. The most general attack seems to consist in a spasmodic affection of the stomach, duodenum, and more especially the biliary ducts, (the total absence of bile in the matter voided upwards or downwards, being perhaps the most uniform characteristic of the disease,) which quickly extending through the whole intestinal canal, discharges its contents; for it has often been observed, that the purging more resembles the forcible squirting from a syringe, than the operation of a common cathartic. It is more than probable, however, that these are merely the first perceptible symptoms; for it would appear that a great change has already taken place in the circulating system, and that the action of the heart itself has been greatly diminished before they occur. This seems evident from the numerous cases in which neither vomiting nor purging are present, and in which the first appearance of the disease is the almost total suspension of the vital functions, immediately followed by severe spasmodic affections of the muscles and coldness of the extremities. It is said that a diminution of the nervous influence occasions contractions or spasms of the muscles; and it is perhaps equally probable that a diminution of the stimulus of the circu-

lating fluid, and especially of the vital heat which it constantly supplies, may produce the same effect. This, indeed, appears to lay the foundation of the cold stage, and the chain of distressing symptoms that accompany it."

This alternative of theories,* this halting between two opinions, so long as it were on a mere matter of speculation, and the patient did not suffer, would be of little consequence; but it is now high time for the profession to come to some decision, if possible; for there need be no hesitation in supposing, that of two opposite systems, both cannot be harmless, and some difference of result must be expected, when one bleeds to relieve oppression of the brain—and another to relieve congestion of the liver—when one gives the most acrid stimulants as excitement—and another scruple doses of calomel, and laudanum by tea-spoonfuls as sedative — and finally, when one declares that opium alone is to be depended on, and another that it is the worst medicine which can be exhibited! Such contrariety of opinions can only have originated in the unphilosophical view in which the disease has been considered.

The two first cases I saw have been already men-

* The opinion of one inquirer upon this subject is, that the symptoms portrayed to us in an attack of this disease are the consequences of an inflammation of the stomach, another of the liver, and a third of the intestines, and each of these opinions has its advocates; but it is worthy of remark, that in proof of the little reliance placed upon these doctrines by their supporters, their practice is uniformly the same."—Mr. Chapman's Letter, Madras Rep. p. 181.

tioned as having occurred in the jail of Surat: these were, immediately after the fatal termination, examined with a degree of scientific accuracy, which seldom can be resorted to in India. Four medical officers were present, with excellent hospital servants, and nothing was overlooked, which any one seemed to suggest required attention. A history was made out exactly similar to the many that have been published, but no part of which satisfied me. The stomach and bowels were everywhere in a state of inflammation; but as I have seen instances of extensive gangrene* which must have followed inflammation of more acute character, and where the patient lived through several days of disease, I was desirous of attributing this appearance to the spasms to which the bowels had been subjected, and the distension which the bloodvessels may be presumed to have undergone from the determination to the secreting surfaces employed in the formation of such loads of vitiated discharges. I thought I found some of the submuriate of mercury in both cases unchanged,†

* The London papers, about a year ago, mentioned a miserable case of suicide, in which a young female, aged only sixteen, swallowed two ounces of sulphuric acid. Medical aid was immediately obtained, but, of course, in vain; yet, strange to say, she lingered *eight days*. On dissection, the whole course of the alimentary canal, from the throat to the anus, was found in a state of gangrene. What must the poor creature have suffered! Surely this is a satisfactory case to show *that mere visceral disease* does not terminate so rapidly as cholera.

† "On cutting into the stomach, a large quantity of *dark-looking fluid* was found; and, on emptying it, we discovered a *considerable*

entangled in the plicæ of the villous lining of the stomach; but I was outvoted, and I was not then prepared to understand how thoroughly the stomach may be paralyzed, or all the effects to be produced by such a crisis. Finally, when I proposed opening the head, it was almost with ridicule that my friends received the suggestion for such a supererogatory measure; and, when they conceded the point, it was rather as indulging me in an eccentric whim, than as considered by them of the least importance. It is impossible to hold the memory of those friends in more sincere or respectful regard than I do, nor mean I here the shadow of a reflection: they thought as the majority then thought, and probably they thought rightly. In the earlier histories of *post mortem* examinations, it is most commonly observed, that the head is not examined. When on this occasion I pointed to what seemed to me the over-turgid state of all the bloodvessels,* and to the specks of

quantity of calomel, lying among its rugæ, *quite undissolved;* from which it would appear, that the above fluid is of a nature totally different from the gastric juice."—Mr. White's Letter, page 74, Bombay Report.

The same observation occurs frequently in the articles forming the Appendix to the Madras Report.

* "On examining the upper part of the cranium, we thought the dura mater inflamed: the trunks of large bloodvessels were distinctly seen through it, and on removing this membrane we were presented *with a beautiful sight!* the veins of the pia mater distended, as if ready to burst, and running in all directions amongst the convolutions of the upper hemisphere."—Mr. White's Letter, p. 76, Bombay Report.

blood which started up under the scalpel in cutting transversely downwards and outwards even through the substance of the brain, as proofs of serious disease, or of some extraordinary excitement, it was readily explained by referring to the stimulus of the overpowering doses of opium that had been administered, and the mechanical determination of blood to the head, by the violent exertions of such long-continued spasmodic vomiting.

I did not at the time place much reliance on my own judgment, and yielded without hesitation to the opinion of my colleagues, who with nearly double my years had more than twofold my experience: but I continued, in every future instance, to make a cautious inspection of the brain a necessary part of my research; and I can unhesitatingly say, that I never yet examined a patient who had died of epidemic Cholera, in which I did not find the same, or far more decided appearances.

The first person who appears to have had the courage to publish an unqualified opinion, that the epidemic was something more than a mere "bowel complaint," seems to me to have been Mr. Craw, now superintending surgeon in Malwa. His letter, addressed to Dr. Jukes, is published in the Bombay Report, and bears date July 30th, 1818.

After the usual preliminary matter, the writer observes:—"The calomel and laudanum plan, with the most powerful diffusible stimuli and the hot bath, have been eminently successful; and if application is

made within four or six hours from the first appearance of the disease, the cure is almost effected. It does not appear very difficult *to allay the stomach and bowels;* and it is seldom necessary to repeat the calomel more than two or three times, provided the first dose has been rejected: but where the stomach is more irritable, *the calomel and solid opium, with confectio rosæ formâ boli,* is found to answer better than the fluid laudanum. The bath, after the exhibition of this medicine, has the most beneficial effect, and quiets all the symptoms in a wonderful manner. Notwithstanding the early exhibition of the remedies, the disease yet appears to run through a kind of course; *for the symptoms of coldness and total absence of pulse frequently take place where there appears to have been but little disturbance in the primæ viæ.*"

After a few further observations, Mr. Craw continues:—"The disease, as effecting many of the Europeans, appears to me to be a true *tetanus;* and though my professional friends, (as it appears to me, misled by the irritability of the stomach and bowels,) will not at all accord with me in my views, I regard our present epidemic in all classes to be more nearly allied to Tetanus than to Cholera. The last is surely a misnomer, as applied to a disease, the principal characteristic of which is an entire want of χολη in the evacuations," &c. He then briefly mentions, that the disease was occurring in His Majesty's 65th regiment and 22nd dragoons, and proceeds:—

"In these corps, the disease makes its appearance,

sometimes by the same affection of the stomach and bowels as in the natives; frequently with spasms in the feet, legs, abdominal muscles, or arms: but in all, the spasmodic affection is the prominent one, headache, pain in the eyes, excruciating pain at the scrobiculis cordi, a pathognomic symptom of tetanus," &c.

In discussing the mode of treatment, he says: "I am convinced, that after bleeding and the bath, a powerful purgative and a strong cathartic enema would have a much better effect than narcotics." Further on comes a sentence, which there was no harm in writing privately, but which should not have been printed: for this, however, Mr. C. is not answerable:—"I do not think that more than two or three bodies have been opened after death; and though these died in a comatose state, inspection of the brain was neglected, as being too troublesome!"

In conclusion, the writer refers Dr. Jukes to the cases of Tetanus detailed in "Hamilton on Purgatives," whence he might obtain a good idea of some of those which he had witnessed of Epidemic Cholera.

Mr. Craw's second letter, dated August 1818, also to Dr. Jukes, shows that experience had only convinced him of the accuracy of his views. After arguing on the necessity of bleeding, he mentions the practice of Dr. Burrell with strong approbation, and adds: "He now laments extremely that the scarecrow of *imaginary* debility should have deterred him from employing the only remedy which could

have promised a successful result; as the appearances on dissection have but too well proved the necessity of such treatment."

In stating the history of a dissection, he says: "I felt certain, from the symptoms, that the brain would indicate disease; and nothing could be more convincing than the appearances, when the calvarium was removed. The most expert anatomist could not have injected the *tenth millionth* part of the vessels which now covered the membranes and surface of the brain. It appeared, indeed, as if the whole was nothing but a mass of bloodvessels, and every little branch seemed so entirely distended and glutted, as if one drop more must have ruptured it. There was no effusion of fluid on the surface, nor in the ventricles; but if the patient had lived a few hours longer, either this or an effusion of blood must have inevitably happened. In the space of twenty or thirty hours, therefore, you see there is not only formed a true congestive disease, but inflammation, and even gangrene has taken place; and how these are to be better remedied or prevented, than by bloodletting, I cannot conjecture."

He repeats his former suggestions for the treatment, and observes: "Opium is the most injurious medicine that can be employed; the calomel alone will quiet the stomach, (particularly if combined with previous bleeding and the warm bath,) and that is the only apparent use of opium."

The next authority I quote is the 21st article of

the Appendix to the Bombay Report, viz. a letter dated August 20th, 1818, addressed officially to the Medical Board of Bombay, by Mr. Alexander Gordon, late a Surgeon on the Bombay Presidency, a gentleman of high professional eminence, and who, unhappily for the service and his friends, himself fell a victim to the epidemic.

Mr. Gordon commences his letter by observing, that the disease, as it had fallen under his view, appeared to differ as widely from the one described by Mr. Corbyn, as it did from the cholera morbus of our nosology, inasmuch as he conceived the visceral affections to be only secondary symptoms, whilst the primary and fatal ones were cerebral; and that, even in those cases where the vomiting and purging seemed the most urgent, he was the more disposed to fear internal inflammation than any effects likely to result from their continuance. This opinion he discusses, to me, most satisfactorily, under three heads, as follows:—

"First," as founded on "The Symptoms and general History of the Disease."

Secondly, on "The Result of different Modes of Treatment:" and, thirdly, on "The Appearances on the Inspection of dead Bodies."

The argument on the first is too condensed to be abridged. He says: "In all the cases I have seen, neither the vomiting nor purging have been very violent; they have generally been easily subdued, and often ceased of themselves; and the spasms have

never been very severe. Although, however, the evacuations have ceased, and the spasms have not been violent, yet the pain at the scrobiculus cordis on pressure, the burning heat in the stomach and œsophagus, and the violent thirst still continue. The patient sinks rapidly, the pulse fails at the wrist, the extremities become cold, he lies in a kind of stupor, but sensible to the last when roused, and generally dies in from eighteen to thirty-six hours, without any spasm or struggle.

"Several people in the bazar and fields have suddenly become giddy, fallen down, and after one or two slight efforts to vomit, have expired in a few minutes; and almost all who have been attacked have had some giddiness and pain in the head, have had a tendency to stupor, and have often become a little deaf. In two cases which I have seen, the jaw became locked for a time, but soon relaxed."

Under the second head, Mr. Gordon shows that the only treatment which had succeeded in his practice was phlebotomy.

Under the third, he commences by candidly saying, that in the first instance it did not occur to him that the disease might be traced to the brain; in consequence of which he omitted then to examine the head: but, in alluding to subsequent dissections, he narrates one, in which the visceral organs indicated no disease: but, "In the head, however, there was every appearance of extreme venous congestion, for all the coats of the brain were much dilated, and

quite turgid with blood; but there was no rupture nor effusion, nor were there marks of active arterial inflammation in the substance of the brain."

In summing up his arguments, he makes the following judicious reflections:—"Such, then, are the reasons which have induced me to suspect, that in the epidemic now prevalent in this vicinity, the brain is often, if not generally, the organ principally affected. It also appears to me, that the sudden crisis of the disease is scarcely to be accounted for, looking only, or principally, to the stomach;* for I have not seen the evacuations so violent, or so long-continued, as to occasion death from exhaustion: the spasms have never been so severe as to cause it, and the event has, in my opinion, often been too rapid to be accounted for from the common course of inflammation."

The more I reflect on these two letters, the more surprised I feel that they attracted so little attention.

The Madras Report, compiled by Mr. Scot, secretary to the Medical Board of that presidency, was the last published official work, and was given to the public in 1824. It is formed out of a mass of correspondence and authentic documents, which few except Mr. Scot could possibly have seen, and still fewer discussed and arranged so ably, and has been well described as a work† which ought to be in

* Certainly not. See note, p. 32.

† I hope the next edition may be printed in a more portable form.

the reach of every medical officer in India. As, therefore, it is so very valuable a report in itself, the last published, and the most generally circulated, I shall prefer it, in the future progress of my discussion, to ground my arguments chiefly on its authority.

The manner in which Mr. Scot refers to the cerebral affections is sufficiently brief, and well calculated to prove in how secondary a view he considers them; and how much he esteems the symptoms indicating such disorder to be fortuitous and unimportant. His description, however, under the head "Animal Functions," is exceedingly applicable, and the paragraph margined "Functions of the Sensorium" cannot be omitted.

"Though the animal functions necessarily partake of that disorder of the vital and natural functions which very strikingly characterise Cholera, yet this participation is not so immediate as we might, *a priori*, be led to expect. The undisturbed state of the mind has been the subject of general remark; but it cannot be matter of surprise, should some exceptions occur, from a fortuitous morbid affection of the brain following a state of sanguineous congestion. There is reason to believe that the simple congestion observed in Cholera has not been the cause of the coma, or insensibility, which have been remarked; and when we recollect that almost all

A great book is never more palpably a great evil, than when it encumbers the baggage of a military surgeon.

practitioners advert to the great reluctance of the patient to be aroused, we must admit that cases of imputed coma may have often been referrible to this condition, which have yet been reported as arising from physical disability. Instances are not wanting of patients being able to walk, and to perform many of their usual avocations, even after the circulation has been so much arrested that the pulse has not been discernible at the wrist. Much seems to depend on the constitutional strength and firmness of mind in the patient, and on the form in which the disease has made its attack. The cases here alluded to are those chiefly in which it has begun by an insidious watery purging; and many lives have been lost in consequence of the patients, under these fallacious appearances, not taking timely alarm, and applying for aid. In other cases, again, the animal functions appear to have been early impaired, and the prostration of strength to have preceded most of the other symptoms."—*Madras Report*, p. 24.

Functions of the Sensorium.—" In a disease so highly congestive as Cholera, where vertigo, deafness, and ringing in the ears, often prevail, and where very large quantities of opium and intoxicating matters have been swallowed, it is truly surprising that the functions of the sensorium are so very rarely disturbed. It seems probable, that it is in many instances from an inaccuracy of language that *coma* has been represented as a *symptom* of Cholera: for we find that patients, who have just

been represented to be in a *comatose* state, can, with more or less facility, be roused from it; and though they cannot overcome that *retirement within themselves*, which constitutes so remarkable a feature of the disease, they will yet evince, by the clearness and precision of their answers, that their intellect is not destroyed. The same appearance takes place in Tetanus, Hydrophobia, and other diseases referred to the class Neuroses. This circumstance shows their affinity with each other, and is calculated to make us pause in receiving doctrines as true, which impute such disorders to depraved functions of the nerves, whose origin, the *Sensorium Commune*, nevertheless remains comparatively undisturbed. Coma must, however, be admitted occasionally to occur, especially towards the termination of the case, when it is fatal; but delirium has seldom or never been observed, unless as a sequela of Cholera, when other and foreign morbid actions have been established. That degree of incoherence which has accompanied the excessive spasmodic affections of the muscles, or which has followed the free use of opium and spirits, is not considered as an exception to this remark.

" Syncope is not a common symptom in Cholera; and when it has occurred, unless after venesection, it has generally been *on the invasion* of the disease. During the progress of this disorder, when the nervous energy seems to be almost annihilated, and the functions of the heart and arteries to be abo-

lished, this symptom is yet very rarely observed. *Deafness* has been remarked, in some instances, to have been *completely established* before any other symptom of the disease had developed itself; the patient continuing, for a time, to pursue his ordinary employment!"—*Madras Report*, page xxviii.

All these symptoms appear to me as demanding the most serious attention: I cannot bring myself to think them unimportant, or as incidental and fortuitous. A disease which frequently commences with perfect deafness, and where syncope, when it does show itself, occurs at the outset of the disorder, can scarcely be arranged in any other class than among the most urgent nervous disorders.

Although it is my intention to pass unnoticed the many other conjectures which have been hazarded respecting Cholera, I would still acknowledge, that the very observations, even of cultivated minds, should never be altogether neglected. A startling paradox, or a wildly improbable theory, nay a *prima fâcie* absurd proposition, is not unfrequently supported with a line of argument, and a recital of fact, for the consideration of which a leisure hour may be profitably devoted; for it is the idiosyncracy of a mind possessed with a theory, to twist the most conflicting and opposite notions into the tissue of its arguments; drawing support, like the Pontic monarch of old days who fed on poison, from positions which to an unprejudiced examiner would convey their own refutation. But though these

fancies need not to be neglected, they most assuredly ought not to waste and occupy time in unnecessary combat with shadows; they are best left alone to fall of their own weight. I consider Dr. Tytler's speculations on mildewed rice, and Mr. Orton's electricity theory, as of this character; and though the very best of their order both are nearly forgotten, and the works, though valuable, are only so for the contingent matter. These questions are best cut short with the brief demand of the "*Cui bono?*" for there can be little advantage in knowing the cause of an epidemic, when the knowledge thereof will neither remove the effect nor heal it; and I doubt if even a philosopher from Laputa! could suggest a scheme for maintaining an equilibrium of electricity in the atmosphere, or of ensuring the harvests throughout India from the blighting consequences of sudden vicissitudes of seasons. As, therefore, such discussions tend to no benefit I will pass them over, though not without recommending my readers to peruse both the works referred to with attention. The authors, as is generally the case with theorizers, show themselves talented men, but of active lively imaginations, too intent on a distant object to examine correctly the foreground of the argument; yet their pages are rich with valuable matter relative to the history and character of the epidemic.

Having now brought this part of my subject to a close, I will briefly state my own opinion, and in

the next sections proceed to support it by reasoning founded upon cases which have fallen under my own observations, or are quoted from authentic documents; and compare them with analogous appearances and circumstances in other diseases, which seem illustrative and explanatory of the disorder under consideration. My idea may, then, be introduced in the language of the Bombay Medical Board, that in Cholera "there is a *somewhat* pressing on the vital functions;" and what that *somewhat* is I leave for those to speculate upon who can tell me what the gout is, or what the ague is, or in short what any other disease is which cannot be resolved into inflammation; but of the two suggestions offered by the Board, I consider that the oppression is on the nervous and not on the circulating system, for I know nothing but hemorrhage which in such rapid progress could thus affect the latter. I consider a nervous derangement, similar to concussion of the brain, to be the disease, how induced I know not, following the above inexplicable shock sustained by the constitution; and the collapse and spasms to be symptomatic of the disorder of the brain; and finally, I consider the purging and vomiting to be no* part of the disease,

* "I think I have observed of late also, that those cases where there is much vomiting commonly terminate favourably, the frequent vomiting showing that the stomach has not entirely lost its vital powers. On the contrary, those cases where there is much purging, with little or no vomiting, are very apt to prove fatal; and again, the most speedy fatal cases seem to be those where there is

but the struggle and effort of nature to relieve the constitution, and cast off the noxious principle which is destroying it. For the treatment of such a disease, the indication is distinctly apparent to relieve the brain by bleeding, and to induce the sanitary process of vomiting and purging where they do not exist, or to moderate them when violent. Into these brief injunctions may be resolved all that has been written on respectable authority; and the only difference in my theory is, that I would propose a regular systematic procedure, in preference to the uncertainty, hesitation, and undecidedness which, in spite of everything that has yet been written, continues to prevail, in a case where of all others the patient's safety most mainly hinges on the promptitude of treatment.

P. S. A friend whom I esteem, as he is esteemed by all who know him for his amiable qualities in private life, and whom I respect, as he is justly respected by the public circle in which he moves, for his professional acquirements and industry, having done me the favour to peruse these notes, has opposed his opinion to this part of my theory so far, that although he agrees with me that the purging and vomiting are not the disease, yet he considers the oppression to be upon the circulating system,

little of either vomiting or purging, showing, as it were, that the whole alimentary canal is in some degree paralysed."—*Madras Report*, Appendix, page 128. Mr. Connell's letter.

and would call it concussion of the heart rather than of the brain.

The arguments advanced at random in conversation are too crude and undigested to be regularly stated and combated; but my reader will understand his theory when I mention, that he applies the term concussion of the heart to the syncope which follows bloodletting, in opposition to the commonly received opinion, perhaps more clearly laid down by Cullen (1174—1177) than any where else, that it is a diminution of the energy of the brain. It is not, however, fair to publish another's ideas, and it is unnecessary to combat unpublished opinions; further, since it would require a long chapter to discuss the subject, it is fortunately uncalled for here, by our being in point of fact agreed as to essentials, both believing the disease itself to be some as yet unexplained shock upon the vital principle, and that the discharges are the effort of nature to relieve itself by its own sanitary operations. This is all I ask to be granted; for of the rest I know no more than those who have gone before me, and that is saying, I know, as little as is possible.

The ignorance in which we lie respecting the heart, its nervous energy, its powers, and its place in the system, may perhaps be best set forth by the circumstance, that of nine writers on the subject, Keil, Michelot, Jurine, Robinson, Morgan, Hales, Sauvages, Cheselden, and Borelli;* the first esti-

* Richeraud's Physiology—53rd.

mates the force with which the heart acts on the blood at *a few ounces only;* and the others, at different increasing powers, until the last has raised it to *one hundred and eighty thousand pounds!* With this discrepancy on a subject, which the parties severally imagine themselves to have proved satisfactorily by imposing experiments, of how little value are speculative reasoning, or mere matter of opinion! Many cruel experiments on living animals show that the heart may be meddled with more than the brain, without extinguishing life; and in the histories of sufferings endured by malefactors put to death with torture, we read of cases where the victim has a momentary sense and motion after the extraction of his heart. Amongst others, Lord Verulam mentions the case of a poor creature undergoing the butchery of the "good old times" for treason, who was heard by the bystanders to repeat three or four words in prayer, when his heart, torn from his body, was smoking in the grasp of the executioner.

CHAPTER III.

ON THE CONTAGIOUSNESS AND EPIDEMIC CHARACTER OF CHOLERA.

WITHOUT treading the beaten ground of reference to old authorities, such as the Dutch physician Bontius, or the naval surgeon Curtis, or to Drs. Girdlestone, Duffin, Davis, or Johnstone, (for even the latter seems to become an ancient when Cholera is the question,) I will still allude very briefly to the history of Cholera.

It is certainly very consolatory to be told that the epidemic is not a new destruction let loose upon mankind, and that we have as fair a chance of our days being long in the land as had our fathers in the old times before us. I wish, however, any one had carried the inquiry a single step further, and suggested any reason why this horrible malady should on this particular occasion, more than on any other former one, have spread with such unsparing accuracy into every nook of the empire, and why, after nine years' desolation, it continues recurring, as if it

were absolutely naturalized, to be from henceforth endemic in the Peninsula. There would be something practical in such a research, something more than gratifying curiosity; but I should be very incredulous on the subject of any *new* disease. The operations of nature are carried forward by such fixed immutable rules, that where history is obscure, or the remote or proximate causes not perfectly apparent, we must blame only our deficient means, or our deficient industry, and strive for superior knowledge. Though luxury and intemperance may multiply varieties, I very much doubt if there really be one *new* disease; for if syphilis cannot be cured without mercury, I should be inclined to suspect it was received, like hydrophobia and cow-pock, from the animal creation; a supposition which first occurred to me from so frequently in this country seeing the diseased state of the wild dogs in the streets, especially the females; but if simpler curatives are available, which some are now venturing to think may be the case, I strongly suspect there is nothing in our nosological tables but what Esculapius himself and his pupils may have been called on to treat. There is consequently nothing to surprise us in finding that this disease raged as an epidemic only forty years ago; but it is certainly a subject of wonder how such a circumstance should have been so entirely forgotten, and of regret that the invaluable record which the wisdom of the Madras Medical Board directed to be made for the instruc-

tion of future generations, should have remained so long neglected. But two questions arise for discussion, of too much importance to be neglected: The first is, What were the theory and system of our predecessors? which I will subsequently canvass: The second, Why this disease should establish itself a permanent constantly operating scourge upon the country, instead of exhausting itself as on former occasions? The readiest answer to this involves so fearful a responsibility, that if the *onus* of it were not already gratuitously accepted by no less a personage than Sir Gilbert Blane,* a humble individual like myself might well shrink from it; for it hazards the assertion of the contagious character of the epidemic. Within the last forty years, the Peninsula has become but one empire; and the communication, which heretofore had been slow, casual, and hazardous, even betwixt contiguous districts, has thereby become not only uninterrupted and frequent in the intercourse of trade, but is enforced from one end of India to the other, by the course of annual relief of troops: a system of uninterrupted intercourse which, it ought to be remembered, was more particularly commenced, on its present extensive scale, in 1817, the first year of the epidemic. There appears no other mode of accounting for this perpetuation of the disease than by supposing, that through this newly established regularity of intercourse, the seeds of the disorder are spreading and being spread; and that

* See Note B, at the end of the volume.

its smouldering fire, creeping along with the progress of the seasons, finds, whithersoever it may be directed, a certain number of subjects predisposed by constitutional peculiarities to its influence; and thus, in all human probability, it will continue for the future its annual visits of destruction.

As for the question of contagiousness: in addition to all the arguments so judiciously arranged by Sir Gilbert Blane, there is another, which ought to force itself on the attention of the profession,—the melancholy fact, that they are more liable* to the disease than any other class of individuals. From June 1825 to June 1826, that is, during the last twelve months, two surgeons and two assistant surgeons, have died of Cholera on the Bombay presidency. By referring to the Bombay calendar for 1826, it appears that the grand total of gentlemen on the military, marine, and civil branches, including the officers of a regiment of dragoons, and four regiments of infantry of his Majesty's establishment, amounts altogether to 1543; of these 116 only are

* "It is yet a doubtful matter whether the disease is contagious. At Poonah, they allege that the few cases which have yet been seen there are strangers, who have brought the disease with them: but what I am now going to relate may seem to prove strongly its contagious nature. *Every one* of the native attendants in the hospital of his Majesty's 65th regiment, and they are thirty in number, have been attacked with the disease. Now on any other supposition this is perfectly unaccountable."—Mr. Craw's letter, dated July 1818, at which date the disease had not been present more than a month at the station.—*Bombay Rep.* p. 46.

medical officers: that is to say, a fraction less than one-fourteenth; but so far from fifty-two casualties from cholera having taken place in the other branches of the service during these twelve months, I do not think that number to have occurred during the whole period of the disease being epidemic, now eight years. This affecting circumstance will remind the classic reader of the well known description of the plague in Thucydides: *—"Never (says he) has there been given the history of such a pestilence, nor did there ever occur such a destruction of human life; for even the medical men were not only incapable, from their ignorance of the disease, to render any assistance in the commencement of the sickness, but they themselves, in proportion to the degree of assiduity with which they attended on the diseased, perished in far greater numbers than others." The most unqualified opinion that I remember respecting the contagiousness of the disease is given by Mr. Kellie, page 68 of the Madras Report. The subject is well argued in a letter, dated July 7th, 1818; but the most energetic and unreserved statement of his opinion is given in a subsequent letter, dated October 7th, 1818, and published page 75 of same Report.

"In observing the further progress of this dreadful malady, I am still more convinced, in my own opinion, of its contagious nature. Does not the strikingly characteristic symptoms, the uniform

* Thucydides Dukeri, lib. ii. ch. 47.

rapidity of the disease, argue to conviction the operation of a peculiar morbid poison? How then is this poison produced? Is it generated in the place, or is it brought into it? If generated, and not contagious, its operation will be confined within certain limits to that place, as it may be diffused and dissipated through the atmosphere, when it may indeed for a time float upon a gale, accompany the seasons, or be somehow connected with the meteorological changes: but it has observed none of these; it has been carried in the very face of the wind from village to village, from one military station to another, and in the very route of troops; from Nagpoor to Jaulna, from Jaulna to Aurungabad and Maligaum; from Aurungabad to Seroor, and from that to Bombay. It has progressively visited the different villages between this and Hyderabad, at which place two officers have lately fallen a sacrifice to it.

"Of these, I understand, one had constantly attended the deathbed of the other, and he himself was a corpse within forty-eight hours after. And is not this contagion? Or shall we be answered by the puerile question, if it indeed be contagious, why are not all equally liable to it? And why are not the medical attendants themselves attacked? This knot is scarcely worth untying; we may cut it at once: we are all liable to it, and attacked whenever exposed to the poison, sufficiently strong to act on our constitutions, which may be prepared by various and imperceptible predisposing causes. Why does vacci-

nation so often fail? And how did the world escape the plague?"

The last is indeed a startling question. The most dreadful visitation of plague which is recorded by history, was that which raged for fifty-two years, from 542 to 594, during the reign of the emperor Justinian, throughout those regions, European, Asiatic, and African, which now form the Ottoman dominions. For the outline of this calamitous history, I must be content to refer my reader to the conclusion of the 43rd Book of Gibbon's "Decline and Fall," the more particular details of Procopius and Evagrius not being within my reach. Whoever reads that passage, will find it difficult to avoid joining Mr. Kellie to ask the question, "How happened it that the world escaped depopulation?" For it seems that even then, during the very prevalence of the mortality, there were not wanting those who, from eccentricity or fatuity, would assert the disease to be non-contagious; nor were any quarantine laws in existence to restrict communication betwixt the different provinces of the empire. There are two passages, one in Gibbon, the other in the Bengal Report, so singularly parallel, that as they relate facts not opinions, and seem to me decisive of what I understand to be the contagious character, I will copy them without comment, and leave them for the consideration of the reader.* 1st, "The mode of its propagation is explained by the remark of Procopius

* Gibbon's History, Book xliii A.D. 542—594.

himself, that it always spread from the sea-coast to the inland country; the most sequestered islands and mountains were successively visited; the places which had escaped the fury of its first passage, were alone exposed to the contagion of the ensuing year." 2nd, "The disease would sometimes take a complete circle round a village, and leaving it untouched, pass on, as if it were about wholly to depart from the district. Then, after a lapse of weeks or even months, it would suddenly return, and scarcely reappearing in the parts which had already undergone its ravages, would nearly depopulate the spot that had so lately congratulated itself on its escape. Sometimes, after running a long course on one side of the Ganges, it would, as if arrested by some unknown agent, at once stop, and, taking a rapid sweep across the river, lay all waste on the opposite bank. It rarely, however, failed to return to the tract which it had previously left. After leaving a district or town, it sometimes revisited it; but in such cases the second attacks were milder, and more readily subdued by medicine, than those in the primary visitation."—Bengal Medical Board's Letter to Dr. Meek.

The Bombay Report, however, is far more decided. After describing the commencement of the disease on the island of Salsette, it proceeds:—

"By the observation of some individuals who, aware of the danger of the malady, and with the humane view of relieving the sufferings which it inevitably produced, carefully watched its progress, we

are enabled to trace the disease, as if creeping along from village to village on that island, precisely in the same way, that is, by the arrival of people affected with the disease, from places where it was known to prevail; and we are assured that there are some small villages on that island, which, from want of this sort of communication, or from some other cause, have after a lapse of four months, hitherto escaped entirely."*

These sequestered spots were not, however, allowed to indulge themselves long in their fancied escape; for only one month afterwards, we are told:—

"The disease, after having disappeared for two months on the island of Salsette, has recently broken out; and in one of the villages alluded to in the Preface, which had entirely escaped during the greatest prevalence of the disorder, no less than twenty-three of a population of eighty have died."†

I consider it a patriotic act, when the contagiousness of plague, even, is a subject of parliamentary discussion, to draw the attention of the reader to Dr. Mead's classic essay on that dreadful disease. It was written at the request of the British Government, when the court of France were disposed to relax their quarantine laws at the solicitation of their merchants; and it gives the most unqualified opinion respecting the wisdom of those laws, and supports it with such learning and eloquence, that it seems difficult to impugn any one of the positions he advances.

* Bombay Report, Preface, p. 10, March 1818.

† Ditto ditto, Appendix, p. 14, April 1818.

The man who ventures an assertion of the noncontagiousness of the plague, should weigh long and cautiously, and revolve frequently and conscientiously in his mind, the opportunities that he has had of acquiring knowledge, and the capabilities of intellect and industry that he has brought to the study. This is no idle question, fit only to exercise ingenuity or talent, and scientific leisure; but a most momentous inquiry, influencing legislation, and affecting the lives of thousands, and the wellbeing of the state; and he who lends his voice and name to the relaxation of the quarantine laws, should do it only under the most solemn conviction, that he is misled by no improper bias of interest, nor swayed by any false hypothesis that originates in his own ignorance and incapacity. To speak for myself, I have served upwards of fifteen years as a medical officer within the tropics, and though I have never seen a case of plague, for which I would thank God day and night, and earnestly beseech I never may; yet the disease within my time has been in India,* and I think, I have had full opportunities of acquiring sufficient knowledge to permit of my offering an opinion on

* From Nov. 1816, to April in the following year, we had very serious alarms. The Egyptian army of Ibrahim Pacha had carried the plague with them into Arabia, whence it was brought by merchant vessels to the Indian ports on the coast of Kutch and Kattiwar. On this the Bombay government issued a very judicious quarantine regulation, prohibiting communication betwixt the infected ports and the healthy coast. Through this caution, and the will of Providence, the disease did not spread.

Dr. Mead's work; and all I can say is this, that with better means of judging on this subject than he could have been supposed to possess, my experience is of no further use than as it fully enables me to understand the merit, and feel the truth of his arguments.

Dr. Mead, after arguing on the grounds whence smallpox and measles were considered infectious, proceeds:—"and by the same argument the plague must be concluded to be infectious likewise. It cannot be pretended that this is occasioned in the plague from this only, that the sound persons are rendered more than ordinarily obnoxious to the unhealthy air, or whatever be the common cause of the disease, by being put into fear and disspirited, upon seeing others in the same house taken sick; for if this were the case, children, who are too young to have any apprehensions upon this account, would escape better than others, the contrary of which has been always experienced.

"It is true, some have not been attacked by the disease, though constantly attending about the sick; but this is no objection against what is here advanced: for it is as easily understood how some persons, by a particular advantage of constitution, should resist infection, as how they should constantly breathe a noxious air without hurt. An odd observation of Diemerbrock deserves notice in this place: that part of a family removed into a town free from the plague was observed by him to be taken ill of it soon after the part left behind in

the diseased town fell sick; which certainly would scarce have happened, unless a communication between the healthy and the sick, by letters and otherwise, was capable of causing it.* Of the same nature is a circumstance recorded by Evagrius of the plague, which he describes, and what he owns surprised him very much; that many of those who left infected places, were seized with the plague in the towns to which they had retired, while the old inhabitants of those towns were free from the disease.† But to multiply proofs of a thing so evident is needless; innumerable are at hand, and several will occasionally occur in the following parts of this discourse, when we come to speak in particular of the ways by which this infection is conveyed about. I shall therefore say no more in this place, but only that all the appearances attending the disease are very easily explained upon this principle, and are hardly to be accounted for upon any other. We learn from hence the reason why when the plague makes its first appearance in any place, though the number of sick is exceeding small, yet the disease usually operates upon them in the most violent manner, and is attended with its very worst symptoms.‡

* De Peste, chap. iv. Annot. 6.

† Evagrii Histor. Eccles. Lib. iv. ch. 29.—Is not one of the instances of the severe epidemic which I have related precisely parallel?

‡ This proves almost invariably to be the observation of every writer on Cholera: the worst cases are those which appear first; and it is easy of explanation, that those who are most predisposed are first attacked, and of course suffer the severest form.

Now, was the disease produced not by imported contagion, but from some cause which had its original in the diseased place, and consequently, from a cause gradually bred, the contrary must happen: the diseased would at first not only be few in number, but their sickness likewise more moderate than afterwards, when the morbific causes were raised to their greatest malignity. From the same principle we see the reason why people have often remained in safety in a diseased town, only by shutting themselves up from all communication with such as might be suspected of giving them the disease. When the plague was last in England, while it was in the town of Cambridge, the colleges remained entirely free by using this precaution. In the plague at Rome, in the years 1656 and 1657, the monasteries and nunneries, for the most part, defended themselves by the same means: whereas at Naples, where the plague prevailed a little before, these religious houses, from their neglect herein, did not escape so well.* Nay, the infection entered none of the prisons at Rome,* though the nastiness of those places exposes them very much. But to avoid prolixity, I shall give only one instance more. I think it cannot be explained in any other reasonable manner, how the last plague in the city of London, which broke out in the parish of St. Giles' in the Fields, towards the latter end of the year 1664, should lie asleep from Christmas to the middle of February, and then

* Gostoldi, de avertanda et profliganda Peste, p. 117, 118.

break out again in the same parish; and after another long rest till April, show itself again in the same place."

There is no part of this argument but what in my opinion may apply in some degree to Cholera, as well as to plague; and I would strongly recommend those who have to attend on Cholera cases, whether professional or unprofessional, and whatever their theories may be, to be very particular in frequently changing their cotton clothing; for when duty calls us to attend the sick, cleanliness is the only safeguard we can with propriety resort to. Dr. Mead* has a paragraph curiously illustrative of how in-

* "What makes cotton so eminently dangerous, is its great aptitude to imbibe and retain any sort of effluvia near it; of which I have formerly made a particular experiment, by causing some cotton to be placed for one day near a piece of putrifying flesh from an amputated limb, in a bell glass, but without touching it; for the cotton imbibed so strong a taint, that, being put up in a close box, it retained its offensive scent above ten months, and would, I believe, have kept it for years. If, instead of the fumes of putrified flesh from a sound body, this cotton had been thus impregnated with the fumes of corrupted matter from one sick of the plague, I make no doubt but it would have communicated infection. And the experiment would have succeeded alike in both cases, if, instead of cotton, silk, wool, or hair had been inclosed in the vessel: animal substances being the most apt to attack the volatile particles which come from bodies of the same nature with themselves."—Dr. Mead's work, 4to., p. 271. Thus, then, a bale of cotton, on which a poor wretch has flung himself to die of plague, may retain the infectious quality for years—a comfortable prospect for Liverpool and Manchester truly! and yet I know no point in professional discussion on which I would venture a decided opinion more firmly than in support of Dr. Mead's supposition.

tensely he must have thought on this subject, and which proves how long our apparel may bear unwholesome odours. I think, however, I can state an equally striking instance, which occurred to me only casually. The gown of coarse blue calico which I had used in the dissecting room was cast, in November 1809, into a lumber box. My baggage for India was packed up in November 1810, and a medical friend who performed this office for me, thinking this gown might be of service, put it into one of my boxes with some old woollen clothes. I took it for granted, without having ever asked him the question, that the gown could not have borne any palpably disgusting odour: for it was of so trifling value, that the idea of preserving it had never occurred to me; nor would he, I am sure, have put it there, had it been even offensive. But when the box was opened, which, from the articles it contained not being of any value, and my having been absent from Bombay on military duty nearly all the period since my arrival in India, did not occur till June 1814; that is to say, nearly five years after this gown could have been infected, the stench from it was not only disagreeable in this climate, but the clothing which had been packed in the box could not have been comfortably worn.

The Madras Report mentions the vapour from the bodies of the diseased in cholera thus:—"The perspiration or moisture is often free from odour; at other times it has a fetid, sour, or earthy smell,

which has been said to be peculiarly disagreeable, and to 'hang long about the nostrils' of the bystanders."* This curious circumstance had struck me from the first. The smell always seemed to me something like that which arises during an operation in sawing through a principal bone; it is a faint sickening sort of smell, and one awakes even in the middle of the night with the sensation of smelling it; the blood even is tainted with it to an offensive degree. It attracted my attention particularly, from remembering to have heard the village gossips in my youth talk of a certain indescribable odour, felt by the infected, to be one of the first sensations of natural smallpox.

To conclude: however aware I am of the delicacy of the ground on which I have advanced, and however strongly sensible that nothing would give me more sincere happiness than to be able to change the opinion I entertain, I am under the necessity of ending this part of the discussion with observing, that to the best of my judgment, I know no character belonging to any contagious disease which Cholera does not appear to me to possess; and that if it be not contagious, I know no other disease which I should be inclined to consider so.

* Madras Report, p. 22.

CHAPTER IV.

ON THE VIRULENCE AND MALIGNITY OF CHOLERA, COMPARED WITH OTHER EPIDEMICS.

When a writer ventures to differ from high authorities, he is fortunate if he can find in the published opinions of others, sentiments similar to his own, expressed in more energetic terms than he would of himself have been inclined to use. Mr. Chalmers, addressing the Madras Medical Board in May 1820, that is to say, nearly three years after the invasion of the epidemic, observes:—

"Travellers also seem on all occasions to be more obnoxious to its attacks than residents, and seem capable of carrying with them, *to a considerable distance, a sort of infected cholera atmosphere*, which is at all times liable to affect them, *or those near them.*"

"Thus far it may be said to be contagious; but that again seems to depend more on predisposition than any other contagion with which we are acquainted."

"One thing, however, I fear is certain, viz. that we are, as yet, as little acquainted with its origin, as we are with its cure: for example, I read from Bombay, 'that a number of cases of the epidemic have lately appeared on the island, but that its mode of treatment is now so well understood, that its reappearance causes no alarm!' At the same time I hear from the camp of a corps now on its march: 'we lose about ten people a day; no one returns alive from the hospital tent, and our Doctor says, there is no cure for it!' One medical man boldly estimates his cures by thousands! while his no less zealous neighbour is heard to say, though he has followed the same plan of treatment, that he has failed throughout."*

With respect to the two first sentences, it seems that the writer had come to the conclusion I am now urging, that the disease, though contagious, is less acrimoniously so than plague or smallpox. The concluding paragraph is very vivid, and requires that I should add, when I republish it, that the Bombay Report alluded to appeared in a Bombay newspaper: and as for the curer of thousands, he was not a *rara avis*, for the Bombay Medical Board, in a foot note of the tenth page of the Preface to their Report, "mention with pleasure the name of Ensign —— of the corps of Engineers, stationed in Salsette, to whose humane exertions *some thousands*

* Madras Report, p. 144.

of the inhabitants owe their preservation." The whole passage so strikingly brings into contrast the opposite opinions entertained respecting Cholera, that I am very thankful to Mr. Chalmers for having worded it so clearly.

I shall hereafter enlarge on the symptoms and theory respecting the *vomito prieto* of the Spanish dependencies, or rather colonies on the coasts of the Gulf of Mexico, and need not, therefore, allude now to any but its epidemic character. It seems to be a disease very much resembling Cholera; and what is very singular the local tradition ascribes its introduction to the arrival at Vera Cruz of a convoy from Siam.* Athough this latter circumstance is

* "The opinion that the epidemics which since 1793 have nearly every year afflicted North America, differ essentially from those which *for centuries* have prevailed at Vera Cruz, and that the yellow fever was imported from the coast of Africa into Grenada, and from thence into Philadelphia, is equally destitute of foundation with the hypothesis formerly very generally believed, that a squadron from Siam introduced the *vomito* into America."—*Humboldt on New Spain*, B. v. c. 12.

The mention of American centuries! indicates a little carelessness of expression; but the sentence, I presume, is meant to be the expression of an opinion, not the statement of a fact; for, six pages before, the writer had stated:—

"No ancient document informs us of the first appearance of this scourge; for throughout all the warmer part of equinoctial America, where the *termites* and other destructive insects abound, it *is infinitely* rare to find papers which go *fifty or sixty years back.*"

A note at page 192, translated from an official report, speaks very decisively:—"Vera Cruz neither received the germ of this cruel disease from Siam, nor from Africa, nor from the West India

denied by the philosophers, I have so often found the vulgar right, and their teachers wrong, that if the port records of Vera Cruz could prove the arrival of a fleet from Manilla, which had touched at Siam in the year 1725, the date at which the *vomito* is stated by the Abbi Clavigero to have appeared for the first time, I would prefer siding with common report to subscribing to the most plausible theory that could be presented to me.

Let it, however, have come whence it may, or be it what it will, either yellow fever in its most malignant form, or a disease *sui generis*, its characteristics as an epidemic seem in some respects so parallel with Cholera, that almost the very same terms may describe both, excepting, indeed, in the grand distinction of contagiousness, in which it either depends still more on predisposition; that is to say, is less acrimonious than Cholera, or is totally exempt from that malignant quality; for those who dread exposure to it may keep out of its influence by removal, during the months in which this epidemic prevails, from the low coast plains to the high table land of the interior, the *vomito* being strictly confined to a certain climate;* and almost in fact to

Islands, nor from Carthagena, nor from the United States; this germ was produced (*engendrado*) in its own territory, and it always exists there, though it only developes itself under the influence of certain climatical circumstances."—*Comoto in his "Informe al prior del Consulado de la Vera Cruz demes de Junio,* 1803."

* "The farm of l'Encero, near Vera Cruz, which I found to be 3043 feet elevated above the level of the ocean, is the superior limit

a certain temperature, with the exception that it is allowed, that when the *vomito* has raged with unusual virulence in the summer heat, it continues even through the following cool months, though with diminished malignity and frequency.

A further happiness is, that the natives of the spot seasoned to the local contingencies, whatever those may be, seem proof against infection, and so long as they confine themselves to their native soil are almost perfectly safe; but the well inured

of the *vomito*. We have already observed that the Mexican oaks descend no farther than that place, being unable to vegetate in a heat sufficient to develope the germ of the yellow fever. Individuals born and brought up at Vera Cruz are not subject to this disease; and it is the same with the inhabitants of the Havannah who do not quit their country; but it happens that merchants, born in the Island of Cuba, and who have inhabited it for a great number of years, are attacked with the *vomito prieto*, when their affairs oblige them to visit the port of Vera Cruz, during the months of August and September, when the epidemic is at its height. In the same manner Spanish Mexicans, natives of Vera Cruz, have been seen to fall victims to the *vomito* at Havannah, Jamaica, or the United States. These facts are no doubt very remarkable, when we consider them with respect to the modifications which the irritability of the organs exhibits. Notwithstanding the great analogy which the climate of Vera Cruz bears to that of the Island of Cuba, the inhabitant of the Mexican coast, insensible to the miasmata of the air of his native country, falls under the exciting and *pathogenical causes* which act on him at Jamaica and the Havannah. It is probable that under the same parallel the gaseous emanations which produce the same diseases are almost the same, but that a slight difference is sufficient to throw disorder into the vital functions, and to determine that particular succession of phenomena by which the yellow fever is characterized."—*Humboldt on New Spain*, B. v. c. 12, p. 170.

citizen of Vera Cruz who ventures to Havannah is liable to it as a foreigner, and, *vice versâ*, an isle'sman from Cuba who was safe at Havannah falls under its influence when he lands at Vera Cruz;* so nice and so inscrutable are the distinctions which nature draws in her operations.

With these shades of difference, amid which even are mingled some striking points of assimilation, it may be said of the two epidemics, that, in the inexplicable mode of accession, the rapid destruction of vital powers, and the effort of nature to relieve the constitution by the same convulsive process of vomiting and purging, their history proceeds with astonishing uniformity; whilst it may be said equally of both, that as epidemics there are no atmospheric changes or visible causes by which the most experienced observer can venture to account for the non-recurrence of the disease in certain seasons when they do not appear, nor signs by which he can attempt to predict their return after a period of intermission.

I consider the whole of these circumstances of

* Mr. Pugnet (*Sur les Fevres de mauvais charactere*, page 346,) made the same observations with respect to natives of St. Lucie, who visited the neighbouring islands. Perhaps a trifling alteration in diet and exercise, and confinement on board a small trading vessel, in passing from one place to the other, may slightly disorder the digestive organs, and thus predispose to disease; but then, on the other hand, such trifling irregularities of habit of body must be of everyday occurrence to these travellers when at home, where they are proof against infection.

importance; but they are chiefly introduced here in support of my idea, that the breaking down of so many frontier barriers, and the consolidation of so many distinct and separate states (always jealous of each other, and frequently at open war) into one universal sovereignty, enjoying the most facile and uninterrupted intercourse, has, by the establishment of rapid and constant communication, invited or enforced betwixt the extremities of the country, become the only apparent cause of the unusual dissemination and regular succession of the pestilence now under consideration.

The smallpox is now scarcely known as an epidemic, and measles and scarlatina are of such inferior malignity, that no correct criterion can be drawn from their history. I will, therefore, pass them as diseases which may be alluded to in some instances where analogous appearances assist in pointing out the operations of nature, but on the whole of little importance to illustrate the acute epidemic character.

To return to Cholera: the celebrated circular which announced the scruple doses of calomel as specific, might well attract attention, and lull the profession into a fatal security, when it gave, without any qualification, as the result of practice, that, "of 110 patients, only two were lost, and those were decrepit aged men, in whom the vital energies were at once extinguished: the remaining 108 all recovered." Had this been the general average of casual-

ties,* and those too occurring only under circumstances of such palpable incapability for the age-struck constitution of the patients to endure any active disorder whatever, we might safely have considered the epidemic as perfectly under our control, and "felt no alarm at its appearance;" since it would have been no more a subject of apprehension than catarrh or varicella, and certainly of infinitely less importance on our registers than the simplest diarrhœas or intermittents of the country. The official report, however, of the Bombay Medical Board does not very far differ from the same confident result. It shows that from the middle of August 1818, to the end of February 1819, the total number of ascertained cases on the island of Bombay amounted to 15,945, which, averaging the population at 210,000 souls, gives $7\frac{1}{2}$ per cent. as the proportion of the inhabitants actually attacked: of these, 1294 were deaths reported by the police

* My practice has been *so far fortunate*, as to have reported but 40 casualties out of 200 cases of "actually seen."—Sir T. Sevestre's letter, Madras Report, p. 60.

"In no one case which has come under my care, have I experienced any remarkable benefit from the practice so singularly successful in Bengal."—Mr Shedden's letter, Madras Report, p. 78.

"The statement which Mr. Corbyn has given of 108 successful cases treated out of 110, seems to me calculated to mislead, and raise expectations that must be disappointed. However, the remark which he makes shortly after, that after a lapse of six hours from the attack, the remedies he recommends, will seldom produce any benefit, seems fair and candid; and I have to lament that very few of the cases that presented themselves at the General Hospital were admitted so soon, most of them considerably later."—Mr. Whyte's letter, Bombay Report, p. 16.

establishments, of individuals whose sickness had never been communicated to the pest hospitals, nor medicines supplied for them, nor administered by any of the government establishments. Of the remainder, that is 14,651 cases, occurring in six months and a half, 938 cases or $6\frac{2}{5}$ per cent. proved fatal. This again reduces the character of the epidemic to a minor scale in the afflicting list of the scourges of humanity.

The Madras Report exhibits a very different view of the matter; and as the passage is too important to be abridged, I will quote it at full.

* "From 1818 to 1822 inclusive, the medical returns † show 3138 cases of Cholera in Europeans," (out of a grand total below 11,000) "of which 595 terminated fatally; being in proportion of about 19 per cent.; and 13,490 cases in natives" (out of a grand total averaging about 70,000), "of which 3185 terminated fatally, being about $23\frac{1}{2}$ per cent." As, however, the medical returns of small detachments of Europeans are not always included in the general returns, and as there are no returns at all from some of these detachments, 526 cases, and their proportional 100 casualties, are allowed to meet the aggregate of such incidents, which then gives 3664 cases,

* Madras Report. Narrative, &c. p. 28, 29.

† These are the Hospital Returns of the army, and of course only include enlisted soldiers. The Bombay Report speaks of the general population of the island,—all ages, all classes, and both sexes.

and 695 deaths. The medical returns of various bodies of native troops being missing for certain months, recourse was had to the regimental records from which it appears that very nearly 550 men had died of Cholera without appearing in the tables in the appendix; which number, at 23½ per cent. gives 2340 cases: with these additions, the total number of cases in the natives of the army may be stated at 15,830, and the casualties at 3735. This loss will probably fall *much within* the calculations of those who have been accustomed to hear of the ravages committed by the disease."

"Great as the proportionate mortality which has just been stated may appear to be, it is, nevertheless, probably *far within the truth.* When the disease first appeared, there were many causes tending to magnify the number of attacks and the number of cures, and a most erroneous estimate was too generally formed of the relations in which these events actually stood to each other. The regimental practitioner was accordingly astonished and dismayed at finding, when the disease attacked his corps, and each case was authenticated under his own observation, that the proportion of deaths was most widely different, and greatly exceeded his calculations.

"It is probable that since Cholera has been prevalent, many cases have been ranked under that head in the returns, which at other times, and under a more careful diagnosis, would have found their places in other columns. The "Cholera Morbus" too has been

necessarily blended in the tables with the "Epidemic Cholera;" for notwithstanding every precaution, it was found that these forms of disease could not be accurately distinguished in most of the returns. Whether, under this uncertainty, that form of the disease has increased in latter years in the ratio of increase exhibited in 1816 and 1817, or not, it is difficult to judge; but there has at least occurred, on several occasions, a kind of Cholera, very frequent in its attacks, and in all respects answering the definition of Cullen."

"To ascertain, therefore, the true proportional mortality of the prevailing epidemic Cholera, recourse may be had to those formidable visitations in particular corps, which form part of the subject of the preceding narrative; and the result of this inquiry gives 767 cases, and 211 deaths, amongst the European troops; and 4065 cases, with 1544 deaths, amongst the natives. We have thus the proportion of 27½ per cent. in the former, and nearly 38 in the latter, which, considering that this disease runs its fatal course, very generally within twelve hours, sufficiently marks it as one of the most formidable that has ever afflicted the human race."

To refer to other epidemics: during the yellow fever in Spain in 1800, the average mortality in Cadiz, Seville, and Xeres, calculated together, is a fraction short of 30 per cent. In 1801, at Seville alone, it was 60 per cent.; and 1804, at Cadiz, it was 40: at Malaga, in 1803, died nearly 40; and in

1804, more than 60 per cent. It seems rather ill-naturedly meant by Humboldt when he observes, that under certain unfavourable circumstances, the mortality in great epidemics of *vomito prieto* at Vera Cruz increases to 30 or 35 per cent.; for on the very next page he quotes from M. Arejula, that "the physicians of Spain *may boast* of having cured *three-fifths* of the patients who vomited black matter," leaving of course a mortality of 40 per cent. and the lowness of the average a subject of congratulation. Epidemics, however, do not necessarily assume in every instance their most malignant form. See Mead and Russell, and the singular work of De Foe for proof, that plague even may have a mildness of character, as inexplicable in its favourable as its malignant aspect. But the *vomito* of the Mexican coast seems established as an annually recurring epidemic, (in which light I fear we must for the future consider Cholera), and under this form of regular visitation, the destruction, estimated year by year, calculating only those who are actually received into a government hospital, and have every assistance that humanity and art can bestow, amounts to no less than from 12 to 16 per cent.

This seems the proportion of mortality in the promiscuous average of acute diseases in every climate. Thus the general number of deaths among the patients in the infirmaries of Paris averages from 14 to 18 per cent.: an excess of mortality, when compared with the average of military hospitals, which

requires, when it is mentioned, that the reader should hold in remembrance, that perhaps the most disagreeable part of a military surgeon's duty is the incessant scrutiny he is compelled to exercise, lest his wards should be crowded with impostors, feigning sickness with wonderful obstinacy and cunning, and enduring much surgical torture to evade their duty, and that patients with the most trifling complaints are of necessity admitted; so that the proportion of cases of acute disease among the actual admissions may not amount to more than one-tenth or twelfth; whilst city infirmaries and charities receive those who can ill afford to remit their daily labour, and ask not for assistance until sunk to the last stages, even in severe disorders; for the very poorest and humblest dislike the restraints of a ward, and the hardest of heart shrink from the view of such an assemblage of disease as it presents.

But when speaking of an epidemic, the fact that only 7½ per cent. of a dense population, in the most unwholesome months of the year, were affected, and that of these only 6⅖ fell victims, indicates no peculiar malignity, and scarcely offers a more distressing image of desolation to our view than what we are in the habit of beholding with philosophic calmness, and ranking among the ordinary casualties of Indian life. To give a few instances: I was employed in July 1811 in Bombay, as assistant-surgeon in the hospital of his Majesty's second battalion 56th regiment. This corps had been brought by sea a few

weeks before from Surat, non-effective from disease, bilious remittent fever: no less than 600 out of 800, or 75 per cent. were seriously ill, and of these upwards of 100, or more than 16 per cent. died. Nor was there one decrepit or aged man among them; all were robust hardy soldiers, in the prime of life, and flush of strength and manhood.

In July and August 1815, I saw his Majesty's 47th regiment nearly destroyed in Surat by the same fever. The corps was below 500 strong, but was in every respect healthy and effective in the middle of June; but when the fever broke out scarcely any escaped—of officers and men, I believe, only about twenty. The casualties were at least 40 per cent.; for Colonel Bland, who then commanded, and who died himself of the fever a few weeks after the conversation I allude to, told me the regiment had buried more than one-third of its strength.

Though both these instances fell under my observation, I cannot speak of them otherwise than in these general terms of round numbers; for being at the time a military assistant-surgeon, and liable to travel at a moment's notice with my battalion, I had little inclination to accumulate memoranda, and still less the means to drag about with me the modicum of baggage which was indispensably necessary to admit of my encumbering it with useless records. The official reports, however, of Mr. Foster, surgeon of the 56th, in 1811, and of Mr.

Easton, surgeon of the 47th, in 1815, may be found in the records of the Medical Board's Office in Bombay, should a more particular specification of these instances be wanted.

The above calamitous occurrences befell European regiments. I could mention others; but why fatigue the reader? I must, however, refer to instances where natives were similarly affected.

In September and October 1814, the 1st battalion 2d regiment, then employed under the command of the late Colonel Imlach, C.B. in the Peninsula of Kattiwar, was nearly annihilated as a military body by the endemic intermittent. Of eight or ten officers, not one escaped disease, and three died. Of the men, at least nine-tenths were seriously ill; and the casualties did not fall short of ten per cent.

I omit purposely any particular mention of the lamentable mortality at Kaira in the years 1812 and 1813. I was, during those years, at Seroor or Ahmednuggur, and had no better means than private correspondence for knowing what occurred.

Without being too prolix, I hope I may mention one more instance. In November and December last year (1825,) the two seapoy battalions stationed at Baroda were similarly rendered non-efficient by the local fevers. Out of a brigade which did not muster 2000 strong, upwards of 1200, or 60 per cent. were in hospital at one time; and if the whole period from October to February were calculated, the total admissions into hospital, during that period,

would amount to fully 80 per cent. on the numerical force of the brigade; whilst the casualties, befalling among men in the vigour of life,—(no age, no decrepitude here!)—and enjoying every possible advantage of medical assistance and Government establishments, exceeded the $6\frac{2}{5}$ per cent. on the persons attacked, which formed the limit of the ravages of Cholera in Bombay.

I hope that the practitioner who has not been within the tropics will not undervalue the above statements, on account of the unphilosophical absence of extracts from registers, meteorological tables, and official documents: for his information, however, I will mention, in conclusion, that in the province of Guzuratte, a regimental surgeon expects as naturally as he expects the change of season, that betwixt September and December, ten per cent. of the men under his charge will be affected with fever; and that, unless the season is unusually mild, an average not far short of ten per cent. of those attacked will perish; and that, if the general average of ten years were taken, the above estimate would be found very far below the truth*.

To put the case, however, still more strongly; the medium for ten years, of annual deaths in London,

* At the moment of correcting this for the press, October 1826, the 15th Regiment Bombay Native Infantry at Baroda, out of a strength below 900 present, has 290 in hospital; and the 4th Dragoons at Kaira, fifty miles distant, having upwards of 300 sick out of a total under 500, is about to be removed from the province.

from 1758 to 1768, amounted to 22,956,* which, supposing that it formed no larger proportion than $6\frac{2}{5}$ of all those who were attacked with acute disease, and had the aid of the best medical practitioners in Europe, the comparison would show a supposed list of 358,548 cases, of fatal tendency, within the bills of mortality; and which, but for medical assistance, must have perished in any one of those ten years. But as one in 25 of the city population, and one in 30 of the rural, is the average of mortality in temperate regions, it may safely be asserted, that no such circumstance has ever occurred as that one-third of a vast population should have been at the gates of death, and solely rescued thence by medical skill in any one year; much less is it every year the annual average of sickness; for if it were, our profession would be somewhat more held in honour than it has hitherto been the fashion to regard it.

Thus it seems evident, on the clearest possible demonstration, that the epidemic Cholera, as described in the official document, was felt to be, or supposed to be, of less malignity in Bombay, than the promiscuous average of acute diseases in London.

But is the Cholera really of so manageable a character? I humbly opine not! I never saw it so; nay the very last paragraph of the Bombay Report mentions a village in Salsette, where, out of a population of 80, no less than 23 had died: in what time is not mentioned, but I presume, as is the usual

* Encyclopædia Britannica—"Mortality."

occurrence, in a few days. Here, supposing that not one survived of those attacked, the pestilence must have fallen on 28¾ per cent. of the unhappy inhabitants. The late Mr. Marshall, a surgeon of no ordinary attainments, mentioned to me as a fact that fell under his own observation, that in May 1819, he happened to pass through a small village of the Occliseer Purgunnah, when on a tour for vaccination: returning a few days afterwards, he found the place abandoned by the miserable relics of its inhabitants, of whom the exact proportion of five-sixths, or upwards of 80 per cent. had been carried off by the epidemic. In the two instances I have alluded to above of the 2nd battalion 3rd regiment in November 1819, and of the 2nd battalion 2nd regiment in May 1821, I would suppose, in round numbers, that the cases were at the lowest 25 per cent. or one-fourth of the battalions; and that the casualties were in neither case less than about one-third of those attacked; and who perished, notwithstanding they had far superior attendance than it can possibly be imagined the very large majority of the 14,650 people in Bombay enjoyed, and yet of whom only 6⅖ per cent. died.

Under all these circumstances, it may be safely assumed, that all the explanatory remarks of the Madras Report should be applied to the tables of cases exhibited as the criterion of disease and mortality in the Bombay Report; whence it will be fairly deduced, that either a very large proportion of the cases stated as Cholera must have been false

alarms, or, on the other hand, that it was a most unusually mild visitation of the epidemic, and that the practitioner must prepare himself to expect a mortality of nearly one-third on the general average of cases that fall under his observation, in the ordinary malignity of its invasions.

CHAPTER V.

ON CONCUSSION OF THE BRAIN.

HAVING stated it as my opinion, that a nervous derangement, similar to concussion of the brain is the Lethi fabricator in Cholera, and that the purging and vomiting are sanitary processes, it becomes necessary that I should exhibit a series of analogous circumstances; or perhaps a theory so seemingly paradoxical may be neglected as unworthy of attention, simply for want of that illustration which it appears capable of receiving from other disorders. This, too, is the more called for, since it is only by such comparison that a disease of so rapid a career as Cholera, and where there is no leisure for clinical speculation, can possibly be studied.

The history of concussion of the brain resulting from mechanical violence, general shock, or local injury, must be very different from the description of the same effect produced in a manner so widely different, as when it follows or accompanies high nervous excitement or acute disease; but a reference to

these symptoms will be useful; and at the risk of being considered tedious, and of dwelling needlessly on extraneous matter, I will enter upon the subject of concussion of the brain, or at least what I am in the habit of considering such, in order to explain to the reader my meaning when I use the term.

Celsus distinctly states vomiting to be a symptom of injuries of the brain or its membranes: his expression is, "fereque bilis vomitus insequitur," mentioning it as the very first symptom; and he further alludes to "*acris* vomitus," and "maxillarum atque cervicis rigor," as being "mala signa."

An Indian library is of necessity miserably deficient in resources for illustration, and I must calculate much on the reader's indulgence on account of the narrow circle of my means of quotation. I hope, however, that the authorities which it is in my power to produce will be found sufficient for the purpose. They are Percival Pott, Bell, and Abernethy; and as my opinion, founded on the facts I have witnessed or heard of, may differ from my reader's, he will, by seeing the varying theories of those three great authorities, be induced, perhaps, if he have proceeded so far, to hear my argument to the end before he condemns it.

The first of these able and useful writers, after treating of compression, proceeds to this part of the subject in the following terms:—

"Of commotion or concussion of the solid parts of the brain, we have only a negative kind of proof;

and therefore are still more in the dark than we are with regard to extravasation.

"Very alarming symptoms, followed sometimes by the most fatal consequences, are found to attend great violences offered to the head; and upon the strictest examination, both of the living and the dead, neither fissure, fracture, nor extravasation of any kind can be discovered. The same symptoms and the same event are met with, when the head has received no injury at all *ab externo*, but has only been violently shaken; nay, when only the body or general frame has seemed to have sustained the whole violence. It is a commonly received opinion, that a concussion of the brain is always in proportion to the resistance which the cranium makes; that if the latter sustains a considerable degree of fracture, the former is but slightly injured, and the concussion is greatest when the skull is least hurt. This may sometimes be the case; violent and even fatal commotions of the brain happen when no injury has been done to the skull, and very large and terrible fractures are sometimes unattended with any symptoms of concussion: all this is sometimes true, but the position can by no means be admitted as a general principle, whereon to form our judgment, or whereby to regulate our conduct, experience frequently contradicting it.

"The symptoms attending a concussion are generally in proportion to the degree of violence which the brain itself has sustained, and which indeed is

cognizable only by the symptoms. If the concussion be very great, all sense and power of motion are immediately abolished, and death follows soon; but between this degree and that slight confusion (or stunning, as it is called) which attends most violences done to the head, there are many stages. Sometimes a concussion produces the same kind of oppressive symptoms as an extravasation, and the patient is either almost or totally bereft of sense: at other times no such symptoms attend; but the patient gets no sleep at all, has a wild look, an eye much like to that of a person who has long watched through apprehension and anxiety, talks much and very inconsistently, has a hard labouring pulse, some small degree of fever, and *sometimes an inclination to vomit.* If not restrained, the patient will get out of bed, and act with a kind of frantic absurdity, and appears in general much hurt by a strong light. A debility of understanding, an idiot look, a failure of memory, a paralytic affection of some one part or limb, the loss of sense, *spasm*, resolution or rigidity of some one part or muscle, are often the consequence of it. These complaints are sometimes cured; but some of them do sometimes remain through the rest of life."*

Mr. Pott then proceeds to show the difficulty of distinguishing betwixt concussion and compression of the brain, points out the favourable diagnoses first, and then the unfavourable. Among the symp-

* On Injuries of the Head, p. 268.

toms here enumerated, are—"Sometimes a delirium, and sometimes frequent spasms, disorder and shake his whole frame; his countenance is flushed, and has a yellow tint; his eyes lose all their natural brightness, and seem sunk in their orbits; and his rigors, which were at first slight and few, become more frequent and more severe as his dissolution approaches."*

Mr. Abernethy, in referring to this work of Mr. Pott, very correctly observes, that most of the symptoms he details are indicative of inflammation or compression rather than concussion; independently of which it should still further be kept in view, that it is the history of what results from very violent injuries, and all the cases which follow are of severe accidents, such as falls and blows, where the symptoms marked, and dissection demonstrated actual derangement of the contents of the cranium. One case only, the thirty-seventh, dwells particularly on the point which I mean to argue, of acrid vomiting being a marked symptom, and appearing as the sanitary process of nature to relieve the shock. The circumstances, however, to which I am attracting attention are very different to this; they are the result of a slight but startling accident, accompanied by no instantaneous decisive consequences, and where the subsequent appearances are incontestably occasioned by concussion alone. My argument, therefore, receives no further illustration from the writings

* On Injuries of the Head, p. 272.

of Mr. Pott than as they show his opinion of the opposite characters of concussion and inflammation, and that death may follow the former, without there being any organic injury of the brain perceptible on the most careful dissection.

Mr. Bell enters more fully into particulars, and states, as well as Mr. Pott, that a person may die of concussion, without the most accurate examination being able to discover any traces of organic derangement.* He then proceeds to remark:—

First,† that concussion of the brain operates upon the system in nearly the same manner as *syncope induced by fear, inanition,* or any similar cause; and asserts, that positive debility is the predominant feature of the disorder: he confesses himself totally unable to explain the true nature or real cause of the debility; but asserts that he is convinced of the fact from repeated observations, and that whoever pays due attention to this branch of his profession, will find that it is so.

Second, in mentioning some symptoms of concussion, such as slight pain in different parts of the head, tinnitus aurium, &c. he observes, that the patient is "frequently able *to walk about, even in high degrees of these symptoms.*"‡

Thirdly, he sums up in conclusion with this emphatic sentence:—"I have already endeavoured to show, that concussion of the brain appears to operate by inducing debility of the whole system: our reme-

* Bell's Surgery, vol. iii. p. 525. † Page 327. ‡ Page 356.

dies, therefore, instead of tending to increase this, as bloodletting very certainly does, should be such as give additional vigour."*

The facts stated here are all perfectly correct; but the theory grounded upon them is exactly the reverse; and the oversight is this, that the author merely attends to the shock which nature has received, and does not remember that such shock is merely nervous, and not inanition, and that its secondary process, if the patient survive at all, must be discharged either by a fever, or a critical evacuation, in either of which alternatives his stimulants must prove the most injudicious practice he could propose.

For the rest of his observations, I consider them in the same light as Mr. Pott: they allude only to severe injuries from violent mechanical shocks; but when the resemblance of the symptoms to syncope is mentioned, though only an illustrative simile, nor intended to be literally understood that syncope itself is concussion of the brain; the fact on which I purpose to hinge one of my arguments is brought to view precisely as I wish myself to exhibit it; although I go further than my author, by inquiring that, "if syncope from fear be not concussion of the brain, what is it?"

Mr. Abernethy commences his observations with the remark which I have already alluded to, that the cases given by Mr. Pott are chiefly of that kind in which it becomes difficult to decide whether the

* Bell's Surgery, vol. iii. p. 359.

symptoms of inflammation or concussion be the most prominent. His theory is, however, nearly diametrically opposite to Mr. Bell's in the treatment.* After stating his opinion that the disorder had hitherto been carelessly described, he particularises two cases as specimens of his idea on the subject, which, however, like all Mr. Pott's, are nothing more than the result of severe injuries, and to which his own objection is nearly as strictly applicable. Very different, however, is the case which he gives afterwards as a sample of the many like incidents which he had himself seen, and which he considered to have been omitted in books on surgery, simply because the writers seem to have thought them too insignificant for registry; but it is from such, and such alone, that we are able to gather correctly what the symptoms of concussion are, and to ascertain them, as distinct from inflammation or compression. The case is much more valuable than anything I could write; but I wish it had related the history of any other species of accident than a blow on the head. How often have I met the same train of symptoms after strokes, where the head has most certainly not borne the brunt of the misfortune! Notwithstanding this, I prefer republishing Mr. Abernethy's, to giving a case of my own, at this part of my argument. Mr. A. observes:—

"I have seen so many additional cases of concussion, so exactly corresponding to those formerly

* Abernethy on Injuries of the Head, p. 67.

related, that I am more fully satisfied of the truth of the representation which has been given of them. I have in consequence been led more and more to wonder that a contrary plan of treatment to that which has been so uniformly successful, could ever have been recommended, and to conjecture what cases could have occurred in which such opposite practice must not have been strikingly prejudicial. Probably I may point out such cases; and as I do not find them in books of surgery, because they have not been deemed sufficiently important, it may not be improper briefly to mention them.

"A young lady was stooping in a closet, and, rising up suddenly and forcibly, she struck her head against a shelf. The blow occasioned extreme pain, but did not stun her. She went down stairs without mentioning the accident, and after sitting with her friends for a short time she fainted. As it was in the evening she went to bed, but could not sleep for pain in her head, and the next day her pulse was very languid and her extremities cold; she complained of great pain when the scalp was slightly touched, and said there was a sensation as if cold water was dropping on it. She took some gentle opening medicine, which relieved these symptoms, but she could not sit up for many days, and it was a considerable time before she recovered from the languor which the blow had occasioned; but neither fever, nor failure of sensation or of intellect took place, in the slightest degree. I

have seen many similar cases, and in one the patient said his sensations were such as would induce him to believe that his brain was loose, and moving on the inside of his skull. All these cases were relieved by slight evacuations, as gently opening medicines, leeches, or cupping, though I am inclined to believe that a contrary plan of treatment, which has been recommended in concussion, might have been pursued without material detriment. Cases of this description are to be considered as arising from nervous symptoms, attendant upon slight injuries, rather than as effects of serious concussion. Mr. Pott, in speaking of concussion, says, that he never knew patients recover from the immediate consequences of it without an imperfection in some sense or part of the body remaining.* The result of my own experience has been very different; and yet I am ready to believe that such events may not unfrequently take place, as I know, from examination, that the substance of the brain is sometimes lacerated and disorganized in violent concussions. I have, however, examined other cases of fatal concussion, without observing any such lesion of the substance of the brain."†

Such is the case which Mr. Abernethy adduces as a specimen of that trifling degree of injury which

* There seems some error here respecting Mr. Pott's opinion. I have quoted a passage which is probably the one alluded to, but do not understand it to bear this meaning.

† Abernethy on Injuries of the Head, page 87.

even mismanagement cannot exasperate to a fatal termination; but though unwilling to differ from so high an authority, I am slow in believing the case to be unimportant when the extremities are cold; and although I agree perfectly that it is an instance of simple concussion, I am equally satisfied that under any opposite treatment to the judicious practice of Mr. Abernethy, it would have terminated in a very different manner.

Mr. Abernethy's surgical opinions are, perhaps, the most strictly philosophical tenets that have ever been offered to the profession; the more closely they are studied the more they will be approved as true to nature, founded on the operations of nature, and operating with nature. It is wonderfully satisfactory to have him as an authority to refer to; but I must caution my reader of the present or the rising generation, that we have no part nor share in the kindly charities of generations passing or past, and need not trouble ourselves with the feelings of respect with which Mr. Abernethy treats the theory he explodes. Their authors were either of his own standing, or his esteemed or respected predecessors; and what was natural and admirable in him, is in no respect called for from us. We may, therefore, dismiss without ceremony the idea of exhibiting stimulants only in concussion of the brain.

Mr. Abernethy, after dividing concussion of the brain into three stages, one in which the patient lies stunned, another in which he partially recovers, and

the third where the constitutional reaction of inflammation succeeds, most justly observes:—

"These several states vary considerably in their degree and duration; but more or less of each will be found to take place in every instance where the brain has been violently shaken: whether they bear any certain proportion to each other or not, I do not know. Indeed this will depend upon such a variety of circumstances in the constitution, the injury, and the after treatment, that it must be difficult to determine."*

To return to Mr. Pott: in his essay on fractures of the cranium, after saying that the question is often asked, "What are the symptoms of a fractured cranium?" and that "there is hardly any one who does not, from the authority of writers, both ancient and modern, answer, vomiting, giddiness, loss of sense, speech, and voluntary motion, bleeding at the ears, nose, and mouth, &c. and then giving, as a note, a passage from Celsus, enumerating these symptoms, and asserting, "non nisi osse fracto eveniunt," he proceeds to argue at great length on the symptoms of sickness, giddiness, and vomiting, as being totally distinct from the mere fracture, and that they are the signs of concussion of the brain, and quotes two striking passages from Paaw and Le Dran, which show their unqualified opinion to the ame effect.†

* Abernethy on Injuries of the Head, page 84.

† Ibid. vol. i. p. 132.

This, then, brings me to the close of this part of my discussion, by proving that all parties, though at variance respecting their plans of after treatment, agree at least on this head, which alone concerns me, that an inexplicable and undefinable prostration of strength, accompanied by vomiting, and a demi-stupefaction, from which the patient can be aroused, but into which he immediately relapses, form the distinguishing characteristics of concussion of the brain, totally distinct from inflammation or organic injury, to be detected by dissection.

Concussion of the brain following diseases or poisons which operate upon the nervous system, cannot be expected to show itself with such clearly defined symptoms, as when it results from positive mechanical injuries; but, when those well known characteristics are discoverable, however faintly, yet when all are present and combined, it seems natural to suppose, from their appearance, that though the causes may be different, the diseases are the same.

In such diseases, therefore, four stages will require to be described; and the first must be the progress of the disorder until it attains the acmé at which the nervous system, being no longer adequate to the excitement, concussion takes place. The how, or why, I decline noticing, beyond frankly confessing, I know nothing about it.

The cases to which I am now to proceed, are very nearly of the kind respecting which Mr. Abernethy has observed, that they are passed over by surgical

writers as unworthy of attention: he is clearly of opinion that the omission is a neglect, and he is right. When a man is shot through the head, he dies upon the spot, and the coroner's jury are at no loss for medical evidence, nor do we consider it a case whence any thing may be learned of the practice of surgery: but without going altogether to such extravagant lengths for a simile, I must observe, that the generality of cases which are published are so frequently of so extreme, or anomalous, or idiosyncratic a character, that I am at a loss to understand their practical use, beyond exciting our admiration of the narrator's skill or talent; or their tendency, except to puzzle simpletons who may have to practise, and to confound the wise who may have to be practised on.

I will first speak of what I term incipient epilepsy, which I think I have frequently seen in two forms; the first, where slight concussion of the brain takes place, but not of sufficient importance to cause much derangement of the constitution: the second, where the disorder is severer, and the fit more marked; but the constitution is relieved, and the disorder discharged, by what in India is called a bilious attack; that is, by a severe paroxysm of vomiting and purging. The latter may be considered as not at all unfrequent betwixt the tropics; the former is not so often observed, as the patient himself considers his own knowledge of his constitution adequate, and prescribes for himself, a calomel pill and a dose of

salts! or occasionally, when the surgeon is called to attend a fever or dysentery, the history given is, such a debauch, or some over exertion, or accident, or exposure, was followed by a restless night, and nasty chilly feel, with an odd sensation like water running down the back, and a ringing in the ears: but, saith the deponent, I thought nothing about it, and only just took two tumblers of hot brandy and water rather strong! which relieved the disagreeable feelings, and all seemed well for a day or so, when they again returned, yet would not have been much cared for, nor the doctor troubled, but for this unlucky fever! I have, however, among others less marked, seen two cases of such striking features, that I think the reader will profit by my narration of them.

The subject of the first was a medical officer, who had served more than twenty years in India, a tall robust man, and of whom several anecdotes were told, so perfectly characteristic that it may not be deemed irrelevant to mention one, which is, that being without a companion in an Indian village on a journey, and having the misfortune to suffer a compound fracture of the thigh by a fall from his horse, he had self-possession sufficient to instruct his servants how to set the bone, and of course to assist them in doing it; and though his gait afterwards betrayed, by a slight lameness, the usual awkwardness of self-surgeonizing, yet his surviving the accident, and much more his being able to walk at all, were striking proofs of the iron temper of his mind.

This gentleman, in October 1817, spent a few days at the station where I then resided, and being taken ill in the night, sent for me. I found him sitting on his bed-side with his legs nearly knee-deep in a bucket of water, heated to the highest temperature he could bear, but which had no effect upon his general warmth; he was icy cold, though without any tendency to shivering or shuddering; he felt no pain, only an indescribable anxiety; his countenance had the most ghastly, sunken, shrivelled appearance, and corpse-like hue that can be imagined. The attack, he said, had come on in the evening, after drinking a dish of tea too hot, which had brought on a momentary feeling of feverish heat, followed by this collapse. He described himself to be subject to these fits,—that they came on at irregular intervals,—lasted six or eight hours,—continued the longer for any attempt to restore animal heat by cordials or hot drinks, and he thought them best let alone!—that he felt no acute or positive pain, any further than the sensation of being frozen and a disagreeable ringing in the ears, and an uncontrollable restlessness. I recommended an emetic, and shall never forget his air and manner when he replied, "Stop, stop, I have not mentioned all: you ought to know that they are of opinion in Bombay that the arteries of my brain are ossified; perhaps if you had known this, you would have suggested decapitation!"

I was in no humour for trifling, being firmly convinced the patient had not many hours to live, and

cautiously warned him of danger, and the advisability of "setting his house in order," in preference to unseasonable mirth.

"Certainly (said he) it is very puzzling when one's very heart feels as cold as a frog: but I am not dying, my strength is not failing, I feel no faintness, I could lift a weight, or make any exertion which required only a couple of minutes, but I cannot continue any. I tried to walk about to warm myself, but my head became giddy, and I was glad to lie down, and found myself the worse."

The further management of the case fell not under my observation; and a few days after the patient left us, and proceeded to Europe for the recovery of his health.

I never saw collapse so completely formed as in this case, from any other cause but a mortal wound; but the symptom in that death-like extreme has become familiar, since the epidemic Cholera became prevalent.

The next case occurred to an officer who had been about twenty years in India, and who, about six weeks after the circumstance to which I allude, died in a fit; nor could dissection detect any organic disease. We had many years before been very intimate, and served in the same battalion; but he had been promoted on the staff, and I had been transferred to other corps, nor had we met during that period. I was shocked to see his altered look; and he informed me that he was paying, by a broken con-

stitution, the penalty of a youth of revelry, and among other circumstances, that he was liable to cold sweats coming on without any assignable cause, the effect of which was, that every attack left him so weak he was unable to sit up for the day following; that the cold without ague shiver, was intolerably painful, and a sensation as if his head were filled too full, or its contents were swelling. I begged him to send for me when the next attack came on, and strongly recommended change of climate, and reprehended a course of exciting and stimulating tonics which he was pursuing. He sent for me the same evening, being taken ill, and I found him nearly in the state described above, collapsed as it were, and bathed in perspiration. He felt and looked a corpse, but was collected in himself, and answered every question immediately. I endeavoured to bleed him, in which I finally succeeded, though it cost me more than two hours, to extract drop by drop, about sixteen ounces of blood; in fact I was obliged to open the vein of the right arm as well as the left; for the first arm that was operated on became so painful, from the pinching and chafing to which it was subjected, to force out the blood, that it was beyond endurance, and he begged me to open the vein of the opposite arm. The pulse rose and natural warmth returned. In a few days he perfectly recovered his strength; said he had not been better for some years past, and entered into all the conviviality and gaiety which had particularly distinguished his early career.

He was dressing for a dinner party, when, feeling as he stood at the washing table the approach of the fit, he reeled to a sofa, on which he expired in a few minutes.

Both these cases may, I think, be considered as instances of commotion, or concussion of the brain, produced by the high nervous excitement of an epilepsy, whose virulence was met and discharged by the healing strength of nature; so that it did not reach the paroxysm of convulsion.

Whether right or wrong in such conjecture, I know not, but having seen the same train of symptoms, I have regarded them to indicate the same affection; whether arising from smoking tobacco by inexperienced young men, from the vigil and drunkenness of midnight orgies * in irritable constitutions, and from excess of venery; and what is still more worthy of observation as a surgical fact, from excessive heat of climate, where the appearances, to one unaware of the case, indicate exhaustion and debility, but where bloodletting restores the equilibrium of the circulation and natural warmth, by relieving the nervous irritability. The latter circumstance demands a serious consideration; for the disorder seems to be coup de soleil, under an excitement inadequate to form the disease fully, a milder attack, in short, than where it is perfectly developed, and receives incontestibly its own appalling appellation, and may be

* See an interesting paper on delirium tremens by Mr. Playfair, in vol. i. of the Transactions of the Medical Society of Calcutta.

acknowledged without difficulty as concussion of the brain.

The next class of cases where the epileptic or cerebral excitement is reduced and carried off by vomiting and purging, is of so mixed a character, betwixt epilepsy and coup de soleil, that it seems difficult to describe them so accurately as to remove doubts from the reader's mind; nor should I myself have been so perfectly convinced of the true character of these cases, had I not known a patient who, being subject to these attacks during a period of seven years, suffered five of them, three of which came under my observation; the most perfect accuracy of knowledge of symptoms was consequently acquired, and the frequency of the paroxysms seemed to indicate a constitutional, rather than accidental disease.

The first and second of these need not be described: in the first place, because I did not witness them; and next, that they were precisely similar to those that followed.

The third attack occurred about a year after the second; it happened on a pleasure party, where, however, he had undergone no great degree of fatigue. He was brought home under the effect of the third stage of the disorder, that is, purging and vomiting violently. The collapse was not remarkable, nor more than might have been looked for accompanying such inordinate evacuations; and he being a strong powerful man, and no bad symp-

toms appearing, diluent mucilaginous drinks, and an opiate enema, and a rhubarb aperient guarded with opium, administered when the stomach became settled, was all that was deemed necessary, and no disagreeable feeling continued beyond the following day.

The next attack occurred after the interval of a year. I saw the whole of it, except its actual accession, and never saw a more clearly marked fit of epilepsy. The patient appeared in perfect health when our party sat down to dinner, at eight in the evening; but he observed that he had been indulging at tiffin,* and ate little. During our meal the post arrived, and brought some disagreeable news, which greatly distressed him; but he remained at table about half an hour longer. Upon the company adjourning to the drawing-room he went home. In a few minutes I was summoned by his servants; and as their account was alarming, I begged another medical officer who was present to accompany me. On reaching his house we found the patient perfectly senseless, but tossing himself about violently, so that the strength of several men was requisite to keep him on a couch; and that con-

* Anglice, luncheon. Indian meals are nearly what the courtiers of good queen Bess would approve. Dinner at two, and supper at eight, are realized here, only that the latter bears the name of dinner, and the former, which is in general the most substantial meal, is termed tiffin, a word derived from the Arabic, تفنن pastime, amusement, and used in Persia for eating a light meal without appetite.

vulsive expiration which is made with a hissing kind of noise, with foaming at the mouth, was strikingly marked. I immediately opened a vein, and extracted oz. xxiv. of blood: the relief was immediate. He soon recognised us, and wondered what had happened; but his faculties of thought continued under the control of disease, for he spoke and acted like a man overpowered by some horror or shame. Scarcely, however, had he recovered himself so far, ere he felt sensations which induced him to hasten to the privy; but before he reached it he fell upon the ground, and without our having a moment of leisure to remove him, he was beyond measure copiously evacuated by vomiting and purging, the two discharges being simultaneous. and cast forth with a violence and rapidity of which it would be difficult to convey an idea. This discharge continued for full twenty minutes, the first evacuations being half digested food by vomit, and dark fæces by stool: and in the end they became the dark brown coffee-grounds kind of secretion which marks Melæna. The treatment of this stage was very simple,—warm diluent mucilaginous drinks, and opiate enemas; and when the discharge by vomit ceased to be dark a pill of camphor and opium was given, and followed, when the stomach seemed tranquil, by a full dose of castor oil and tinct. rhubarb. The discharges moderated within an hour, and ceased altogether within three hours; the patient fell asleep, and awoke after a night of troubled rest, with

no remains of disease but debility; so that two or three days languor was the only bad effect of an attack of as alarming an appearance as can well be imagined.

The last attack was again different; it occurred during the extreme heat of May. He had left home late in the evening in perfect health, to visit a friend in a native camp about ten miles distant from his place of abode. He reached the tents, partook of refreshment, and went to bed perfectly well, but awoke a little after midnight in the paroxysm of disease. He did not become insensible, but was cold as death, with a profuse clammy perspiration pouring from him. The Epidemic Cholera was at the time raging in the camp, in which, however, there was no medical officer, nor in fact any European except his friend, who could imagine nothing else to be the matter but Cholera, and was anxious to administer "*the dose*;" but the patient positively refused to be dosed except with warm brandy and water, insisted on a palankeen being procured, and instantly had himself conveyed home. When I saw him about seven o'clock he was scarcely sensible in appearance; but on being interrogated could give a correct account of what had happened to him. The collapse was completely formed, except that the pulse at the wrist beat sharply, and with a thrill like the vibrating of a small cord. His colour was livid and his look ghastly, and his whole body cold as death. I at once opened a vein, and was greatly

astonished at finding the blood gush forth in a full stream, which, from his collapsed state, I had not expected; and so far from any difficulty in procuring blood, I found I could not stop it until oz. xxx. had been extracted. As it flowed he became perfectly sensible, and said that a gentle glow seemed reviving in his *inside*, and diffusing itself through him. This was followed by a sensation of urgent sickness; but it did not increase to actual vomiting, though he would call for the washing bason every time he moved. Three or four copious alvine evacuations rapidly followed, by which he was so perfectly relieved, that in less than four hours he had dressed himself, and was walking about. Languor and debility only remained, excepting a feel of tightness about the head: for this I administered a mild mercurial and rhubarb aperient at bedtime; and this, though accompanied with a grain of opium, and two grains of camphor, to prevent too severe operation, acted so powerfully, that he declared he had never undergone such an evacuation; but the effect was perfect relief, he had no remains of his indisposition, but the feeling which was to be expected after losing blood.

I mention these recurrences of disease in one individual, in preference to detailing other cases, because the second attack which I saw, was so clearly marked a case of epilepsy, and the last was so precisely similar to the cases of collapse without convulsion described above, that I consider it illustrative

of their real nature, when it occurred, as in this instance, to a person constitutionally subject to attacks of an epileptic character. No one I think will doubt, on the perusal of them, but that stimulants in those cases of collapse would have been injurious; and that, when the oppression on the constitution had been relieved by abstraction of blood, the purging and vomiting were a sanitary process of nature.

So much has been said upon snake poisons, that I am almost afraid to refer to the subject; but I will venture to do it very briefly, it being in some degree illustrative of the inexplicable collapse of Cholera; for it is as difficult to explain, why a patient, by the inoculation of a drop of morbid matter, should so immediately suffer the total deprivation of animal heat and powers, as that a sudden shock, by inducing concussion of the brain, should bring about precisely the same phenomenon. I do not, however, purpose to argue the question; for, independently of my feeling that I am wandering from my subject, I have been, during my residence in India, either too indolent in seeking opportunities, or too unlucky in not meeting with them, to have obtained from my own experience a clear idea of the case; but I have witnessed several casualties, and heard the histories of others from eye-witnesses, and, moreover, I saw the progress of the case of a carpenter, who died in St. George's Hospital, in London in 1808, (or 1809, I forget which,) from the bite of a rattle-snake kept for

exhibition in one of the itinerant menageries. The treatment was the same as what is now universally practised in India; the most acrid stimulants, which, from the benumbed state of the nerves of gustation, can be exhibited, at a strength almost caustic. I cannot admire this practice theoretically; but, as I said above, my limited experience prohibits my speaking thereof practically. I scruple not, however, to assert decidedly, that though the same system is acted on, it is not the best treatment, after the sting of such reptiles as are not in general fatally venomous, such as scorpions or centipedes: in these the symptoms are precisely the same, and nearly to as extreme a degree as after mortal wounds, viz., cold sweats, intermitting feeble pulse, or no pulse at all in the wrist, convulsions, and a burning sensation in the head, and sometimes, in irritable constitutions, death. This exact similarity, which indicates the same practice for the minor cases as for the severer, may perhaps suggest a different treatment for the more dangerous cases, when the less important ones are found to do better under another system.

Very shortly after my arrival in India, I heard it said that a writer in a Madras paper had stated, that Ipecacuanha was a specific in scorpion poison, and that the treatment was a full dose internally, and a poultice of the powder to the wound. The latter circumstance is a foolish piece of empiricism, and shows how a discovery may be stumbled on, without any merit

in its author: for it is clear he did not see his own suggestion with the eye of a philosopher. I tried* it, as I try everything that may do good, and cannot do harm! and can assure my reader, from experience, that if in such a case, he administers an antimonial emetic, and applies a hot poultice of any kind to the wound, the cold sweat and collapse give place at once to natural warmth and a wholesome perspiration, and the local pain gradually subsides.

The effect of a shock from a mechanical injury to the head, that is to say, concussion of the brain, has been likened to syncope produced by fear, in fact to the effect upon the constitution following any violent nervous agitation whatever; for anger, love, jealousy, surprise without any fear, and even joy, will all, when in extremes, produce effects as decided as either fear or grief.†

It is my object to convince my reader, that the collapse in Cholera is induced by concussion of the brain produced by some unknown cause, and that the purging and vomiting are sanitary processes. I may, therefore, be permitted to show, that passions

* See note C, and Dr. Mead on Viper Poison. He recommends emetics, and perhaps the hint of the Ipecacuanha was borrowed from him.

† How amusing, and how true to nature is the following passage from Pepy's Memoirs. I quote from the Edinburgh Review:—"But that which did please me beyond anything in the whole world, was the wind musique when the angel comes down; which is so sweet that it ravished me, and indeed, in a word, did wrap up my soul, so that it made *me really sick, just as I have formerly been when in love with my wife!*"

of the mind operate so as to occasion collapse, and that nature shakes off the disease, and the oppression it occasions, by a similar action.

I fear I shall be supposed to descend below the dignity of philosophy, when I allude to the more common effect of vulgar fear, so inimitably described by Cervantes, as occurring to the matchless Squire Sancho, in the tremendous night adventure of the fulling-mills. What, I would ask, is it that, in a case of extreme terror, occasions a sudden paroxysm of vomiting and purging? The clownish jest one hears in every village altercation proves that this must be a common occurrence. I wish, therefore, that such as think this circumstance below the attention of a surgical writer, would condescend to explain it in apt philosophical phraseology. When a person dies of fear, or when a poor creature becomes insane, a timid idiot, after an agony of terror, perhaps in early childhood, and never recovers through life, there is no difficulty in understanding that the shock has reached the brain; but how, unless by concussion from inordinate nervous excitement? And when the trembling of the limbs and cold sweat, of an oppression from fear, are relieved by the vulgar termination now alluded to, how are we to explain it, but that such is the course of nature in all cerebral affections unaccompanied by inflammation? And, therefore, as it operates to relieve the minor disorder, it may be presumed that it is sanitary, and equally intended to relieve the more serious

evil, when it appears as a sequent of severe accidents or acute disease.

I will describe one case out of the many that have fallen under my observation; and though undoubtedly an extreme one, I do not doubt but that milder instances will be familiar to my readers.

I was (very many years ago!) one of a party of young men on a pic-nic hunting party, where, after a morning's enjoyment, we rested at noon for refreshment in a ruined Mahomedan tomb. The building was very extensive and very lofty, and like all others of the same order of architecture, was what I think the Italian architects term a lanthorn, that is, with a vast number of open arches in every front, and exactly opposite to each other, so that when seen at a distance, it has more the appearance of the skeleton of a building, run up quickly before an apprehended change of weather, than a finished work. Whilst our meal was preparing, some of the young men were chasing each other up and down the narrow slippery stairs of the tomb, from story to story, and chamber to chamber; but the majority of the party were seated in the uppermost room, enjoying the beauty of the prospect. Suddenly the noisy revellers, to whom I have alluded, burst into the apartment full cry, and, rushing through it, descended by another staircase opposite to the one they had ascended by. One of them, outstripped by his playmates, entered the room, just as the rest were out of sight, and the sounds of their shouts misleading him,

when hurrying at full speed, in his ignorance of the geography of the doors and windows, he ran with all his might at a window, nor could he correct his mistake until he stood balanced on the very brink of what might be termed its threshold. Never were a company more petrified with horror than ourselves: he appeared to all human help lost, for in our alarm he seemed actually to be beyond the window, which we knew to be almost ninety feet from the ground, and a stone pavement to fall on. In this dreadfully hazardous situation the young gentleman remained a second or two, apparently rocking backwards and forwards, as if losing and recovering his balance, until at last, uttering a faint shriek, he fell backwards into the room. On lifting him up we found him cold and faint, with a clammy perspiration streaming from every pore: he could answer every question put to him, but otherwise seemed unconscious of what was passing; and as he sat on the floor stared wildly around with the most frantic and bewildered look that can be imagined. I fully apprehended the loss of reason, and that the fright had affected his brain. There were no means of bleeding him, not being able to muster even a penknife in the party; but he happily soon complained of nausea, and an inclination to sickness, when I gave him a dose of salad oil and warm water to drink, which immediately brought on convulsive action of the stomach and bowels, each vomit being simultaneously accompanied with that species of alvine discharge which

the Preface to the Bombay Report on Cholera describes, as being more like the forcible ejection from a syringe, than the ordinary operation of the rectum. This continued for about half an hour, when the distressing symptoms abated. Conjee (rice-water) only was administered, and as soon as we could get the poor fellow home, a mild dose of castor oil with tincture of rhubarb, guarded with a few drops of laudanum, to carry off the remains of the diseased secretions, and excite the viscera to healthy action, was all that was found necessary. Had not, however, the critical action of the stomach and bowels relieved the oppression on the brain, by such timely evacuation, I cannot but believe the sufferer would have been deprived of reason, or have suffered some organic injury of the brain by the shock. I suspect the fright he underwent to have been of all others the most harrowing. Every one knows the sensation of night-mare, and the indescribable feeling on looking over the parapet of a cathedral tower: there are few sensations more distressing than the first, or than might be imagined of the latter, if it were possible for one to be brought unexpectedly to the view of it.

In reflecting on this case, I would ask, if this disorder were not concussion of the brain, what was it? and if the critical evacuations were not sanitary, what were they? and how occasioned? The quantity discharged was out of question ten times as much as the bowels could have commonly contained, or at

least, had they been so loaded, the patient could not have attempted the active exertions he had been pursuing all the morning. The secretions must have been going on in the intervals of discharge: and if it be said, in opposition to this, that the mass secreted exceeded the secreting powers, I will refer to the kidneys in a common case of free drinking, where the operation, undeniably a natural and sanitary process to relieve the blood of its watery particles, is at times so singularly rapid, as to give some physiologists an idea of there being a more direct communication betwixt the stomach and kidneys than the commonly received opinion, the circuitous channel of the sanguineous circulation.

I have now brought this part of my subject to a conclusion. When Celsus, speaking of wounds says:—

"Igitur, corde percusso, sanguis multus fertur, venæ languescunt, color pallidissimus, sudores frigidi malique odoris, tanquam irrorato corpore oriuntur: extremisque partibus frigidis, matura mors sequitur." The latter symptoms are explicable from the hæmorrhage; but when we see them in Cholera and concussion of the brain, we must be satisfied, like our forefathers, to regret our inability to lift the veil of nature; but I think I have shown them to be the distinguishing features of both diseases, proportionate to their malignity; and that there is no philosophical explanation for the suddenness and fatal character of the symptoms of Cholera, but by referring them to concussion of the brain.

CHAPTER VI.

ON THE NATURE AND CHARACTER OF CRITICAL DISCHARGES.

It being my endeavour to show, that concussion of the brain is the Lethi Fabricator in Cholera, and that the purging and vomiting are sanitary processes, it becomes necessary, after having quoted the highest authorities to prove the analogy betwixt the collapse of Cholera, and the constitutional, but not mental, syncope of concussion, that I should next discuss the nature and character of critical evacuations in general, in order to apply the experience of my reader, and the reasonings of distinguished writers, to prove further the analogous operation of nature in those discharges, and in the evacuations which constitute the secondary symptoms of Cholera.

They have an annual oration at Caius College, Cambridge, on the improvements in physic, since A.D. 1560,* the era at which the founder flourished,

* "Tot nos præceptoribus, tot exemplis instruxit antiquitas, ut possit videri nulla sorte nascendi ætas felicior, quam nostra, cui docendæ priores elaboraverunt."—*Quinctilian*, lib. xii. cap. xi.

a speech for which the orator receives the sum of 18*l.* sterling. I very much wish these declamations, if they be worth what is paid for them, were published, because I am somewhat incredulous respecting our annual improvement being able to keep pace with annual lauds: nay were I ever to be called on to deliver this speech, I should be apt to set forth, and show, that in some very essential matters, we have not only not improved, but somewhat retrograded, whilst a speculative theoretical philosophy is usurping the place of practical knowledge. Our art, which "profits all," is not, like divinity, dependent on the powers that be, as to its fashion of orthodoxy or heterodoxy. The "divine professors of the healing arts," moreover, hinge not their practice upon acts of parliament, nor is a new library requisite for them every ten or twelve years, as it is, or nearly is, for counsel learned in the law; nor is it likely that we who have been "called succourers and helpers throughout the world," three thousand years and more, should find any variation in the unsearchable progress and development of the two great systems of production and destruction. Our art knows no change in its fundamental truths, and asks only for increase of knowledge as to their judicious application. When the Almighty issued the fearful mandate of man's punishment, "dust thou art, and unto dust shalt thou return," the seeds of death were sown to produce a plenteous harvest of disease in all its countless varieties, and all tending to one termi-

nation, to render dust to its dust. These varieties have been subjected from age to age to the observation of studious minds; and humanity, curiosity, and interest, caused that observation to be close and accurate. It has been well said, that, "the power to receive and apprehend knowledge is innate. In whatever world the mind exists, it must acquire the knowledge of what that world contains, after its birth; after its senses have begun to act, and be acted on, by the objects and events which it may contain. But although our ancestors were long without the cultivation of knowledge and literature, they were not therefore mentally inert. There is an education of mind distinct from the literary, which is gradually imparted by the contingencies of active life. In this, which is always the education of the largest portion of mankind, our ancestors were never deficient."*

These are facts which we are prone to forget in speaking of hoar antiquity. Our forefathers, in plain truth, knew very nearly as much as we do; nor are we to judge of their practical knowledge, by the scanty relics of a few of the first theorizing speculatists in medical science, who felt the general impetus on the revival of literature. All our discoveries in anatomy, chemistry, and botany, scarcely overbalance our loss of that education which is imparted by the contingencies of active life,—an education which imperceptibly forms the eye to watch, and the memory to treasure, and the resolution to act on, the

* Sharon Turner's Anglo-Saxons, B. i. c. 1.

most minute changes, with a promptitude and fidelity most difficult to be acquired by our modern system of hot-house forcing education, and in our present artificial form of society.*

Better chemists, better botanists, better anatomists, we have in consequence, and a few better surgeons and apothecaries, than flourished of yore; but I am much inclined to question whether our physicians have advanced in fair proportion with advancing knowledge, or if the majority of practisers of physic be equal in general usefulness to their predecessors.

I conceive these observations necessary, as an introduction to the remark, that the ridicule with which we are inclined to treat all idea of planetary influence, critical days, or discharges in disease, and periodical exacerbations and evacuations, has carried us over the bounds of decent incredulity; and in

* The Edinburgh Medical Dictionary, 4to edition, has an excellent article under the head "Brunonianism!" to which I would refer my reader, if he feel his warmth arise at the liberties I take with modern education: the conclusion is to my purpose. Speaking of students in medicine, the writer says:—"In the aphoristical doctrines of "*Bruno!*" they find every subject of this complicated art treated in a much easier, more concise, and convenient manner, than in the old standing authorities of former ages; instead of studying, in well arranged elementary treatises, the nature of every disease, according to its different stages, symptoms, &c., and making themselves acquainted with methods of cure adapted to the particular state of the disorder, as well as the peculiar constitution, temperament, and external conditions of the patient, they congratulate themselves that such diffusiveness is *now* perfectly unnecessary."

rejecting some things which we could not believe, and others which we could not understand, we have cast away much valuable matter, which we shall eventually be obliged to rescue from the oblivion it has been doomed to, as we have no longer the opportunities left us of acquiring those glimpses of knowledge, those casual unlooked-for glances behind the veil, which shrouds the secret workings of nature, which the simplicity and homely habits of old manners would occasionally expose to view, and the unpretending, but straightforward system of observation of the old practitioners, never failed to register, without their troubling themselves with a theory for it to support, or by which it is to be explained.

I consider the work of Dr. Balfour, of Calcutta, on sol-lunar influence in fevers, as a case in point, and a laudable attempt towards this desirable object; but he has either never dipt into the amusing old works on judicial astrology and the occult sciences, or perhaps has joined in the general error of thinking them below his notice. His treatise, however, proves indisputably the planetary influence upon constitutions supported by a natural atmospheric air, and still following natural habits; and I would recommend his work, notwithstanding the prejudice excited against it, to the serious attention of the profession; for though the departure from the simplicity of the olden times has wrought a considerable change in the character of modern diseases, yet are our constitutions still under planetary influence, not-

withstanding that we are habituated to breathe an artificial air in ill-ventilated houses, and to indulge in a long list of what we term necessaries of life, but in fact a series of luxuries,* which a baron of the

* The progress of luxury appears to have been singularly rapid: see Coryates' Crudities, or Travels, in Purchas Pilgrims, for an odd account of the introduction of the decent cleanliness of dinner forks, only two hundred years ago! Our eccentric traveller, for this daintiness of feeding, was nicknamed Furcifer by famous Master Benjamin Jonson. I have a reason for mentioning Coryates, which, if the reader chooses to laugh at, he may, and welcome! Poor Coryates's travels ended in Surat; and his exit, deducting a little for conceitedness of expression, is beautifully and pathetically described by Terry. I resided five years in Surat, during which period my fingers played, many and many a time, with my purse-strings, in the wish of raising a stone in the burial-ground as a memorial that poor Tom's bones were laid in it; for surely it is a pity that one who did so scorn delights, and lived such laborious days, merely through the last infirmity of noble minds! and who reaped no part of the reward of his labours in life, should be denied the fair guerdon of fame after his death, much less that he should lie in some ignoble grave, without any frail memorial to awake the passing tribute of a sigh, when the traveller wanders near his last resting-place; but, alas! in those days my means sorely rebelled against my will, nor are they, in fact, much improved now, and, moreover, I feared the ridicule which might be cast on so humble an individual as myself presuming to take such a step. If, however, two or three well-disposed Christians, who hold in reverence the memory of the famous men that have been afore us, will join in the undertaking, we may do it without scruple as a junto, and the expense need not be ruinous, certainly not much more, if so much, as five hundred rupees; a cheap rate of purchase for "the fame that waits such gentle deeds as these." See a very amusing and well written account of this amiable and indefatigable traveller in the *Retrospective Review*. I cannot bring myself to believe otherwise but that, with all his extravagances, a man whom Terry could lament over so feelingly, and who was the friend

Plantagenet time never dreamt of, and which the paupers of a modern workhouse would mutiny to be denied. But in India there can be no doubt upon the subject. The constitution here, both of native and denizen, is as assuredly under lunar influence, or, what is the same thing, under the influence of the changes of weather which invariably accompany the changes of the planet, as the ocean by its tides proves the subjection of its mass of waters to the conjoined solar-lunar attractions; and I wish whoever will persist in an opposite argument, could feel a very trifling proportion of what I have felt in corporeal suffering from fever, and I am convinced he would consider it a pang sufficiently great to be remembered, to the uttermost limit of his threescore years and ten. The patient has no warning whatever; his nails turn blue, and he finds the ague is upon him; when the doctor comes, tells him it is new moon, or full moon, and bids him be of good cheer! This, however, is the last point on which I would argue: though we have lost much of our means of observing nature's operations by the prevalence of artificial habits of life, much remains open to our view, and may be studied with advan-

of rare Ben Jonson, and Inigo Jones, Sir John Harrington, and Donne, and Drayton, and, in fact, of all the wits of the age, must have been a worthy man, as well as wonderful scholar, and incomparable traveller. At all events, if we owe him nothing further, we probably are indebted to his friendship with Master William Purchas, whose idea of publishing his Pilgrims seems to have originated in his intimacy with Coryates.

tage, if we take nature* only for our guide in the study of nature.

The theory of disease may be thereby simplified to an extreme of brevity, and we shall find that there is no "natural shock which flesh is heir to," but it has its palliative or remedy in the operations of nature. The more unartificial the habits and training of the individual, the more certain and active will these operations be in their occurrence and progress; and the bane of our profession is our unhappiness, in having not unfrequently mistaken those sanitary processes for symptoms of diseases, or for the disease itself, and thereon counteracted, by ignorant interference, the efforts of the healing strength inherent in the principle of life.

As this division of my subject is rather illustrative of my theory than a component part of the subject matter of an essay on Cholera, I may pass on without expressing much regret, that the poverty of my library denies me the means of quoting from the works of the great fathers of the medical art, and that I am compelled to rest satisfied with humbler authorities.

This, however, is of less consequence here, than I should be inclined to allow in most other cases. There is a miserable defect in ancient medical learning, from the ignorance in anatomy, which at that period must have existed of necessity. One of the old writers, I forget which, feelingly complains of it,

* Naturam sequentibus omnia facilia et expedita sunt.—*Seneca.*

and to the best of my recollection, his observation is to this effect that, until anatomy should be more thoroughly investigated, the medical art must remain unfixed and wavering, amid conjecture and guess-work. Nothing exemplifies this more perfectly than their notions of the diseases they termed Melæna, and Melancholia; in which their accuracy of observation appears, by their knowledge of the critical character of the discharge and its sanitary termination; but their ignorance of anatomy is betrayed, by their always considering the secretion to be a hemorrhage poured forth from the liver or the spleen. But we may cease to pity the narrow information of our predecessors, when we call to mind, that the black secretion from the vessels of the villous lining of the alimentary canal, continues to be considered by some, even in these enlightened times, as internal hemorrhage; for it requires no great physiological knowledge to be perfectly sure that true blood can never be discharged into any organ, but by actual rupture of bloodvessels, an accident of too serious a nature to suppose for a moment, that it would not prove instantaneously fatal, instead of acting, as it generally does, critically towards convalescence. When, therefore, we read accounts of this discharge, in which the evacuated matter is represented sometimes even as a firm fibrous substance, or at others as coagulated, grumous, or semi-liquid, we must consider the statements as exaggerated, or as proofs of careless examination. Take, for instance, the following case from

Bartholinus of Copenhagen, where the extraordinary substance discharged can assuredly have been nothing more than the black secretion of the intestines voided with a mixture of undigested food, and in a more constipated form than usually marks Melæna.

"Historia 70.—Grumosus sanguis instar hepatis per alvum excretus.

"Civis quidam Rostochiensis per triennium *avορεξια* laborans sæpiusque de torminibus alvi conquestus, frustra adhibitis variis remediorum generibus, eo tandem 1652 miseriarum devenit, ut emaciatus vixque ossibus hœrens phthisici in morem gravissime decumberet. Accidit demum ut præsente medico D. Sculteto de maximis angoribus quæreretur, coloreque mutato sudor erumperet per totum corpus frigidus, aliaque mortem minitantia signa apparerent. Cum omnes de vita desperarent, alvum exonerare cupiit, sed e lecto surgere prohibitus, pelvi porrecta, per secessum rejecit frustum massæ sanguineæ instar parenchymatis concretæ, fibrisque variis venularum in morem refertæ, ut crediderint adstantes hepar integrum per alvum redditum. Oblongus erat grumus variis quasi ligaturis distinctus. Æger autem dictum factum melius habuit, deincepsque ex voto convaluit, sicut per literas ad me perscripsit Cl. V. M. Michael Lyserus, olim auditor meus, et amicus perdilectus." —Thomæ Bartholini, Cent. 2.

After these observations, I proceed to notice the true character of critical evacuations.

Syncope, from whatever cause, if severe, that is to

say, if fit follow fit, the cause of disorder remaining unremoved, is finally relieved by a critical vomiting, with which process the cold, and other apparently *mortis minitantia signa* disappear. If the reader deny that vomiting is here a sanitary symptom and bring against me that no one yet has thought of prescribing emetics for syncope, I pass on to a stronger ground of argument.

When a patient who has been subjected to marsh miasma, after a certain process of languor, yawning, and restlessness, accompanied with an indescribable depression of spirits, assumes gradually a cadaverous expression of countenance, with eyes engulfed in their orbits, nose pinched, and seeming more prominent from the sinking in of the cheeks; temples hollow; skin wrinkled and shrivelled, and of a hue betwixt blue and yellow; and lips colourless; the ears bloodless, and almost to be termed semi-transparent; and the hands and fingers like the extremities of a corpse many days dead, and in which putridity has commenced its course of discoloration; we feel no uneasiness whatever at this appalling train of symptoms, and call it the first stage of an intermittent. In due time the cold becomes of a more intense severity, the teeth rattle together by the unrestrainable action of the masticatory muscles, the patient shudders as if he would shake to pieces, and a griding sensation thrills down the neck and back, as if a small stream of water were running down, of such cutting chilliness, that it "burns frore, and cold per-

forms th' effect of fire." This, we say, is the cold stage, and it is clearly the stage of disease, for when the termination is fatal, it usually takes place here. Happily, however, if the disease be properly attended to, this is not so frequent as might be expected from the apparent severity of the disorder. But what is the first symptom of the cold diminishing? A nausea! followed by violent straining and vomiting! to which we have no hesitation of attaching the idea of its being a sanitary process, and which, whenever the patient is robust and plethoric, we induce, by administering an emetic at the outset, to hasten and aid the natural ordinary process; nor do we ever find ourselves mistaken in our supposition, that our judiciously affording nature this stimulus and excitement to her sanative course is beneficial to the patient, by shortening the duration of the cold stage. This is our every day experience, and needs neither argument to support it, nor authority to enforce it. No sooner does the patient vomit freely than, in a mild and ordinary case, the deathy coldness yields, the circulation gradually returns, and the hot stage of the intermittent supervenes, as the reaction of the constitution. Now what is that hot stage? Is it that nature, having been depressed below her usual course, resumes her course of action, as it were, with a bound of over excitement? or is it thus that nature works, to bring about the next critical evacuation, which forms the third or sweating stage of the intermittent, by which the train of febrile symptoms are finally to

be relieved? I confess myself unable to reply; but when I see preternatural heat, or a paroxysm of fever, follow every shock or unusually violent stimulus the constitution receives, I cannot but believe that it is a part of a sanative process, and that nothing would be more deleterious than to attempt its termination in any other way than the one pointed out by nature, viz. by promoting the critical evacuation of the perspiratory vessels.

Here then is a routine instance of daily occurrence, and familiar to us all, where first the process of vomiting is a sanative process, an effort of the *vis medicatrix naturæ* to shake off a disease, or a poison inhaled from a polluted atmosphere, which seems to be acting with a malignity that threatens to overthrow as it were, at once, the resources and energies of life; and, secondly, where the consequent reaction of the constitution is again lowered, and excessive action checked and reduced by a critical discharge of the superficial perspiratory organs.

The next point on which I wish to dwell, is Melæna, or the dark secretion, resembling coffee-grounds in colour and consistence, sometimes discharged from the stomach and bowels by vomit and stool, at what we may term the critical diathesis of a low hectic fever sympathetic of serious derangement of the digestive organs. The discharge is much too copious to suppose the possibility of its being contained at one time in the intestines, and must be secreted in the intervals betwixt the ejections and dejections. The

evacuation ceases, and the patient finds himself relieved from the constitutional disorder. Surely then, in this case also, we must take it as granted that the process which has so alarming an appearance, is in effect a salutary sanative process, and not to be rashly interrupted, nor even interfered with, but to the manifest risk of the patient. The opinion of Mr. Abernethy is too important and too applicable for me to rest content with a simple reference. I transcribe from his work a passage of infinitely more value than anything I could write, and as pertinent to the subject of my argument as though it had been expressly composed for my use. After observing that all the secretions of the viscera, in their natural and healthy state, are colourless, with the exception of bile, he proceeds:—

"In cases of disease, however, coloured excretions may take place from the bowels. There is great reason for ascribing the discharges in the disease called Melæna to a vitiated secretion from the surface of the alimentary canal. I was intimately acquainted with a patient who suffered repeated and increasing attacks of constitutional irritation. When the disorder was wrought up, as it were, to a crisis, he was forewarned by a sensation as if his stomach were filling, of the occurrence that was about to take place. In less than a quarter of an hour he would vomit more than two quarts of a fluid resembling coffee-grounds in colour and consistence. Shortly after-

wards very copious discharges of a similar darker coloured and offensive matter took place from the bowels: but a green viscid bile, appearing distinct and uncombined, was intermixed with this. These evacuations ceased in a day or two, and the constitutional irritation disappeared with them.

"I examined the bodies of several persons, who died under attacks of this nature, and found the villous coat of the alimentary canal highly inflamed, swollen, and pulpy. Bloody specks were observed in various parts; and sphacelation had actually taken place in one instance. The liver was healthy in some cases, and diseased in others. I conclude, therefore, that these diseases, which were termed Hæmatemesis and Melæna, arose from a violent disorder, and consequent diseased secretion of the internal coat of the bowels: and that the blood, discharged when the affection was at its height, *did not flow from any single vessel*, but from the various points of the diseased surface.

"Indeed, I think it probable that the profuse discharges which sometimes follow the continued exhibition of purgatives, consist of morbid secretions from the bowels themselves,* and not of the residue of alimentary matter detained in those organs. Such evacuations, either occurring spontaneously or excited by medicine, frequently relieve irritation of the chylopœtic viscera.

* Proved to be such by Ffirth.

"It seems probable that the stools which resemble pitch are principally composed of diseased secretions from the internal surface of the intestines, since they do not seem either like the residue of the food, or discharges from the liver. Can we suppose that all the black and fetid matter which was discharged from the bowels, in the first case, was poured forth solely from the liver?

"The subject of morbid secretions is, however, particularly illustrated by that well known alvine discharge, which so much resembles yeast in colour and consistence that it cannot be confounded with fæces, with blood, or with a vitiated secretion from the liver. A medical man of my acquaintance took, for some disorder in his stomach and bowels, an aperient medicine which apparently emptied those organs. He ate nothing but a little bread in broth for his dinner, and a small quantity with his tea in the evening. He experienced an uneasiness in his bowels, and an inclination to evacuate them, after he had gone to bed; but he resisted this desire till four o'clock in the morning, when its urgency forced him to rise. He then discharged, what he supposed to amount in quantity to a gallon of matter exactly like yeast, unmixed with any bile or fæces. When he arose in the morning, he had a similar evacuation of about a quart; and on the succeeding day, there was a solid stool, apparently of the same substance, coloured of a light green, from an admixture of bile. He had a natural stool the next day: his

appetite returned, and the uneasy sensations subsided."*

The only defect in this most important passage is happily supplied by Humboldt, who quotes from M. Ffirth: the original work, I regret to say, is not in my possession for reference; but Humboldt himself is good authority.

"Notwithstanding the yellow colour which the skin of the patient assumes, it is nowise probable that the bile passes into the blood,† or that the liver and the system of the porta act the principal part in the yellow fever, as has been frequently supposed.

* Abernethy on the Constitutional Origin and Treatment of Local Diseases, p. 29.

† Human bile abounds in albumin: in 1100 parts, it contains 42 of albumin, 58 of resin, yellow matter, soda, and salt, and 1000 of water. Thenard, in the Memories D'Arcueil, t. i. p. 57. From the experiments made with great care by M. Thenard, there is no bile in the blood of persons attacked with the Icterus. M. Majendie, who has enriched physiology with ingenious experiments on the action of poisons, has observed that a dog of a moderate size dies if more than seven grammes (108 grains) of bile is injected into his veins. In this case the serum does not assume a yellow colour, and the conjunctiva of the animal remains white. Immediately after the injection, the bile is not recognised in the blood by its savour, although the smallest quantities of bile are sufficient to give a bitter taste to a considerable mass of water. M. Autenrieth has observed, that in man the serum of the blood becomes yellow in diseases which announce no bilious complications (Physiologie, B. ii. p. 93, Grimaud, Second Memoire sur la Nutrition, p. 78). We know also that the skin becomes yellow in a state of health with old men, and that it takes a yellowish tint in contusions, and wherever there is extravasated blood. I don't exactly understand the value or use of the experiments on the bile of animals published at p. xxii. of the Madras Report on Cholera.

The black matter in the *vomito prieto* bears a feeble analogy to the bile: it resembles coffee-grounds, and I have sometimes seen that it left indelible stains on linen, or on the wall. It disengages itself from the sulphuretted hydrogen when slightly heated. According to the experiments of M. Ffirth, it contains no albumin, but a resin or oily matter, phosphates and muriates of lime and soda. The same anatomist has proved, from the opening of dead bodies in which the pylorus was totally obstructed, that the matter of the *vomito* is not furnished by the hepatic canals, but is poured into the stomach by the arteries diffused throughout the mucous membrane. He asserts, and the assertion is very remarkable, that we find after death, the black matter still contained in these same vessels."*

I wish it had been explained how the pylorus was so totally obstructed;† but as for the latter fact, I can add my own testimony to the circumstances that the secreting vessels may be found on dissection gorged with the black matter; after laying open the stomach and duodenum, and washing them apparently quite clear, by gently rubbing an ivory paper folder over the villous lining, I forced out an unexpectedly large quantity of the secretion in question. The patient had died of typhus with black vomit and purging, an unusual disease in India, but which is occasionally met, when troops are exposed to

* Humboldt on New Spain, B. v. c. 12, Stubbin's Ffirth, p. 37 & 47.

† See for a case of obstructed pylorus the Madras Report, p. 69.

the heavy rains and intense heat of July, on field service.

I have now brought my subject to the conclusion of this section, in which I think I have shown, that the healing strength of nature operates in other diseases as well as Cholera, by vomiting and purging, and that the secreting vessels of the lining of the stomach and bowels have a capability of pouring forth an unusual mass of matter, which can only be formed by withdrawing the blood, out of which it is created, from the circulation; a process that must lower the tone of the constitution, and discharge any excitement or shock sustained, or even, it may be, the exciting poison itself operating on the system: and inasmuch as that, in mild cases, these operations and these secretions act critically as a sanitary process, I feel no hesitation in supposing from analogy, that they are always the convulsive struggle of nature to cast off some intolerable constitutional irritation, which fails only in its successful termination, when the disease is of too fatal malignity to be resisted by the simple resources with which nature is furnished for her own preservation.

CHAPTER VII.

ON THE NOSOLOGICAL APPLICATION OF CHOLERA.

LITTLE things, it is well said, are great to little men; and as a vast majority of us, the more the pity, are undeniably Lilliputians, the mere appellation even, by which anything whatever from a party to a disease is termed, becomes a matter of some moment. This is shown, as relates to the latter, by almost every paper which has been published upon Cholera, either commencing or ending with a dissertation on the appellative term; and a little learned dust, too, has been shaken about, with the usual evil effect of disturbing the cobwebbed tenants of the upper shelves; that is, blinding ourselves to no purpose, or to render what is obscure enough already, obscurer still. The subject, however, really requires discussion; for it happens, particularly in the case before us, that our error of creating a distinction without there being a difference, has made us inclined to reject the experience of our predecessors.

Cullen, after classing Cholera under the head of

nervous diseases, describes it as dependent, in his opinion, on an increased secretion of bile, which, from its quality or quantity, produces such high-wrought irritation as to explain the urgent symptoms of vomiting and purging, violent and painful gripings, violent and spasmodic contractions of the intestines, and spasms of the abdominal muscles, and those of the extremities; frequently, it is said, the strength of the patient is greatly and often suddenly weakened; while a coldness of the extremities, cold sweats, and faintings coming on, an end is put to the patient's life sometimes in the course of one day, sometimes the attack is less violent, and ceases on the second or third day, though such recoveries seldom happen without the assistance of remedies.

Cullen further observes, that nosologists have constituted a genus under the title of Cholera, and under this have arranged as a species, every affection in which a vomiting and purging of any kind occurred; but he points out that in many the discharges are not bilious, and the vomiting an accidental, not essential feature; and he concludes with believing, that all the other species (except his own) arranged under the title of Cholera by Sauvages, or Sagar, may be properly enough referred to the genus Diarrhœa. His system of treatment cannot be abridged; and, though it be foreign here, I copy it, since it is so exceedingly brief, and that it may be at once compared with what I purpose quoting from Celsus.

"1462. In the case of a genuine Cholera, the cure of it has been long established by experience.

"In the beginning of the disease, the evacuation of the redundant bile is to be favoured by the plentiful exhibition of mild diluents, both given by the mouth and injected by the anus; and all evacuant medicines, employed in either way, are not only superfluous, but commonly hurtful.

"1463. When the redundant bile appears to be sufficiently washed out, and even before that, if the spasmodic affections of the alimentary canal become very violent, and are communicated in a considerable degree to other parts of the body, or when a dangerous debility seems to be induced, the irritation is to be immediately obviated by opiates in sufficiently large doses, but in small bulk, and given either by the mouth or by glyster."

Whoever has had experience of the acrimonious form assumed in tropical climates by diseases not considered particularly malignant in milder regions, may surely venture to suppose, that a very little aggravation of the above train of symptoms constitutes our epidemic Cholera, with the single exception of the hepatic origin.

The pocket edition of Cullen's Nosology refers in a note to "Cholera Indica," as the seventh species of Sauvages; a term which it is singular should have escaped the observation of local writers on the subject; for I have nowhere seen it mentioned, except by the reviewer of the Madras Report in the

London Medical Journal. I have not the work of Sauvages to refer to, for his description of Cholera Indica.

The preface to the Bombay Report quotes from Sydenham his classical* description of an epidemic Cholera which prevailed in England in 1669, and correctly observes, that the disease he describes is as parallel as possible to our Indian epidemic; and then coinciding in Cullen's opinion of hepatic disorder and over-discharge of bile being the *sine qua non* of genuine Cholera, concludes with saying, that we may use the same expressions respecting the Indian epidemic, in comparing it with true Cholera Morbus, as are used by Sydenham respecting the epidemic he described, which are, that "Quisquis autem Choleræ Morbi legitimi phænomena studiosè collegerit, fatebitur morbum istum, quamvis eorundem symptomatum nonnullis stipatum, ab hoc nostro toto cœlo distare." After allowing so many symptoms to be common, how can they be said to be as opposite as the east is to the west? I was not aware of the term of Legitimacy *par excellence* being so antique or so hackneyed as to have been appended by Sydenham to Cholera; but I wish he had dwelt more fully on the phenomena of legitimate Cholera; for, referring no

* The "veris primordia *Hirudines*" is an amusing error in a medical classical quotation, which I hope may be visited on the printer's devil, though unnoticed in the errata. King Solomon has an incomprehensible passage of the horse-leech having two daughters, and that their cry is, "Give, give;" but to make the young ladies heralds of the spring! was reserved for the Bombay press.

further than Cullen's genuine Cholera, if those detailed do not describe it in an aggravated and epidemic form, I really find it difficult to understand what I am to be allowed to call Cholera.

The Madras Report first gives an abstract of Cullen's description, and then adds, that Dr. Good removes Cholera from the class of nervous disorders, and places it among diseases of the alimentary canal; and objecting to the term Cholera Morbus as tautologous, applies the epithet Biliosa, which Mr. Scot thinks equally pleonastic.* After a paragraph on the native terms for the disease, or at least for two diseases resembling it, the compiler proceeds:—"The generic term, Cholera, being consecrated by universal and almost immemorial use, it would not, perhaps, be proper to reject it, even could we propose another demonstrably better, or prove satisfactorily that bile, either in its quantity or quality, has no connection whatever with the cause of the disease, but the specific terms may admit of some observations." In treating these specific appellations, the epithet spasmodica is rejected; because the spasm is not the most invariable urgent symptom: the term epidemica, because it appears only suitable for occasional application, and finally the startling cognomen

* I suspect the pleonasm may have been an error of some Bœotian referring to the old Hederici Lexicon, where, under the head Χολερα he would find "Cholera, Morbus, in quo bilis vel per vomitum vel per secessum excernitur; (2) Tubus per quem aqua e tecto defluit." The omission of a comma, and not knowing exactly what he was writing, would cause him to set down Cholera Morbus!

of Cholera Asphyxia is proposed, as most expressive of the collapse accompanying the disease, its most certain and most discriminating symptom.

The objection to the term Cholera is strongly stated by correspondents, both in the Appendix to the Madras Report, and in the collection which forms the Bombay Report. In the former, Dr. Fasken says:—"No disease could be more incorrectly designated than this; for it has but little relation to *real* Cholera; and in every instance that has come under my observation, it is totally wanting in that which gives the character of the disease, viz., an overflow of bile."*

Mr. Craw, in his letter to Dr. Jukes, of which I have already made so much use, is clear, concise, and classical, when he observes:—"I regard our present epidemic in all classes to be more nearly allied to tetanus than to Cholera: the last is surely a misnomer, as applied to a disease, the principal characteristic of which is an entire want of χολη in the evacuations."† Thus following Cullen both where he is right and where he is wrong; that is, classing the disease as a nervous one, in which he is correct; and on the other hand, in supposing the Cholera of the Greek and Latin physicians to mean an overflow of the hepatic secretion, in which he is certainly wrong.

It is now time I should investigate what Cholera is; not the true Cholera! the real Cholera! the

* Madras Report, p. 203. † Bombay Report, p. 43.

genuine Cholera! and the legitimate Cholera of our moderns; but the Cholera of Hippocrates and Celsus.

The word Cholera, says the Medical Dictionary, is derived from χολη bile, and ρεω to flow, which may be right, though I do not myself consider that it is so. Χολερα, as I have shown above, means a bowel complaint, and a tube employed to drain rain from a roof: in which latter sense, I conclude, there will be no difficulty in allowing it is not derivable from a flow of bile! Maltby's emended Morrel's Lexicon omits the word altogether, a reprehensible neglect, for it has been well observed, that many words now scientific only, and technical, were as household words in daily use and common acceptation with the Greeks. The old Lexicon of Hedericus derives Cholera merely from χολη, from which word also it derives χολας, *intestinum;* χολιξ, *intestinum crassum;* and χολαιον, *the liver;* and at the same time gives Κωλον as a primal. I should, however, be much inclined, if not to change their places, at least to make χυλος, *succus*, the primal or root of χολη. The word χολας is classical, and is used by Homer in a sense which goes in favour of my idea of its original meaning.

"——— *ουτα δε δουρι παρ' ομφαλον εκ δ' αρα πασαι*
Χυντο χαμαι χολαδες.—Δ. 525—6.

"He wounded him with a spear below the navel, and all his bowels fell out upon the ground." The Clavis Homerica on this passage has the following explanation:—

"Dicitur quod bilem hepatis recipiat; vel a χαλαω, laxo, quod laxum sit; vel a κοιλος, cavus."

In my opinion, however, they are all compounds of χοος and λιαζω, and simply mean "contents of the abdominal sack," which is precisely the meaning of the word in the line quoted from Homer.

Whether this be right or not, is of little importance; for I regard the single circumstance of Cholera being Greek for a spout, to be decisive of the question that it is derived from χολας, and not from χολη; as the term, not improbably, at first a cant word, is more likely to have been applied from the tubulous form of the intestines, than the secretions they occasionally discharge; precisely as we call the spout of a barrel by the same term which is applied to the membrum virile, but no one thinks of calling either the one or the other a gonorrhœa. Further, if the derivation from χολη and ρεω were correct, the Greek word, judging from analogous compounds, instead of χολερα should be χοληρροια, and would have been written in Latin, Cholerrhœa. My reader must not consider this as waste of time, and condemn it as such: for though "the flower we call a rose, if called by any other name, would smell as sweet," and the disease we call Cholera, though bearing any other name, would equally prove a Malthus-blessing as a thinner of our population, yet the derivation even here requires discussion; for it seems as if an inaccuracy in this alone, had led to inaccurate theories.

I must be permitted to discuss another point, in

which I think I can perhaps more satisfactorily rectify another error. We have been equally unfortunate in taking the Latin word *bilis*, to mean exclusively the hepatic secretion, which it certainly does not. The strictly correct and appropriate word for the contents and discharge of the gall-bladder is *fel:* the manner in which *bilis* and *fel* are used, even by Pliny, proves them not to be synonymes; and though *bilis* may be used for *fel*, yet *fel* is never used, but distinctively as applied to the hepatic discharge. The great Latin Dictionary derives *bilis* from *φαυλος*, scil. *succus;* that is, it may be applied to a diseased secretion of any kind, so it be liquid; and that is certainly the meaning in which it is used by the old medical writers: for instance, Celsus, speaking of Peripneumonia, says: "Ejus hæc conditio est: pulmo totus afficitur: hunc casum ejus subsequitur tussis, *bilem vel pus* trahens, præcordiorum totiusque pectoris gravitas, spiritus difficultas, magnæ febres, continua vigilia, cibi fastidium, tabes." The meaning of the word here most assuredly requires no comment. But lest the reader should have any hesitation on the subject, I will quote from Tulpius of Amsterdam a case where a serous fluid, found in the uterus and cavity of the abdomen, is called bile, which I think will interest by its anomalous character, and the quaint style of the narration, as well as decide the correctness of my supposition.

OBSERVATIONUM MEDICARUM, LIB. III.

CAPUT 31.

VULVA BILI INNATANS.

ADPOSITE PROFECTO, ARETÆUS CAPPADOX, LIB. ACUT. 11. CAP. 40.

"In mediis ilibus mulierum, vulva posita est: muliebre viscus, animalis ferme naturam adeptum." Movetur quippe per se, vel versus ilia, ac jecur: vel thoracem, aut alia viscera. In quibus excitat sœpenumero infinita incommoda: defatigantia nonnunquam ingenia etiam acutissima. Sed prout variant ipsius morbi, ac symptomata: pro eo etiam discrepat frequenter ipsius situs. Modo uni loco rigide adstrictus; modo vero vagus. Quæ discrimina producuntur a ligamentis ipsius, vel intensis, vel remissis. Quorum ope cum adligetur vel ilibus, vel inguinibus; sequitur necessario, ad illorum motum, vel sursum, vel deorsum, vel oblique trahi vagum, ac errans hocce viscus.

"Vultis evidens fluctuantis hujus motus exemplum? Considerate attentè formidabiles uteri suffocationes. Sed potissimum, insignem illum tumorem, quem in anu nostri gerontotrophii,* juxta mecum vidêre medici quam plurimi. Elevabat is latus dextrum, ipso illo loco, quem jecinori destinavit natura: cum tubere manifesto; et dolore satis vehementi: imo cum tanta partis gravitate, ac distensione: ut multi crediderint, ipsum jecinoris viscus, in eam excrevisse molem.

* The same as Gerontocomium,—an almshouse for aged paupers.

"Sed scalpellum, post mortem, cadaveri adhibitum, docuit luce clarius, tumorem hunc non jecinori, sed vulvæ adscribendum. Relaxatis namque ligamentis, attraxerat illa tantum *bilis vitellinæ in se:* ut inde distenta, adæquaret caput pueri, vel bimi, vel trimi: innatans etiam *eidem bili:* quam *instar alicujus gelatinæ,* per intestina vidimus ubertim effusam; a cujus *congelatæ massæ,* lentore ut originem traxit morbus, duodecim annos ægram infestans: sic verisimile est, continuum ipsius dolorem fuisse ex acri erosione bilis."

Having endeavoured to suggest the correct sense in which the terms Cholera and Bilis seem to me to have been understood by the Greeks and Latins, I proceed to show from Celsus the disease to which they applied the first of these words. His history is contained in the eleventh section of his fourth book, and the very opening of it would have saved me the trouble of referring to lexicons, and renewing the *infandum dolorem* of Birch for false quantities and terminations, had not modern transcribers and modern readers divided one sentence into three, in spite of the two conjunctions, *nam* and *ergo,* staring them in the face, and the sense requiring that it should be considered as one. It is as follows:—

"And in the first place, mention must be made of Cholera; because it appears to be a disease, common both to the stomach and bowels; for the vomiting and purging are simultaneous; besides which, there

is flatulence, spasm of the intestines, and bile violently ejected upwards and downwards; first resembling water, then like water in which raw meat has been washed (or sodden perhaps); sometimes it is white, sometimes black, or of mixed colour; therefore the Greeks have called this disease, *eo nomine*, by that name Cholera." Why, because cholæ, bile, is discharged? It may mean so, I agree, and allow that such is the *primâ facie* reading, in the present punctuation of the sentence; but I am unwilling to charge Celsus with so loose and inelegant a mode of expressing himself, as understanding the sentence in that sense gives him the discredit of, and I would certainly refer the conclusion to the whole of the preceding description, and the *eo* to the Latin word *Cholera* previously mentioned; for as the second division of the sentence proves that no hepatic secretion is met with or expected, the disease may be supposed to have been named Cholera from its being a disorder of the whole alimentary canal, as he commences with the observation, that it is common to both the stomach and bowels. This, however, is a point of no essential importance, my object being to show that the discharges are not hepatic: I will, therefore, transcribe the whole section from Celsus, and leave my reader to judge whether his Cholera be not the Cholera constantly met with betwixt the tropics, and that which for the last nine years has been epidemic in India; and whether his plan of treatment be not the same which Cullen observes

"has been long established by experience," for what *he* terms, "genuine Cholera."

A. C. CELSI MEDICINÆ, LIB. IV. CAP. 11.

"A visceribus ad intestina veniendum est, qua et acutis et longis morbis obnoxia. Primoque facienda mentio est *Choleræ;* quia commune id stomachi atque intestinorum vitium videri potest; nam simul et dejectio et vomitus est: præterque hæc inflatio est, intestina torquentur, bilis supra infraque erumpit, primum aquæ similis, deinde ut in ea recens caro lota esse videatur, interdum alba, nonnunquam nigra, vel varia; ergo *eo nomine* morbum hunc χολεραν Græci nominarunt. Præter *ea* vero, quæ supra comprehensa sunt, sæpe etiam crura manusque contrahuntur, urget sitis, anima deficit: quibus concurrentibus, non mirum est, si *subito* quis moritur; *neque tamen ulli morbo minori momento succurritur.* Protinus ergo, ubi ista cæperunt, aquæ tepidæ quam plurimum bibere opportet, et vomere. Vix unquam sic non vomitus sequitur; sed etiam si non incidit miscuisse tamen novam materiam corruptæ prodest; parsque sanitatis est, vomitum esse suppressum. Si id incidit, protinus ab omni potione abstinendum est. Si vero tormina sunt, opportet frigidis et humidis fomentis stomachum fovere; vel si venter dolet, iisdem egelidis, sic, ut venter ipse mediocriter calentibus juvetur. Quod si vehementer et vomitus, et dejectio, et sitis vexant, et adhuc subcruda sunt, quæ vomuntur, nondum vino maturum tempus est: aqua,

neque ea ipsa frigida, sed potius egelida danda est: admovendumque naribus est pulegium ex aceto, vel polenta vino aspersa, vel mentha secundum naturam est. At cum discussa cruditas est, *tum magis verendum est ne anima deficiat.* Ergo tum confugiendum est ad vinum. Id esse opportet tenue, odoratum, cum aqua frigida mixtum; vel polenta adjecta, vel melle quoque assumere expedit; quotiesque aliquid, aut stomachus, aut venter effudit, toties per hæc vires restituere. Erasistratus primo tribus vini guttis, aut quinis aspergendam potionem esse dixit; deinde paulatim merum adjiciendum. Is, *si ab initio* vinum dedit, et metum cruditatis secutus est, *non sine causa fecit:* si vehementem *infirmitatem* adjuvari posse tribus guttis putavit, erravit: *at si inanis est homo, et crura ejus contrahuntur,* interponenda potio absinthii est. *Si extremæ partes corporis frigent,* unguendæ sunt calido oleo, cui ceræ paulum sit adjectum calidisque fomentis nutriendæ. Si ne sub his quidem quies facta est, extrinsecus contra ventriculum ipsum cucurbitula admovenda est, aut sinapi superimponendum. Ubi is constitit dormire opportet: postero die utique a potione abstinere: die tertio in balneum ire: paulatim se cibo reficere; somno quisquis facile adquiescit; itemque lassitudine et *frigore.* Si post suppressam choleram *febricula* manet, alvum duci necessarium est: tum cibis vinoque utendum est."

The opening of the following or twelfth section repeats the theory of this disease.

"XII. Sed hic quidem morbus et acutus est, *et*

inter intestina stomachumque versatur sic, ut cujus potissimum partis sit, non facile dici possit," &c., whence he proceeds to treat of Cholic, a word equally with Cholera derived from the Greek χολη.

The discovery of printing, together with the vast benefits it has rendered to science, has at least done this mischief, that book makers in these latter days are as prone to verbosity as the writers in the age of manuscripts were obliged to be brief. Does this sufficiently explain the cursory review of their subjects which the old writers afford us? where the scattered glimpses of knowledge, though irregular and uncertain, are yet like rays of light reflected from a moving mirror, flashes of sunbeams!—or is terseness an inherent quality of the dead languages? If so, their decease is doubly to be lamented; or is it, which is more likely, that since memory cannot retain everything, and common sense will select only what is useful, the long-winded prosers were quickly condemned to be the envelopes of frankincense and pepper, "et quicquid chartis amicitur ineptis?" If so, we need regret less the missing classics! Whatever may be the radical cause of the difference, I will proceed to exhibit a most singular specimen of that difference, by copying from the Bombay Report the description of Cholera given by the Bengal Medical Board, and republished at Bombay, as a history so perfect in its kind, that nothing remained to be added, and nothing superfluous required to be taken away. That it differs in its

present form *toto cælo* from the history of Celsus, I readily allow; but let us play the chemist with it,—let us, as it were, distil down and skim off the essential oil of the subject matter, and for the result we shall find one part Celsus, and ninety-nine water! or, without a metaphor, a few expressive sentences will be found to contain all the real information afforded, which, if we choose, we may render, word by word, in the language of the Roman:—

"Having thus given a rapid and imperfect sketch of the history of the epidemic, the Board should now proceed to detail the symptoms which attended its attack. This part of their task they will not find it difficult to accomplish: the leading appearances of this most fatal malady were but too well marked on their approach and subsequent progress, and, amongst the myriads who were attacked, exhibited perhaps less variety and fewer discrepancies than characterise the operation of almost any other disease to which the human body is subject. The healthy and unhealthy, the strong and feeble, Europeans and natives, the Mussulman and Hindoo, the old and young of both sexes, and of every temperament and condition, were alike within its influence.

"The attack was generally ushered in by sense of weakness, trembling, giddiness, nausea, violent retching, vomiting and purging of a watery, starchy, whey-coloured or greenish fluid. These symptoms were accompanied or quickly followed by severe

cramps, generally beginning in the fingers and toes, and thence extending to the wrists and fore-arms, calves of the legs, thighs, abdomen, and lower part of the thorax. These were soon succeeded by pain, constriction, and oppression of stomach and pericardium, great sense of internal heat, inordinate thirst, and incessant calls for cold water, which was no sooner swallowed than rejected, together with a quantity of phlegm, or whitish fluid like seethings of oatmeal. The action of the heart and arteries now nearly ceased; the pulse either became altogether imperceptible at the wrists and temples, or so weak as to give to the fingers only an indistinct feeling of fluttering. The respiration was laborious and hurried; sometimes with long and frequently broken inspirations. The skin grew cold; clammy; covered with large drops of sweat; dank and disagreeable to the feel; and discoloured of a bluish purple, or livid hue. There was great and sudden prostration of strength, anguish, and agitation. The countenance became collapsed; the eyes suffused, fixed, and glassy, or heavy and dull; sunk in their sockets, and surrounded by dark circles; the cheeks and lips livid and bloodless; and the whole surface of the body nearly devoid of feeling. In feeble habits, where the attack was exceedingly violent, and unresisted by medicine, the scene was soon closed. The circulation and animal heat never returned; the vomiting and purging continued, with thirst and restlessness; the patient became delirious and in-

sensible, with his eyes fixed in a vacant stare; and sunk down in the bed; the spasms increased generally within four or five hours.

"The disease sometimes at once, and as if it were momentarily, seized persons in perfect health; at other times those who had been debilitated by previous bodily ailment; and individuals in the latter predicament generally sank under the attack. Sometimes the stomach and bowels were disordered for some days before the attack, which would then in a moment come on in full force, and speedily reduce the patients to extremities.

"Such was the general appearance of the disease, where it cut off the patient in its earlier stages. The primary symptoms, however, in many cases admitted of considerable variety. Sometimes the sickness and looseness were preceded by spasms; sometimes the patient sank at once, after passing off a small quantity of colourless fluid by vomiting and stool. The matter vomited in the early stages was in most cases colourless or milky; sometimes it was green. In like manner the dejections were usually watery and muddy; *sometimes red and bloody;* and in a few cases they consisted of a greenish pulp, like half digested vegetables. In no instance was feculent matter passed in the commencement of the disease. The cramps usually began in the extremities, and thence gradually crept to the trunk; sometimes they were simultaneous in both; and sometimes the order of succession was reversed, the

abdomen being first affected, and then the hands and feet. These spasms hardly amounted to general convulsion; they seemed rather affections of individual muscles, and of particular sets of fibres of those muscles, causing thrilling and quivering in the affected parts like the flesh of crimped salmon, and firmly stiffening and contorting the toes and fingers. The patient always complained of pain across the belly, which was generally painful to the touch, and sometimes hard and drawn back towards the spine. The burning sensation in the stomach and bowels was always present, and at times extended along the cardi and œsophagus to the throat. The powers of voluntary motion were in every instance impaired, and the mind obscured. The patient staggered like a drunken man, or fell down like a helpless child. Headache, over one or both eyes, sometimes, but rarely occurred. The pulse, when to be felt, was generally regular and extremely feeble, sometimes soft; not very quick, usually ranging from 80 to 100. In a few instances it rose to 140 or 150 shortly before death. Then it was distinct, small, feeble and irregular; sometimes very rapid, then slow for one or two beats. The mouth was hot and dry; the tongue parched and deeply furred, white, yellow, red or brown. The urine at first generally limpid, and freely passed; sometimes scanty, with such difficulty as almost to amount to stranguary; and sometimes hardly secreted in any quantity, as if the kidneys had ceased to per-

form their office. In a few cases the hands were tremulous. In others the patient declared himself free from pain and uneasiness; when want of pulse, cold skin, and anxiety of features portended speedy death. The cramp was invariably increased upon moving.

"Where the strength of the patient's constitution, or of the curative means administered, were, although inadequate wholly to subdue the disease, sufficient to resist the violence of its outset, nature made various efforts to rally, and held out strong but fallacious promises of returning health. In such cases the heat was sometimes wholly, at others partially restored, the chest and abdomen in the latter case becoming warm, whilst the limbs kept deadly cold. The pulse would return, grow moderate and full, the vomiting and cramps disappear, the nausea diminish, and the stools become green, pitchy, and even feculent, and with all these favourable appearances the patient would suddenly relapse; chills, hiccup, want of sleep, and anxiety would arise; the vomiting, oppression, and insensibility return, and in a few hours terminate in death.

"When the disorder ran its full course, the following appearances presented themselves. What may be termed the cold stage, or the state of collapse, usually lasted from twenty-four to forty-eight hours, and was seldom of more than three complete days' duration. Throughout the first twenty-four hours nearly all the symptoms of deadly oppression,

the cold skin, feeble pulse, vomiting and purging, cramps, thirst, and anguish, continued undiminished. When the system showed symptoms of revival the vital powers began to rally, the circulation and heat to be restored, and the spasms and sickness to be considerably diminished. The warmth gradually returned, the pulse rose in strength and fulness, and then became sharp and sometimes hard. The tongue grew more deeply furred; the thirst continued, with less nausea; the stools were no longer like water; they became first brown and watery, then dark, black, and pitchy; and the bowels during many days continued to discharge immense loads of vitiated bile, until, with returning health, the secretions of the liver and other viscera gradually put on a natural appearance. The fever, which invariably attended this second stage of the disease, may be considered to have been rather the result of nature's effort to recover herself from the rude shock which she had sustained, than as forming any integrant and necessary part of the disorder itself. It partook much of the nature of the common bilious attacks prevalent in these latitudes. There was the hot dry skin; foul, deeply furred, dry tongue; parched mouth; sick stomach; depraved secretions, and quick variable pulse, sometimes with stupor, delirium, and other marked affections of the brain. When the disorder proved fatal after reaching this stage, the tongue, from being cream-coloured, grew brown, and sometimes dark, hard,

and more deeply furred; the teeth and lips were covered with sordes; the state of the skin varied, chills alternating with flushes of heat; the pulse became weak and tremulous; catching of the breath, great restlessness, and deep moaning succeeded; and the patient soon sank insensible, under the debilitating effects of frequent dark, pitchy, alvine discharges.

"Of those who died, it was believed, perhaps rather fancifully, that the bodies sooner underwent putrefaction than those of persons dying umder the ordinary circumstances of mortality. The bodies of those who had sunk in the earlier stages of the malady exhibited hardly any unhealthy appearance: even in them, however, it was observed that the intestines were paler and more distended with air than usual; and that the abdomen, upon being laid open, emitted a peculiar offensive odour, wholly different from the usual smell of dead subjects. In the bodies of those who had lived some time after the commencement of the attack, the stomach was generally of natural appearance externally. The colour of the intestines varied from deep rose to a dark hue, according as the increased vascular action had been arterial or nervous. The stomach, on being cut into, was found filled, sometimes with a transparent, a green, or dark flaky fluid: on removing this, its internal coats, in some cases, were perfectly healthy; in others, and more generally, they were crossed by streaks of a deep red, interspersed with

spots of inflammation, made up of tissues of enlarged vessels. This appearance was frequently continued to the duodenum. In a very few cases, the whole internal surface of the stomach was covered with coagulable lymph; on removing which, a bloody gelatine was found laid on the interior coat, in ridges or elevated streaks. The large intestines were sometimes filled with muddy fluid, sometimes livid, with dark bile, like tar; just as the individual had died in the earlier or later periods of the attack. In most cases, the liver was enlarged, and gorged with blood. In a few it was large, soft, light coloured, with greyish spots, and not very turgid. In others again it was collapsed and flaccid. The gall-bladder was, without exception, full of dark green or black bile. The spleen and thoracic viscera were in general healthy. The great venous vessels were usually gorged; and in one case, the left ventricle of the heart was extremely turgid. The brain was generally of natural appearance. In one or two instances, lymph was effused between its membranes near the coronal suture, so as to cause extensive adhesions. In other cases, the sinuses, and the veins leading to them, were stuffed with very black blood."

I should be very sorry indeed to put down anything that might be so far misunderstood as to be considered disrespectful to the authors of the above history; but I must make free to say, that nothing new is to be found in it but the anatomy, which

certainly leads to no results, and the allusion to the peculiar odour of the corpses of those who died of Cholera; a very important symptom, and one, for the appearance of which in a shock, suddenly and utterly overthrowing the energies of nature, Celsus was perfectly prepared, as shown in the extract at the conclusion of my fifth chapter. The scantiness of urine is explained by him in a philosophical manner, which we may apply to all the other deficient secretions, when he enumerates, in his chapter on good and bad symptoms, those which indicate an unfavourable prognosis of a bowel complaint; in which place he says, that it is very dangerous.

"Si sitis urget; si post potionem urina non redditur (quod evenit, quia tunc liquor omnis non in vesicam, sed in intestina descendit").

The paragraph on "the state of the skin," in the Madras Report, must not, however, be included in the above observation; it describes in such energetic terms the extreme syncope of the animal powers, and illustrates the description by so startling a fact, that no one need attempt to follow in that path, otherwise than as I do, by admiring and copying it.

"The state of skin in Cholera is, in general, what we might expect to find it in patients labouring under such affections of the alimentary canal, and the subdued circulation which takes place in that disease. It is cold, generally clammy, and often covered with profuse cold sweats. Nevertheless, varieties occur in this, as in the other symptoms of Cholera, &c. &c. &c.

"The sensation imparted by touching the skin of a person ill with Cholera is very peculiar, and reminds one of that imparted by a dead body. The skin, when much collapsed, becomes insensible even to the action of chemical agents; and hence the usual vesicatories fail in producing any effect. The application of mineral acids and of boiling water, in this condition of the skin, produces little or no effect, and some patients are said not to have been sensible of the operation.

"The action of mineral acids on the skin is not, however, vesication, but rather that of a cautery, the cuticle and the extremities of the subjacent vessels appearing to be destroyed by them. It has been said that vesication could not be produced in some stages of Cholera, because the production of serum was, in common with the glandular secretions, arrested; but when we reflect on the readiness with which serous fluids are poured out in that disease, we shall be rather disposed to refer the failure in the action of vesicatories, even of hot water, *to the diminution or destruction of the nervous energy of the skin.* It is certain that in a body but just dead, the application of boiling water will vesicate readily; and if the accuracy of the observation respecting its non-vesicating power in advanced stages of Cholera be established, we must infer that there is less vitality in the skin in such cases, the patient being still alive, than in that of a body recently dead of some other disease."—*Madras Report*, p. xxvii.

When comparing these descriptions of our epidemic with the brief history by Celsus of the disease known as Cholera by the Greeks and Romans, I am very anxious that my reader should particularly attend to the stress laid by him on the imminent peril of the collapse, and the extreme probability of it; brief and sententious to a fault, or rather aphoristical as our author is, still on this symptom he appears to dwell, twice reverting to it as he proceeds: if, however, his history seem deficient in minute particulars, or, generally speaking, that his emphatic and unqualified assertion, "neque tamen *ulli morbo minori momento* succurritur," be not sufficiently expressive of the malignity of our epidemic, let us remember that the ordinary cases of measles and scarletina occurring sporadically are mild and manageable, but when from some inexplicable cause they break forth as epidemics, the cases appear marked with a virulence, and a malignant tendency to rapid and disastrous termination, that differ *toto cœlo*, if the expression be applicable at all, from the comparatively slight derangement of health experienced in the former; and surprise and distress the practitioner with daily proofs of the inefficacy of art, when the disease seems invested with new, or at least unwonted acrimony, and overwhelms at once the healing strength of nature; or when its very outset seems to indicate that, in the beautiful language of Scripture, "the silver cord of life is loosed, and the golden bowl is broken."

The epidemic Cholera I would therefore imagine

to be no more than a parallel instance; and as in variola we do not hesitate to separate the order into two species, designated from the comparative deficiency or abundance of pustules in the eruptive stage; and as in typhus we acknowledge two species, named from the mildness or malignity of the symptoms, I know no good to be derived from being so *recherché* in our appellations, and see no reason against our dividing the order Cholera into two similar species by terming the sporadic and milder disorder Cholera Mitior, and the epidemic and more malignant disease Cholera Sæva; or, if the reader delight in long words, Sævissima, for it is severe enough to justify a superlative.

CHAPTER VIII.

ON THE VARIETIES AND ANOMALIES WHICH APPEAR IN CHOLERA, AND ON THE CHOLERA SPONTANEA OF CULLEN.

HAVING now endeavoured to prepare my reader for the line of argument I purpose applying to the history and symptoms of epidemic Cholera, I will proceed to consider the varieties and anomalies which present themselves in the appearances and forms of the disease.

If an intermittent fever were of unfrequent occurrence, and of fatal character, destroying patients in the first paroxysm, an unphilosophical observer would register all the three stages of a paroxysm as so many widely differing varieties of the disease. Thus it would be said, this afflicting disorder has three distinct and perfectly different forms; in the first, the principle of life seems overpowered by "a *somewhat* which presses heavily and suddenly upon the vital functions;" "but whether it acts more immediately upon the circulating or the nervous systems, we cannot determine;" but its effects are deathy coldness, rigours and spasmodic vomiting, in which the patient

expires. The second form is not unfrequently ushered in by a train of symptoms not unlike those already detailed, but differing *toto cœlo* in acrimony; in these cases, just as nature appears to rally, and a hope may be entertained for the patient's safety, the whole system seems burnt up with febrile fire, and the constitution sinks under uncontrollable excitement. In other cases, this variety of the disease is simply preceded by a dull, aching pain in the lumbar regions, restlessness, and headache, which latter symptom continues increasing in proportion with the feverish heat, and attains finally to such excess of agony, that delirium generally is the prelude of dissolution. The third form is where the patient, after suffering a certain time from languor and chilliness, followed by headache, and dry skin, and thirst, and unnatural heat, all at once finds himself bathed in a colliquative sweat, which sinks the constitution rapidly below the natural temperature, under which exhaustion he expires, without one effort of nature to resume her ordinary course of reaction. The result of this unphilosophical arrangement would be, that there would be found among fifty practitioners precisely the same number of conflicting theories as to the nature of the disease, and the system of treatment.

Such, at least, has been the consequence of our limited information respecting Cholera: the invasion of the epidemic came down upon us with such an accumulation of surprise, alarm, and distress; and our medical establishments throughout India are upon

so reduced*a scale, barely in fact adequate to th e ordinary routine duties of a healthy season, that the profession, when overwhelmed with occupation, and shocked with the scenes of pain and distress they had to witness, had little leisure for thinking; and when the press of danger and labour was over, it had left too many painful recollections for the majority to be able to bring their minds willingly to a reconsideration of the subject: hence, since each, without regard to leisure or inclination, was called upon to communicate the result of his observations, it is not to be wondered at if a crude mass of reports should be heaped together on the official tables, from which any theorist might defend any theory.

By precisely the same erroneous classification which I have exhibited as applicable to an intermittent, our Epidemic Cholera has been divided into three varieties, the description of which is better given by Dr. Taylor in the Bombay Report than by any other person whose opinion on the subject has reached me; I will, therefore, extract the passage entire:—

"Three different forms of this disorder have been marked by several accurate observers; and I should conceive, from what has fallen under my observation, with much judgment and propriety. In the first form, the patient is attacked with slight pain in the abdomen, which gradually increases, and is suc-

* The medical establishment throughout India has been greatly augmented since 1826, and more particularly as respects the non-commissioned class, which may be regarded as more than doubled.

ceeded by vomiting, purging, and spasms, after which coldness of the extremities, loss of pulse, and clammy sweat gradually supervene: of this form many cases occurred, where the patients, after allowing six, eight, or even ten hours to elapse without applying for medical assistance, ultimately recovered by means of calomel and laudanum, with stimulants and fomentations. Among the first cases I saw one was of this kind. It indeed proved fatal; but as it served as a salutary example of the promptitude with which the proper doses of medicine ought to be administered, it may not be improper to notice it in this place," &c. &c.

"In the second form of the disease, pain in the abdomen, vomiting and purging are rapidly succeeded by great prostration of strength, extreme coldness in the extremities, and an imperceptible pulse at the wrist and temporal arteries. The eyes are yellow, fixed, and sunk; the face and breast are covered with a cold clammy perspiration; the patient frequently lies in a state of coma, and when roused usually makes no complaint, except perhaps of spasms in the extremities, and of feeling that he is about to expire. These symptoms occur often within an hour, or an hour and a half after the first attack of the disease. *Almost all of these cases, which came under my observation, proved fatal. In them the calomel and the large doses of laudanum, combined with the most powerful stimuli, produced no sensible effect;* and when a vein or temporal artery was opened, the

blood either refused to flow at all, or only trickled down slowly in drops. I seldom had an opportunity in such cases of trying the warm bath; but in one instance where it was used *it seemed totally to fail in rousing the powers of the system*, or in relieving the symptoms," &c.

"Of the third form of disease I have also seen several instances. The patients fall down suddenly deprived of sense; the pulse is often feeble and indistinct, but sometimes rather full and strong. When he recovers a little, he complains of great pain *in the head* and giddiness, and frequently of pain in the abdomen. Trismus occurred in two or three of these cases," &c.

"These different forms of the disease, however, *are not to be regarded as distinct species*, but merely as varieties produced by the same cause operating on peculiar constitutions, and on persons of diversified habits and situations in life. That in many cases of the second form the patient had laboured under slight symptoms of the disease for some time before he actually complained, is a circumstance extremely probable, and was most likely to occur amongst the poorer and more laborious classes; and accordingly it was found that, in a great many instances, the first complaint was made in the evening, after the person had returned from his labour during the day. In such cases the previous exhaustion from bodily fatigue would aggravate the disorder, and render it more rapid in its progress," &c. &c.

If a medical writer could thus express himself, the following history from an unprofessional observer, is not only natural, but proves an accuracy of observation, and a readiness to communicate at once the result of it, which in a new visitation of any epidemic would be creditable to the most enlightened member of the profession. The writer, Captain Sykes,* has the happiness to enjoy the reward of philosophical studies, to which his leisure has been devoted, being employed to compile a statistical report of the newly acquired provinces in the Deccan; but at the period now alluded to he held a military command. His letter to Dr. Milne, dated August 15th, 1818, giving an account of the appearance of the epidemic in the different neighbourhoods where it had been his lot to be stationed, forms the thirty-second article of the Bombay Report, from whence this paragraph is extracted.

"I have seen the malady under three different shapes: first, where the victim, in previous robust health, is struck senseless; of this I had five cases in my camp. In three cases, bleeding, with a subsequent emetic and cathartic, restored the patient in two days. In one case the blood could not be made to flow, although violent friction was used to rouse the circulation: nor could any remedy be got down the throat, and the man died in eight hours. In the other bleeding was not tried, and death ensued in

* Now Lieut.-Col. Sykes, and a Director of the East India Company, and still distinguished for his philosophical studies, and zeal in the advancement of science.

a few hours. When the disease first commenced its ravages in Punderpoor,* it must have been under this form, for three hundred and fifty people are described to have died in one day, tumbling over each other lifeless in the public streets. The second form of it was under violent and incessant purging of watery matter" — (there is no remark in the errata, but the context seems to show that the words, 'and vomiting,' have been omitted.) "Many attacked in this way *throw up from the stomach* one or two long brown worms. Most of those who retained the calomel and laudanum in their stomachs recovered. In one instance, I am induced to believe an old woman died from weakness four days after

* This invasion of the epidemic occurred during the celebration of a Hindoo religious festival, when Punderpoor and its vicinity were crowded to excess, as is usual on such occasions. The city, on the southern bank of the sacred river Beemah, is consecrated by superstition as one of the holy places of pilgrimage, and the crowds which assemble on these occasions defy calculation: the round numbers usually stated of a million of pilgrims, however inaccurate, serve at least to prove that no ordinary assemblage of devotees is collected; and as the city is by no means extensive, not being supposed to contain more than twenty thousand inhabitants, the votaries have no shelter but the tents or pauls they bring with them. I was at Punderpoor in July and August, 1812, at one of these festivals, when, although it was during the violence of the rains, the whole country was covered with the irregular encampment of these poor creatures, whose religious fervour appeared to render them indifferent to the inclemency of the season. The most destructive attacks of the epidemic have invariably appeared among mobs of this kind, huddled together, after fatiguing journeys, badly sheltered by night, and chilled through the day, by incessant bathings in sacred waters, such as the Ganges, the Nerbudda, or the Beemah.

the disease had been stopped. It does not appear to me that calomel and laudanum may be relied upon as *certain* means of arresting the progress of the disease, for some died *unexpectedly* after having kept the medicines on their stomach; and one or two were so violently attacked as to resist every effort to keep down the repeated doses of laudanum, these of course died. The third form is that of violent purging of watery matter, with little or no vomiting at first. In the cases of two of my servants the attack was preceded by a cold inflated sensation in the stomach for some previous days, with total loss of appetite, and violent eructations. In this form the spasms were weaker, and the disease evidently less severe than in the other kinds. The usual remedies put an effectual stop to it in two or three days."

I much wonder the writer had not an opportunity of noticing a fourth variety, viz. vomiting without purging or spasm, since this, with equally marked collapse, has occurred under my observation fully as frequently as either his first or third varieties.

The scientific arrangement of Mr. Orton is also deficient in precise accuracy. Aware of the three distinct stages of symptoms, he has not correctly understood, or at least not exactly defined their dependency on each other, nor yet sufficiently illustrated the most important, the accession of the disease. For immediate reference I quote the passage.

"For the classification of our ideas, it is of impor-

tance to mark the different stages of the disease, and I conceive there are data sufficient to enable us to do so with some precision.

"Stage 1st. The first stage is ushered in by giddiness, headache, anxiety, or debility; nausea, and griping of the bowels. At this period, I believe, the secretion of bile stops; for invariably, after the common common contents of the bowels are discharged, no bile is evacuated after the attack. This stage, I have reason to believe, in some cases lasts several days, and probably in others is altogether wanting. It is certainly very irregular in its duration, as well as symptoms.

"2nd. The occurrence of spasms of the muscles I look upon as an important era, the commencement of the second stage. It is then I conceive the other principal secretions stop. The fatal sinking of the pulse begins to take place, blueness, coldness, come on; for it is probable that the same degree of diminution of nervous energy which produces spasms of the muscles, acting upon the heart, causes it to contract with extreme quickness, weakness, and irregularity. All the symptoms are now present in their most acute form, and the great struggle takes place. It is quickly decided!

"3rd. After an uncertain lapse of time, but as far as I have seen, from one to four hours, another era may be perceived, if death is to follow. The vomiting and purging, and spasms of the muscles cease, whilst the anxiety, debility, blueness and cold increase; or, about this time the febrile reaction which I have

already mentioned takes place. The body is hot, whilst the extremities are cold. In all, as far as I have seen, whatever has been given, either by mouth or injection, is retained unaltered in this stage of the disease. The paralytic state of the stomach and intestines has taken place. These symptoms generally continue several hours. They may be said to mark the third stage of deprivation of nervous energy."

Such are the histories extracted from the reports on epidemic Cholera, exhibiting the different appearances it assumes; and I know not how to reconcile them with any of the theories I find published, so as satisfactorily to explain them; nor do I see how it is possible to account for them, but by the supposition of a poison received by impure miasma, inhaled into the lungs, or absorbed by the superficial vessels and carried into the circulation; there, acting on the nervous system with a violence in proportion to its acrimony, and occasioning a more or less marked concussion of the brain, which, but for the resisting principle to destruction inherent in nature, would at once occasion death. This, in the milder cases, forms the first stage of Mr. Orton,—in the more severe, the third variety of Dr. Taylor. But the healing strength of nature operates for the relief of this oppression, and reduces it by reducing the mass of the circulating fluid, and discharges the poison by a critical secretion, poured forth from the secreting surface of the intestines. This very sanitary process becomes, however, in severe cases, itself a disease;

and thus forms the first and second varieties of Dr. Taylor, and the second stage of Mr. Orton. The third stage of Mr. Orton is the collapse, and he evidently attributes it to the exhaustion from the intestinal over-action, in which he must certainly be in error; for, in the cases described by Dr. Taylor as his third variety, the collapse is to the full as indubitably marked as in either of the other two, though unpreceded by the supposed exhausting discharge.

To understand this, however, more fully, it will be necessary to enter into an examination of the symptoms and treatment of Cholera, as it appears in its milder form in temperate climates, before I proceed to investigate therapeutically the several symptoms and stages which it exhibits in its malignant epidemic character in the "sub curru nimium propinqui solis" region betwixt the tropics.

Any theory respecting what the disease is in Cholera, beyond an increase of the hepatic secretion, has never met my eye in any work whatever on the subject; but how that increase is occasioned, or how the bile, under these circumstances, becomes a "species of arsenic!"* remains unexplained. The little that has been written upon this disease appears perfectly singular, considering that it is universally acknowledged, even in cold climates, the most acute disorder to which they are liable. Happily, however, though there has been some inaccuracy, and some careless-

* Il est prouvè que la bile se peut changer dans nos corps en espece d'arsenic.—De la Mettrie.

ness in our statements of symptoms and proximate causes, we have been sufficiently fortunate to have continued in the safe and beaten path of experience respecting treatment; thereby confessing, that on one point at least we have little cause of triumph over the ancients, as what is right we owe to them, and what is wrong is exclusively our own.

The last classical publication respecting Cholera Morbus is the "Medical Jurisprudence" of Dr. Paris and Mr. Fonblanque, where the notice is incidental, arising out of the similarity betwixt *the symptoms of Cholera* and *the effects of poison.*

The interesting trial of Mr. Donnal at Launceston, in 1817, for the supposed murder, by poison, of his mother-in-law, is given at length in the Appendix of that work; and the opinions of the witnesses are freely discussed in the "general remarks on the medical evidence required to substantiate an accusation of poisoning." The prisoner was acquitted, on its being proved, to the satisfaction of the jury, that the deceased had died of Cholera Morbus, after fourteen hours illness; a termination most distressingly rapid, certainly, but on which too much stress appears to be laid, since even Cullen asserts that, in Cholera, "an end is put to the patient's life sometimes in the course of one day;" to which the evidence for the defence deposed, as his own opinion.

I have no intention to enter into the particulars of this trial; but as the most accredited practitioners within reach are generally selected to enlighten the

jury on these occasions, and as it is naturally to be supposed that they will carefully study the subject, and refresh their memories, to be fully prepared for their examination, I consider the definitions and history of Cholera deposed to on this occasion to be the best I could possibly select: they have the sanction of a judicial oath to enforce their value; and if that, in a professional view, adds little to their importance, at least they appear among the last published.

On this trial, then, Dr. Neale of Exeter states, on oath, that in his opinion Cholera Morbus generally arises from putrid bile collected in the intestines, which is thrown off by vomiting and purging; that it is the most acute disease known in Great Britain, —meaning, by the term acute, a disease which runs its course in the most rapid manner; that it very frequently kills the patient within twenty-four hours, and, if neglected, or improperly treated, it kills the patient in a *much shorter period;* that the symptoms are constant vomiting and purging, attended with pain in the stomach and cramps in the legs; and that his plan of treatment would be to cause the patient to drink plentifully of any warm fluid, such as mutton-broth or tea, and then a large dose of opium.

The attention of the witness being called to the evidence for the prosecution, which he had been present to hear, and where it had been deposed by Dr. Edwards of Falmouth, who had seen the deceased during her illness, that he had found the patient difficult to be aroused, but capable of answering ques-

tions when roused; complaining of heat in the stomach and cramps in the legs, with a frequent and fluttering pulse; and was informed by the previous medical attendant, the prisoner, that she had already suffered purging and vomiting; the deponent thereon stated his perfect satisfaction that the deceased had suffered Cholera Morbus; and, notwithstanding the opposite opinion of Dr. Edwards, that large quantities of laudanum could seldom be of use in Cholera Morbus, stated that he would, under such circumstances, have given a large dose of opium, and would have continued repeating it at intervals until the retching, vomiting, and diarrhœa ceased, or till she felt better.

Dr. Daniel, also a physician of Exeter, deposes in every respect to the same effect, adding among the list of symptoms, "great thirst;" and when asked by the counsel, if he considered Cholera to proceed from bile, his reply is, "from bile and corrupt humours."

Dr. Edwards, on examination of the body, having found evident signs of considerable inflammation of the stomach and intestines, attributed the diseased action and appearances to poison, and swore to his having by chemical analysis, ascertained the existence of arsenic in the remaining contents of the intestines.

In opposition, Drs. Neale, Daniel, and Cookworthy, and Mr. Tucker, Surgeon, all of Exeter, deposed without reservation to the insufficiency of the tests

described as used, and referred without hesitation to the signs of inflammation, and the "softened, and, in some parts, nearly destroyed state of the villous lining of the stomach, to the ordinary violence of the symptoms in Cholera; and all four firmly believed that a like appearance would be found, on examination, after every fatal case of Cholera."

Dr. Edwards' inspection took place about eighty hours after decease, a period which to my Indian ideas seems too long to justify any supposition that he found the viscera unaltered, or that the appearance he describes, of the tender lining of the stomach, was any other than the commencement of the process of putrefaction; but as this is not remarked on by the other witnesses, I have only to observe, that supposing even no change to have taken place, I believe the majority of Indian surgeons would have deposed to the same effect with the four gentlemen whose opinions caused the acquittal of the prisoner.

This then is the truth, the whole truth, and nothing but the truth, and this is Cholera Morbus as attested on oath by three physicians and a surgeon; under which circumstances it really is requisite to believe that the bile may become as poisonous as arsenic, before symptoms and results of so serious a character can be allowed to pass, without further explanation being called for.

The commentary by Dr. Paris on this singular case is very interesting; but, alas! the authorities he quotes, and the learning he displays, are enough to

break the heart of an army surgeon in India, making him curse his banishment, when he feels, like Milton, mourning his blindness, which left him with "wisdom at one entrance quite shut out," that the stored up wisdom of ages gone is denied to him whose field of duty is remote from the use of public libraries and whose limited circumstances deny the means of accumulating books; in good sooth, our endeavours to be useful by communicating our observations should be received with abundant indulgence.

As we have nothing to do with the trial, I will quote no further from the observations it gives rise to, than the description relative to Cholera. The leading characters (says Dr. Paris) are, "bilious vomiting and purging, violent tormina of the bowels, cold sweats, cramps, faintings, and death:" to this are appended two quotations from Sydenham as notes, which are as follows.

"(*a*) Sydenham considered the occurrence of Cholera as a disease in England, to be confined to the month of August, at which time, says he, it appears as certainly as swallows in the early spring, or cuckoos at the approach of summer; but he himself observed it to appear sometimes towards the end of summer, when the season was unusually warm, and that the violence of the disease was in proportion to the degree of heat."

The swallow and the cuckoo simile I have already referred to, and I scarcely know whether Sydenham's poetical prose has fared worse from Dr.

Paris's translation, or the Bombay printing; the naming of the month is, however, rather worse than spoiling the beauty of the passage, for the original is, "eam anni partem, quæ æstatem fugientem atque autumnum imminentem complectitur." This may occur in September as well as August surely; and instead of saying that it is confined to that period the Latin is "amare consuevit." The next note is also a careless translation, for it says:—

"(*c*) Sydenham, describing the violent symptoms of Cholera, concludes by observing: 'And such like symptoms as frighten the bystanders, and kill the patient in twenty-four hours.' Syd. sec. iv. c. 2. It must be remembered that Sydenham is here describing an extreme case. The original is, 'Cum aliis notæ symptomatibus quæ astantes *magnopere perterrefaciant*, atque etiam angusto viginti quatuor horarum spatio ægrum interimant!'" These corrections are required in the next edition, because the errors as they now stand have a disagreeable appearance when compared with the context, unconnected with which I admit they would be trifling.

My object, however, in copying these notes, is merely that the passages in question are the very sentences quoted from Sydenham by the Bombay Medical Board, as descriptive of a disease differing from Cholera, *toto cælo*, and proving that our Indian epidemic had been felt in England "anno 1669."

On the next page, Dr. Paris, in describing the different appearances of Cholera, and the effects of

poison, observes, that, "in the true Cholera Spontanea, there is a discharge of almost pure bile by vomiting and stool, simultaneously or alternately: now, although the same vomiting and purging may arise from the action of a poison, yet it does not follow that the matter discharged is bilious." I wish the author had borrowed his notions of Cholera from Celsus, who describes the disease as it occurs in twelve degrees of latitude south of Greenwich, and in a climate where it is of every day occurrence, rather than from his own experience or from Cullen's, in a climate where it only occurs "one month in the year!" and "seldom or never proves fatal;" but it is only betwixt the tropics that a practitioner can form a just idea of the appalling characters of this disorder, when, in the language of Celsus, the bile that bursts forth has the appearance of water in which raw meat has been washed! a secretion which I can hardly suppose Dr. Paris will venture to term "pure bile," in the restricted sense in which we now apply the word to the hepatic secretion.

The manner in which Cholera ought to be treated, is delivered in an *ex-cathedra* style of animadversion on the three Exeter physicians and their surgeon, which is rather diverting: passing this as bad taste, and exceedingly injudicious, the following paragraph is good:—

"In the cure of Cholera the experience of the physicians of all ages wholly concurs. In the commencement of the disease the evacuation of the

redundant bile is to be favoured by the plentiful exhibition of mild diluents; and after the redundant bile has been thus eliminated, or when the spasmodic affections of the alimentary canal become dangerously violent, opiates, in sufficiently large doses, but in a small bulk, may be administered. 'To employ evacuants,' as Sydenham quaintly observes, 'is to increase the disturbance, and, as it were, to endeavour to quench fire by oil; and, on the other hand, to commence with opiates is shutting up the enemy in the bowels.' "

Such being the symptoms and treatment in Cholera, I put it to the serious consideration of my reader, whether a further explanation be not required of such apparently acute and urgent symptoms, which can be safely treated in such a manner; or rather be thus let alone to run their course, and be merely watched lest their over violence should form a new disease; unless we are to act empirically, and prescribe at random, without question asked or reason given; and I know no other philosophical mode of accounting for such a system succeeding under such appearances, than by supposing the symptoms to be a sanitary process, ejecting a critical secretion, which is poured forth to reduce some inexplicable oppression or nervous irritation; and what that oppression is, if not concussion of the brain, I know not. However obscure the subject may yet be, still I see, that whether concussion results from violent mechanical shocks or inordinate mental ex-

citement, these symptoms successively appear; but I do not think that the operations of nature proceed in this regular order in any other disease.

Finally, I am inclined to consider the *vomito prieto* of Mexico as another variety of Cholera. I have never been in the West Indies, nor seen the disease; but, judging from description, I have frequently seen cases of Cholera Morbus as parallel as possible, where the matter (the pure bile, I suppose!) which burst forth upwards and downwards, was the dark-brown secretion resembling coffee-grounds—the *bilis nigra*, I should imagine, of Celsus, and perhaps the μελαγχολος of the Greeks. In these cases, the successful treatment was simply to assist and support nature in her sanitary operation, as in ordinary cases of Cholera; and that this is the established practice for *vomito prieto* in Mexico, is apparent from the observations of Humboldt, from whose history I have already made such copious extracts. It, therefore, in my opinion, requires no great degree of boldness at conjecture to suppose that, notwithstanding some slight discrepancies, two diseases must in reality be the same, where the most urgent symptoms are of the same character, and where one treatment is applicable to both,—a practice, too, which is not only anomalous, but exactly opposite to anything ever attempted in any other disorder.

CHAPTER IX.

ON EPIDEMIC CHOLERA.

Having, in the course of the preceding section, stated, as clearly as I am able, the theory by which I endeavour to explain the history of Cholera, and by which alone it seems to me that the singularly contradictory statements which have been published respecting Cholera are at all capable of explanation;—having farther copied the best, and best authenticated, histories of the disease, in both its forms, there remains nothing farther than that I should state in full my personal experience in practice.

An unknown author, of new name and untried pretensions, when making his first appearance before the public, is, at the outset, so poor an authority, that I have felt an unwillingness throughout to make my own opinions so prominent a part of my discussion as might perhaps be looked for; and wherever,

as I proceeded, I could possibly bring in other names, I have never failed to do it, to support the facts on which I argued. My reader, in observing this, will either have blamed it as a fault, and have condemned the patchwork composition of my style; or, if indifferent to such subjects, and concerned only for the accuracy of the grounds on which the arguments were to be founded, will have approved the numerous quotations with which I have enriched my pages.

There is no part of the history of Cholera, either in its mild or most severe form, which seems more obscure than the whole course of its accession; yet there are particulars which, though trifling, are worth attending to, although they are not mentioned, or at least not dwelt on in any work I have had the opportunity of seeing.

The history of the plague which depopulated the Byzantine empire from the year 542 until 594—to which I have already referred—mentions that the accession of that dreadful disease was "sometimes announced by the visions of a distempered fancy; and the victim despaired, as soon as he had heard the menace, and felt the stroke of an invisible spectre." *

I have observed the same circumstance to occur very frequently in ordinary cases of Cholera, which appeared to be preceded by, or ushered in with,

* Gibbon, chap. 43. Cullen, 1096, mentions "frequent fits of incubus" as among the preceding symptoms of apoplexy.

frightful dreams—the patient awaking from a sleep, to which he had lain down in supposed perfect health, with the shock of some horrible alarm of incubus, some almost agonizing feelings, and finding himself at once assailed by the vomiting and purging; nay, more, when the disease has not been sufficiently severe to require the exhibition of opium—when the patient has slept after the subsiding of the symptoms, he has tossed to and fro in uncomfortable dozings, or started up, half delirious, for a moment, under the influence of appalling dreams—or even when wide awake, if left alone for any length of time, he has complained that he could not prevent his mind from yielding to the impression of some extraordinary delusion, of the absurdity of which he was aware, and could exert himself to resist such idle fancies; whilst the unsuccessful struggle was accompanied with a mental pain beyond description, and totally unaccountable as the result of such trifling annoyances, which, had they been true, even, would not have been painful or distressing to him when in ordinary health, but which, though he could argue with himself on the delusion, were aggravated, by his disordered state of mind and body, to torture. All this I consider as the natural consequence of cerebral excitement, and, if indicative of anything, the sure signs of nervous disorder.

When natives have come to me with incipient Cholera, I never could get much more from them, as the early history of their feelings, than that their

whole system, body and soul was in disorder, rather than in pain: the expressive phrase جیو گبھرا ہو گیا* which implies, as nearly as it can be translated, that the sufferer's feelings are indescribable, and rather nervous irritation than pain, rather mental than corporeal suffering, was the invariable reply to the first questions asked on their appearance. When pressed to enter into further particulars, they would deny that they had more to communicate; when pressed to show where they felt any uneasiness, they would appear fretful, as if they felt teazed, and would clasp their arms in succession above the elbows, and pat first one knee and then the other, then press the palms of their hands energetically against their temples; say their ears tingled, and their brain whirled round; but all these, they would instantly add, as if they feared you should attach too much importance to them, were trifling sensations; the most urgent part of their distress was an uncontrollable restlessness and uneasiness, which they could only describe by saying ! جیو گبھرا ہو گیا their very vital powers were overthrown, or in a state of utter derangement.

This complaint was ever uppermost in the minds

* What is that state of restlessness and uncomfortableness, or rather incapability of distracting the mind from a particular object, which appears at the close of parturition, as a natural instinct on the near approach of labour? May it not be adduced as explanatory of this feeling? and is it not the nervous sympathy, under a great constitutional change then taking place?

of the poor sufferers, until the spasms, by their excruciating agony, roused them up to the full sense of all about them; but, in the intervals of these overwhelming tortures, they paid no attention to anything but what was forced upon their notice, and, without being comatose, had so much the appearance of being so, that a stranger to the symptoms would scarcely think it of any advantage to proffer any questions to those who seemed so little able to reply to them. This perfectly indescribable state of apparent apathy, or of unwillingness to be disturbed, is alluded to in the Madras Report, to explain how an inaccurate observer might fancy he witnessed a case of coma; and it is mentioned as a remarkable feature of the disease, but no stress is laid upon it, either as a physiological fact, or in reference to treatment.

This demi-stupefaction, however, is really the distinguishing feature of nervous affections: it forms the main point of difference betwixt the disorder following concussion of the brain, and the result of the mechanical injury occasioning compression; for coma in different degrees, incontestibly marked by the unnatural breathing, and the appearance of the eyes, proportioned to the violence of the shock, is the almost invariable concomitant of the latter, but never appears in cases of simple concussion, even though the termination be fatal.

The histories of what the vulgar call trances are generally regarded as impostures; but I have heard

of one instance, in which I am satisfied no falsehood was attempted, where the patient lay cold and motionless, and was supposed dead; yet all the time was perfectly conscious of all that was said in the room, without the capability of speech or motion.

In recovering from syncope also, is there not a brief stage of returning sense before the return of full possession of voluntary power, wherein the patient, though evidently aware of all that is passing around, is either incapable of speech and motion, or requires to be forced to attempt any exertion, which being accomplished, he entreats to be left undisturbed, and sinks again into the demi-comatose situation alluded to?

During these suspensions of animal powers, it seems the functions of the sensorium, so far from being benumbed, are even excited; the ideas, however monstrous or however fantastical, travel with incredible rapidity, and the same excessive importance is attached to the merest trifles as to the most important concerns of life; the feelings being harrowed by imaginary alarms, which, even if the occasions were real, could excite but ridicule, were they the events of life, and encountered with a "healthy mind invigorating a healthy body."

In short, the same effect is produced upon the sensorium by disease, which it appears may be artificially induced by the use of opium; of the results of which, when resorted to by debauchees as a stimulus, the narrations that are given us are so curious

and so amusing, and not a little illustrative of a few singular circumstances in the obscure history of nervous irritability.

I am not aware that this process occurs invariably in Epidemic Cholera; it is, however, of very frequent occurrence, and nearly always ushers in milder Cholera: therefore, as the outward appearances are nearly the same, I am inclined to suspect the inward feelings are the same also; though the patient is too ill for us to trouble him on subjects which relate to nosological information, rather than what refers to his own immediate and more urgent symptoms; or rather, he is too ill to endure the exertion, or submit to the inconvenience of replying to queries, to the importance of which it is not easy to waken his attention.

Beyond this sensation of inexplicable and indescribable nervous derangement, I know nothing to set down as indicative of incipient Cholera. A slight diarrhœa, with discharge of natural evacuations, is an occasional prelude; but this seems to occur adventitiously, and perhaps depends upon a loaded state of the primæ viæ at the time.

The next apparent change is dependent on the type in which the disease is forming; if in the ordinary form, the vomiting and purging with the collapse succeed as the next series of symptoms: but this must be discussed hereafter, and I proceed now, with what I term the first stage of the disease in its worst form.

If, therefore, this is to be the aspect in which it is to show itself, the nervous irritability continues increasing; the stomach evinces no sympathy or sensibility, and the bowels no action; the patient suddenly falls senseless, as the first serious indication of disease.

It is this which, in my opinion, presents a simple case of concussion of the brain, occasioned by nervous disorder. The patient has an appearance altogether different from apoplexy, but very much resembling epilepsy in its worst forms. The collapse is as perfectly formed as in those cases where it seems to be accounted for by the prodigious quantity that has been discharged; the pulse is scarcely, if at all, perceptible at the wrist, and the unnatural cold perspiration attends the accession of the fit: finally, if the paroxysm be established in its most aggravated character, it is accompanied with rigors and trismus, and it is scarcely possible to administer medicine; what is forced into the mouth is instantly impelled forth from the nostrils; and if the nostrils be held, there results an imminent risk of suffocation, from the liquids entering the lungs through the larynx. The patient seems death-struck, and unless relieved by phlebotomy, soon expires, without there appearing the least reaction, or any sanitary process of the constitution whatever.

This is Dr. Taylor's third form of the disease; and in invasions of Cholera, as of the plague, this, which is the severest form, is generally met with at

the commencement of the epidemic; when the contagion acting, first on those who are the most predisposed, exhibits, as might naturally be expected, the most malignant symptoms.

That this is not *coup de soleil*, is proved by the patient being generally thus attacked in the night, awaking with the most distressing restlessness, and bathed in cold sweat, and becoming senseless before sunrise. That it is not epilepsy, is shown by a proof applicable equally to the above, viz., that the disease is then commencing its course as an epidemic. That it is certainly Cholera, may be allowed; for if the treatment be prompt and proper, the disease runs its course, and the powers of nature, assisted by art, are adequate, by the customary courses, to shake off and discharge the disorder.

This, then, is Cholera; for up to the cessation of fæcal discharge, and until an unusual matter, the secretion of the lining of the stomach and intestines, has commenced to succeed it, I consider the disease in progress, and nature to be enduring the shock without resisting it. It is in this, the first stage, that the aid of art is the most important and the most decisive; and the indication is, to reduce the nervous irritability, and to bring on the sanitary processes of the constitution. But it seldom happens that this stage is so clearly developed, and the surgeon has few opportunities of seeing a patient until his assistance to bring on the second stage has become unnecessary by the accession of the purging and vomiting.

Is it then meant, my reader will ask, that there is no danger in the watery discharges? Are we, when these occur, to abandon a patient to be relieved by nature, by her own processes? Certainly not! Is this the treatment recommended "by the experience of all ages," even in mild Cholera! and could it for a moment be supposed applicable to the severe?

It is well said by Mr. Abernethy, that the nervous disorders which derange the functions of the bowels are in their turn aggravated by the derangement they originally occasioned;* on which he has further most judiciously observed, that though the cerebral affection seems beyond our skill (I would add, our knowledge), the visceral disorder lies under our observation, and can be relieved by our assistance. This is the case in the second stage of Cholera, where the nervous disorder has never arisen to the severe crisis above described, but the constitutional powers of the patient have been adequate to resist it, and the sanitary process of vomiting and purging has commenced.

In mild Cholera the action of the intestines is regular, natural, and without convulsion; but in the

* "Nervous irritability and weakness are not, perhaps, susceptible of a direct cure by medicine; but the disorders of the digestive organs are more corrigible by medical remedies. In practice, these require our chief attention; and if their disorders be corrected, all nervous irritation frequently ceases, and health is restored. In many instances, the nervous irritation which has induced the disease is trivial, and would soon cease, were it not kept up by the reaction of its secondary symptoms."—Abernethy on Local Disease, p. 54.

severe form of the disease the whole business of the animal system seems, for the moment, to be the reduction of the nervous irritation, the whole circulation seems withdrawn from the other organs of secretion, and bestowed solely on the tortuous course of the intestines; even the discharge of urine is suspended, and the bladder, on dissection, is found contracted to the smallest bulk to which its muscular fibres can possibly shrink;* whilst the more inert cuticular surface is so totally deprived of circulating fluid and nervous energy, that the temporary subtraction of life from the surface is found more complete than is proved to be the case, where life itself, in the ordinary course of dissolution, has left the senseless clay an inanimate mass, to feel no more until the last day shall re-awaken it. During such an inordinate action, it is impossible to suppose we may watch the convulsive struggle, and consider our assistance unrequired.

It is at this period that Cholera appears to me a course of reciprocal reactions betwixt the cerebral and visceral organs, in a manner which Mr. Abernethy has shown may exist in a natural process, but which, if it could be established in mechanics, would form the long sought for perpetual motion. The nervous irritation excites the bowels to a convulsive

* "But the bladder was most singularly contracted, and did not exceed in size a large nutmeg; yet without inflammation, or any apparent disease, except its contracted state.—Dr. Duffin's Rep., Nov. 1787. *Madras Rep.* p. 245. Another letter mentions the bladder contracted to the dimensions of a walnut."

action, which rapidly amounts to disorder; this derangement reacts upon the brain, and that organ again reacts upon the viscera, in a series of ternary and quaternary reactions, under the effects of which the patient soon sinks beyond recovery.

The singular fact that the skin, in severe Cholera, is more inert than in a corpse recently dead, is assuredly an incontrovertible proof that the whole powers of life are for the moment diverted to some other course, and that the discharge is not an accidental evacuation. In paralysis, a limb which is dead to the patient is as sensible to the action of a blister as are the other living parts, and yields serum as abundantly. There is no difficulty in raising a blister, and extracting serum in the most perfect form of syncope, as I have had an opportunity of witnessing; for I was once summoned to a lady in the most complete corpse-like collapse of syncope I ever saw. She had been freely bled, and the surgeon had left her, thinking her quite well, when an indiscreet attempt to walk some distance brought on the fainting. I was surprised, on examining the patient's countenance, to find a tolerably large blister covering the whole upper lip, and extending up both nostrils, and full of serum: on inquiry, I found it had been occasioned by an incautious application of Henry's aromatic vinegar; yet all this time, the patient had been as perfectly collapsed, and more senseless, than is the case in Cholera.

The mere diminution of nervous energy does not,

therefore, explain the circumstance; for certainly palsy on the one hand, and syncope on the other, nay, death itself (which one would be apt to consider as total deprivation), are more undeniable and palpable diminutions of nervous energy than Cholera can be.

But to prove this still more satisfactorily, when the convulsive struggle I am alluding to ceases, another course of action follows, and a partial warmth, or at times a feverish heat supervenes, but nature being overcome, the patient expires; yet this heat continues in the corpse unusually long, and a body which a few hours before, during some struggle of nature, would not yield, under the stimulus of even boiling water, the appearance of vesication and discharge of serum; now that it lies dissolved in death! and those internal convulsions are ceased, can be acted on by a stimulus against which it was proof in life, during the energetic struggle by which the principle of life endeavoured to resist the principle of destruction.

Can we then suppose otherwise than that the collapse in Cholera is occasioned by the call which nature makes upon the circulating fluid, withdrawing it from all minor operations, and discharging it in one flood along the secreting surfaces of the intestines, whose convulsive action is thereby excited, or is then at work, to reduce the stimulating irritation? And is it possible that those surfaces could endure such a determination towards them, without suffering

sufficiently under the process to occasion the destruction of life by nervous sympathy, dependent on visceral derangement, even if the native resources of the constitution were adequate to resist the violence of the active part of the disease?

This, then, is the second stage of Cholera, characterized by vomiting and purging, the reaction of the stomach and bowels in sympathy with, and curative of, the nervous irritability which formed the first stage. It is, however, a process of convulsive operations, which, even in the mild form of the disease, is scarcely to be left entirely to nature; but, in the severe form, the assistance of art is indispensable; and the indication is, to moderate the inordinate action, and to endeavour to check the unnatural secretions of the bowels, by inducing their healthy and usual evacuations, and to support the constitution during the convulsive struggle the system is undergoing.

If this indication cannot be accomplished, the symptoms of approaching dissolution are soon exhibited; and here the surgeon has little to do beyond keeping up appearances such as are required for his own sake, to soothe the feelings of the bystanders, who deem that while there is life there is hope,—a sentiment which no surgeon should trifle with, and, however conscious of the fruitlessness of his endeavours, should appear to protract his exertions to the last, as though hoping against hope, with unflagging zeal and patient humanity.

Should he, however, succeed in saving his patient during the second stage, he has still a third stage for which he must be prepared. There will appear, at uncertain intervals dependent upon the constitutional resources of the patient, the necessary subsequent reaction—the febricula of Celsus—which requires a greater degree of attention than is generally believed. How often have I found it difficult to preserve the due gravity of countenance expected by the deponent, at the absurd and awkward consternation with which I have heard some self-constituted surgeon bemoaning the unlooked-for catastrophe of some ill-fated wretch of a servant, whom his stars or his evil fortune had destined to such an end! The exclamation is,—"I really thought I had saved the poor fellow. I gave him the dose"—(a scruple of calomel and a dram of laudanum, and a potent dose of brandy, &c.)—"then put him into the hot bath, which seemed to relieve the spasms immediately. All the symptoms stopped at once, and I thought him quite well. He answered readily to every question proposed to him: but he continued growing colder and colder, and all at once he turned on his side, made an effort to vomit, and expired!"

This order of practitioners is very numerous in India, and is in the daily perpetration of much mischief; for what Humboldt says of the good monks of San Juan de Dios, who took to practising surgery, may be applied here—that, however praiseworthy their intentions may be, yet, at a sick-bed, mere

humanity will not compensate for the absence of professional knowledge. It would, however, be hard to visit their malpractice more unkindly than with a smile, during the prevalence of an epidemic, for at such periods we are thankful for their assistance.

During this third stage, or febricula, all depends upon the surgeon's promptitude and decision. The patient is exhausted, and the slightest accession of feverish exacerbation is sometimes sufficient to destroy him. Lieutenant Colonel * * * of the Bombay army was taken ill with Cholera about noon, and died in the evening; but, previous to his decease, he had been left by the surgeon and his friends as quite well!—a happy escape! No one but a servant was with him, to whom he observed, that he should next day feel very weak, and should require jellies, when, turning on his side as if composing himself to sleep, he fell into the agonies of death, and went off with a scarcely perceptible convulsion. This case is not quoted as anything very particular or uncommon, but as one of the many similar to it that I have seen or heard of.

The Bombay Report states, that the subsequent fever which generally accompanied Cholera in Bengal had been "but little, if at all, observed on the western side of India." If, instead of the word "fever," the diminutive febricula of Celsus be substituted, I can say that my experience has been exactly the reverse, having never seen an instance of recovery from Cholera without it, and having

seen many fatal cases where the unfavourable termination seemed solely attributable to its accession.

The indication in this stage is best answered by vigilance; for very simple remedies are sufficient to guard against an irritation which owes its importance only to the suddenness of its coming on, and the debilitated state in which it finds the patient, and which, if watched in its approach, requires no particular attention afterwards, and is seldom accompanied with any serious inconvenience.

Having thus stated what seem to me the indications in the three stages of Cholera, I now proceed to discuss the different modes of answering them.

In that form of the disease which I consider as its first stage, it is stated by Captain Sykes, that bleeding with an emetic and cathartic served to relieve the patient in a few hours. This was decisive and philosophical practice, whoever pursued it; and I wish the surgeon himself, instead of an accidental unprofessional observer, had published it. He might probably have saved me the trouble of writing this book; or at least he would have mentioned his reasons for the practice, and what emetics and cathartics he used, and the exact number of the hours in which he was able to administer the cathartic after the emetic.

Among the voluminous documents that have been published, few cases are of the above character. Dr. Jukes of Tannah publishes one, respecting which, at the conclusion of his history, he makes the

following striking observation, which is wonderfully illustrative of the way in which people wrote and thought about Cholera at the outset:—

"It may, perhaps, be objected to this case, that it may not have been one of the prevailing epidemic, and therefore may admit of a doubt whether bleeding is required in that disease. I believe, however, that most medical men who have seen much of the disease, as it has appeared on this side of India, have had too many opportunities of seeing such cases, &c. &c. For my own part, I have no doubt but that it was really an attack of the prevailing epidemic under *an aggravated form*, and that nothing but the early and copious abstraction of blood saved his life."

In this case the patient, a peon * of the revenue department, when cleaning his gun, being on duty in the guard-room of the police, fell suddenly senseless, and became immediately what we now term collapsed. Medical assistance was immediately procured, and the treatment was by bleeding: but, in order to procure blood, it was requisite to open three veins, by doing which Dr. Jukes was able to extract *about forty ounces of blood;* the hot bath was then had recourse to, and then (though the Doctor thinks it was rather supererogatory) calomel and laudanum. The patient recovered; but there can be no doubt

* Pronounced *pune*, a foot-soldier. The pawn in chess is supposed to be derived hence, and to help to prove the oriental origin of the game.

the treatment was unphilosophical, and that the emetic and cathartic, to stimulate the constitution to its natural discharges for the relief of the disease, is the correct course of procedure.

Dr. Jukes, however, had a theory of his own; and, as I have already said, a man seldom takes the trouble to set up and publish a theory without endeavouring to give it a fair appearance. This requires that he should gather together all the facts within his reach, and arrange them in the best order in his power: all this requires that he should think a little on the subject; and I beg to assure my reader, that I have met few men whose thoughts of any subject were better worth knowing than Dr. Jukes, even where the final deduction he might resolve on was not exactly defensible. I will therefore state his notions in his own words, for they are to the point, when canvassing this part of the discussion:—

"Before I had to combat with the disease I was very sanguine, and thought that the early application of caloric externally and internally, while I abstracted blood largely to relieve the congestion of the internal parts, which I believed to exist, would be attended with the happiest effects, and I *almost* fancied might *supersede even* the use of calomel and opium.

"I soon had opportunities of applying theory to practice, and *I think that, in most cases, success would attend it,* when applied early. It is very true, and very fortunate, that calomel and opium in large doses cure a very large proportion of those attacked with

the disease; for it would be absolutely impossible, where so many are affected, to have recourse to the hot bath and bleeding, even if they were found more successful. Some cases, however, do occur, *now and then*, where, notwithstanding the calomel and opium have been given early, success has not attended their use; and I am inclined to think that many lives have been saved by the use of the lancet, which would otherwise have terminated fatally.

"Without at all adverting to the origin or immediate exciting cause of this very formidable disease, it must be quite evident to every common observer, that if the blood which now fills the vessels and warms the extremities should, from any cause, be suddenly withdrawn from them, it is not annihilated.* It is not now in the superficial veins, for they are all collapsed; the pulses at the wrist have ceased to beat, or beat very languidly; and, in short, the sodden appearance of the hands and feet at once bespeaks the abstraction of the vital fluid from all those parts.

"It must be quite evident, then, that some of the internal vessels must contain a very undue proportion of blood; and dissections have proved this to be the case in the most satisfactory manner. What, then, I would ask, are the inferences which such a theory

* The argument is applied to the disease in every form; but where purging and vomiting have been violent, and of some continuance, a diminution of the circulating fluid must have been the consequence: this, therefore, is only applicable to the disease in its first stage, and during the progress of nervous irritability, previous to the accession of the second stage of visceral sympathy.

and such facts oblige us to draw? Surely, in the first place, to relieve the congestion of the internal vessels by copious bleeding; and, in the next place, to stimulate the heart and the vital powers into action.

"There is nothing more immediately stimulating to the arterial system than heat, and hence the hot bath is strongly indicated, and my own practice substantiates the truth of the theory."—*Bombay Report*, p. 157.

There is much valuable reasoning in the above, though the inference drawn is decidedly wrong. Nature herself points out the best stimulus to the arterial system, when the constitution is collapsed. Syncope, when severe, the cold fit of ague, and the cold sweat and shudder following excruciating pain, are all diminution of nervous energy, similar to that which forms the collapse of Cholera, and these all end by vomit; nor would any man in his senses think of parboiling in such cases:* the utmost,

* Our practitioners so completely made up their minds to consider the Epidemic as something horrible, and new in character, that they appear to have laid aside, with one consent, their experience in all former disorders, to follow any theory in the management of the disease they imagined so utterly inexplicable. The idea of forcing nature mechanically to change a course of action, would be rejected under any other circumstances. In alluding to the absurdity of endeavouring to check the cold fit of ague by the hot bath, it is perhaps necessary to observe, that the opposite system of cold affusion in the hot stage is calculated on the principle of reaction, and operates by stimulating nature to assume more rapidly her own regular changes.

I have seen many melancholy instances of error of judgment on

therefore, that can be said of the hot bath is, that it is fortunate when it proves a relief to the cramps without doing harm. Mr. Chambers gives five very sensible objections to the use of the hot bath: that it appears to increase the fatal debility and relaxation of the skin, and cold sweat; that the patient frequently sinks on removal from the bath; that the erect position, or, in fact, the necessary locomotion, however trifling, frequently occasions syncope, from which the patient never recovers; and that, to use his own words, "most epidemic patients have an unconquerable aversion to the warm bath, and I have known many of them, *who were apparently comatose at the time*, roar out with horror at the apprehension of being immersed in it; indeed, let the surface be ever so cold, they generally appear intolerant of the application of external heat of any sort; and as its officious application may, in many instances, tend to prevent what, of all things, is most desirable—sleep—I think it is best done by heated sand or ashes, in

this head committed by the poor patients; for, of course, no medical man could be guilty of it. One occurred only a few weeks ago, not far from hence: A young gentleman having fever, when the hot stage had overpowered his patience in endurance, immersed himself in a cold bath, where he remained until the feverish heat yielded to the cold applied mechanically; but the cold that succeeded was the freezing hand of death. Nothing could restore warmth or circulation, and he died in a few hours. I have read in some Italian author of a patient, I think an aged cardinal, dying exactly in the same way, from the effect of an enema, introduced by mistake iced, during a hot fit of fever: it chilled the patient, who never regained his natural warmth, but died, as far as I remember, the following day.

an old soft cloth, applied by the attendants, in the gentlest manner possible, all over the surface."*

The conclusion of this paragraph is curiously in opposition to the context, where the writer has evidently leaned towards a system diametrically opposite, but to have shrunk from yielding his assent, or at least his name, to what might be considered by others so paradoxical.

The fact is, that many patients who were strong and vigorous, and writhing in convulsive cramps, when immersed in the bath, suffer a sort of syncope of bodily powers—say they are dying, and do die exhausted, as they are taken out. This was the case with Dr. Cotgrave, and I believe also with poor Jukes himself, whose hard destiny it was, after having brunted Cholera in all its forms in India, to perish under it in Persia, at a moment when his talents had procured him the very unusual distinction, for a medical officer, of an honourable and lucrative employment in the political department in that interesting country.

Celsus mentions even cold applications to the stomach for the spasms of Cholera; and, however startling this may appear, yet the whole of Mr. Chalmer's letter goes to prove, that, if he could have found an authority for such a practice, he was not unlikely to have pursued it. The case of Mr. O——, given by Mr. Dyer,† exemplifies what he has stated

* Madras Report, p. 144.

† Ibid. p. 273.

of repugnance of certain patients to the warm bath; and when it is remembered that the skin is at a temperature below fifty, there is no difficulty in imagining that, to be suddenly extended in a bath of the temperature of one hundred and twenty, must be attended with torture. Let any one who doubts this try the experiment, by plunging his hand only into water of that heat, after having held it a few minutes in the coldest water to be procured, and he will feel the shock too painful to be endured, even when in health.

Under all these circumstances, I never recommend nor make use of the hot bath; and in lieu of the acrid stimulating frictions I read of in our modern reports, I prefer the oil in which a little wax has been dissolved,* of the Greek practitioners, to any other application. It causes the mechanical stimulus of tractation to be borne without uneasiness, and I think it has some effect, which I am unable to explain, in checking the colliquative cold sweat which is so abundant and debilitating.

To return to Dr. Jukes's case:—The calomel and laudanum cannot be applauded. The practice falls directly under the censure of Sydenham. No vomiting or purging had taken place, but "about forty ounces of blood" had been extracted; which must be a very rough guess, for three veins had been opened, and at one time, we are told, the streams had flowed

* Adding just enough of camphor to impart its odour to the unguent, and opium to assist in allaying irritation.

in a full current from each. This, no doubt, it was which relieved the nervous irritability. The blood which had been determined to the secreting surfaces of the intestines was withdrawn, and the congestion there was mechanically diminished by diminution of bulk. The shock which nature had received from contagion or impure atmosphere was reduced by an artificial and shorter process than her own mode of operation, and the constitution was restored to its natural equilibrium. But to follow this up with calomel in a sedative dose, and laudanum to insure its being so, was incurring no trifling risk ; and, in fact, we find that, three hours afterwards, " a few more drops of laudanum and peppermint " were necessary to relieve " uneasiness at stomach."

The few cases of this kind which first fell under my observation, I did not consider to be cases of the epidemic, but imagined them to be epilepsy when they occurred by night, or *coup de soleil* when the patient was attacked by day. My first suspicion of the true character of these anomalous diseases arose from an accident. No one then thought of Cholera in any other form than as vomiting and purging, nor had I any other idea of it : thus the first instances passed unobserved.

In September 1818, a patient applied to me at my dispensary for medicines, having, as he thought himself, and I thought also, the chill of an incipient cold fit of ague on him. I gave him immediately an emetic bade him go home and drink freely of hot

water, and ordered one of my establishment to give him a purge in the evening, and after freely evacuating his bowels, to supply him with bark, &c., and in less than an hour afterwards I received information that the poor creature had the Cholera, on which I hastened to his house, and found it was the case.

It depends a great deal upon a man's general character, whether he may confess an error without suffering by it, in this case I had done right by accident; at all events, a man who has charge of city dispensary practice, dependent for its extent and utility upon his own virtue and humanity, when his patients vary from a score to a hundred paupers besetting his door, as the season happens to be healthy or otherwise, will often have occasion to blame himself for rashness of practice as well as flagging industry and infirmity of temper. On this occasion what was perhaps negligence saved the patient's life: I had about a dozen ague cases all shivering before me, and I gave the emetics all round; a few more questions to the Cholera patient might have enlightened me that it was not ague, but I certainly should never have thought of Cholera.

When the disease was clearly developed as Cholera, the watery evacuations forcibly ejected with spasmodic violence upwards and downwards, cramps, and collapse all present, but not of many minutes' continuance, except the last, which I had mistaken for the commencement of ague; I resolved to diminish the circulating fluid from which alone these

secretions could be furnished, which I hoped might stop the evacuation by relieving the determination towards the bowels, without the existence of which congestion I considered it impossible such extraordinary quantities of unnatural matter could be supplied. I accordingly opened a vein, and with much difficulty extracted twelve ounces of blood: with the extraction of blood, however, the vomiting ceased and the cramps were wonderfully relieved, and the returning warmth was evident; when on the patient complaining of a heat like a fire in his stomach, I administered a full dose of laudanum and castor oil,* followed at intervals of half an hour, with pills of camphor and opium, until he fell asleep. The next morning he appeared at the dispensary door to report himself well. I then made the inquiry which ought to have been made the preceding day, of how long he had felt the coldness and ague, feelings for which he had applied to me; his answer was, nearly two days, during which period he had eaten nothing, the sight and smell of food being disgusting; nor had he drank much, he had not felt thirst: devoid of strength, devoid of heat and energy, he had wrapt himself up in his bedding, and, as he suffered no positive pain, was patiently waiting the issue, when his family forced him to apply to me.

I think there can be no doubt this was a case of incipient Cholera, treated by mistake in a proper

* Ricini Olei oz. i., Tinct. Opii dr. i. Meliis oz. ss., Mucilaginis q. s.

manner. The same circumstance has befallen me twice since; in both instances incipient Cholera was considered as incipient ague, and in one of these the patient, who had suffered very much from fever the preceding season, and was familiar with the symptoms, considered the sensations he experienced to be those of ague, and represented them as such to me. The treatment was the same as in the case detailed in the last paragraph, and equally successful.

It was in April, 1820, that I saw this form of the disease in the epidemic character, at Broach, through which place I was then passing on a journey.

I had scarcely arrived ere one of the servants of my host was reported dying of the *jerree murree*,* or Cholera; he had that instant been in the room in the discharge of his duties, of which he reminded me when I went to him, and when I could scarcely credit the possibility of a man being so altered from perfect health to the aspect of a corpse in a few seconds. Notwithstanding his being so far sensible as to be able to answer my questions, I considered the case *coup de soleil*, and opened a vein immediately; but hardly had eight ounces of blood dribbled forth ere the patient was seized with violent cramps of the extremities, and commenced the Cholera vomiting and purging simultaneously; the manner and the matter could not be mistaken; but with this the patient seemed less comatose; the blood continued to improve in colour and facility of dis-

* Rapid death.

charge, so that twenty-four ounces being obtained, there would have been no difficulty in extracting more had it been requisite. The patient was then made to drink copiously of warm water to promote the first attempt at vomiting; then of port wine and congee, at a tepid temperature, freely; two ounces of wine being diluted with a pint of conjee, and the patient in one hour taking in this manner four ounces. The skin in less than an hour resumed the natural feeling, and the vomiting had ceased, when the inward heat commencing I administered the castor oil with laudanum, to excite the bowels to their natural action, and to allay the internal irritation. The patient after taking this had only two more discharges of watery matter, after which he fell asleep, and awaking after about four hours found himself relieved of every bad symptom. The castor oil operated mildly, and its operation prevented the occurrence of any febrile reaction.

I mentioned this immediately to Mr. West, the garrison surgeon of the place, who replied that similar cases were then of almost hourly occurrence, and that the poor creatures generally perished before assistance could possibly be afforded. Anxious to see more of them, I directed the police peons of the suburb in which I resided to apply to me for assistance on such occasions; and accordingly, during the four days I halted at Broach, I saw nine cases, of which three, including the first already described, were relieved after bleeding by the natural processes

spontaneously succeeding, and required nothing but a mild cordial diluent drink, and the castor oil with laudanum. Five were similar to the case quoted from Dr. Jukes: they were treated according to the practice desired by Captain Sykes, viz. bleeding to reduce the nervous irritability—an antimonial emetic to excite the constitution to its natural process, to relieve the collapse, followed by the castor oil with laudanum. Of these five, two died, without my being able to explain satisfactorily under what circumstances, as they appeared in no respect worse than the others; and assistance had been afforded with nearly equal promptitude in all. The only difference at the commencement was deficiency of vomiting; and perhaps a repetition of the emetic would be desirable in such cases, or if it were possible to establish a criterion by which to form a judgment of the state of the stomach, the use of sulphate of zinc, instead of tartarized antimony. In the three cases which recovered, no sooner did the stomach show that the stimulus of the emetic excited it, than the bowels sympathized, and the discharge upwards and downwards, from its appearance, and the spasmodic mode of ejection, proved Cholera. This was first assisted by diluent tepid drinks, then moderated by mild cordials, and finally checked by the castor oil with laudanum, which never fails, when retained on the stomach under such circumstances, to bring on a fæcal discharge instead of the watery, and to alleviate the griding sensation of

inward burning, the most intolerable of the Cholera symptoms.

The ninth case was fatal, without my being able to do much: the patient had fallen as in a fit in the bazaar. I obtained two pounds of blood without difficulty, but the patient never recovered in the least; and as there was a perfect coma, with stertorous breathing, pupils insensible to light, I should have considered the case apoplexy but for the collapse. The natural heat partially returned after bleeding, but I could get no medicine down the patient's throat, and the patient expired within an hour of my seeing him. I was proceeding instantly to examine the head of the corpse, to ascertain, if possible, the cause of death, when I was stopped short by the friends of the deceased, who assured me, that if I disturbed the internal organs, either of the cerebrum or viscera, the corpse would become as the relics of one excommunicated, and could not be burned with the usual rites of Brahmin funerals. To this I had nothing to answer, for they sung Sunscrit slokes* in my ear as fast as human organs had the power of delivering them, and neither law nor reason gave me authority to act against their wishes.†

I have since then seen many of these cases, especially this year (1826), in May last, when they were of such appalling frequency, the poor people dropping

* Couplets of Sanscrit verse.

† See Colebrook on Hindu law—324—Brahmè purana. "Of degraded persons there shall be no cremation, nor funeral sacrifice, nor gathering of their bones."

down and dying in the streets, that the Guicowar, the Mahratta sovereign of Baroda and its environs, issued a sort of proclamation, warning his lieges against the imprudence of venturing too much abroad during the noontide heat of the Guzeratte dog-days, which may be calculated from the end of March until rain falls early in June. As the result of this experience, I would recommend to my reader the plan I have always pursued, and which is so pithily stated in Captain Sykes's letter, of "bleeding, followed by an emetic and cathartic," as the system which seems most plausible in theory, and, so far as I can depend upon my own judgment, safest in practice.

The second stage of the disease is the common form of its appearance; it very seldom happening that the first stage is of sufficiently marked a character to demand or enforce attention. It is, indeed, ushered in by an indescribable derangement of the system, rather than disease, which, Mr. Orton says, may last sometimes several days; a circumstance which I have already shown to have occurred in my own observation. But here it has none of that decisive epileptic acrimony which characterises the preceding form of the epidemic, and the patient never considers it necessary to apply for relief until either the cholic spasms and general cramps, or the vomiting and purging, are fully established.

The first of these is not of frequent occurrence; it has a partial resemblance to the first stage, or may be said to be a connecting link betwixt the first and

second forms, marking that state of the disorder where the nervous irritability does not rise to concussion of the brain, distinguishable by any of its more palpably evident symptoms; and where, on the other hand, the bowels and stomach are slower in adopting the sanitary process. It is this form which seems to have suggested the term spasmodic Cholera, as the spasms of the intestines, and in fact the whole body, form the only apparent symptom. A very few moments of neglect, however, suffice to prove the real nature of the disease, and it then becomes a very dangerous form of Cholera; for, independent of the excruciating pain, the violence of the spasms can scarcely fail to induce inflammation, in consequence of which we have a new disease to attend to, when the exhausted strength of the patient is hardly adequate for the endurance of a second struggle. If, however, practice be prompt, bleeding to deliquium, followed by a cautious dose of castor oil with laudanum and nitric ether, to moderate its action and alleviate pain, are nearly all that is requisite.

These are cases which, if they did not occur during the prevalence of the epidemic, would pass for inordinately severe cholic: but, independent of the countenance indicating a disease more immediately acting upon and overthrowing the vital principle, it not unfrequently happens that the instant the blood has begun to flow, the natural course of watery vomiting and purging commences, and the treatment becomes the same as already detailed in the former stage.

The second form of the disease—that wherein the vomiting and purging appear as the first serious symptoms—is the one which most requires our attention. Of a hundred cases, not more than four or five present themselves to us in any other character. It is here, therefore, that it becomes incumbent on us to fix our closest and chiefest attention; and if I have appeared to linger too long on less urgent matter, it will be seen that all I have yet written tends, provided my opinions be correct, to illustrate this form of the epidemic, and is explanatory of the mode of operation of these symptoms.

Before, however, I proceed with the history and treatment of this stage, I must once more detain the reader to examine the sweeping denunciation of Sydenham, that, in Cholera, "to give opiates is to shut up an enemy in the bowels;" and that, "to administer aperients is to add oil to fire." The first part of the sentence is so correct, that the attention is distracted from the fallacy of the second, by the apparent plausibility of the theory. But is not the exact reverse of that axiom the daily practice pursued in diarrhœas and dysenteries? Does any practitioner venture to exhibit astringents or tonics in any one form of those diseases, until he has, by guarded aperients, cleared the intestinal canal of the cause of irritation? And, what is much more to the purpose, is not phlebotomy the commonest and first resource in unnatural and inordinate hæmorrhages, whencesoever the discharge may be?—the mere exist-

ence of the symptom being held, with but few exceptions, as the sure demonstration of a plethora which nature herself is labouring to produce; and yet all this, which is assuredly the only safe and rational practice, falls under the censure of Sydenham, and might, in his language, be termed "adding oil to fire," and so be condemned accordingly.

If it be answered that, in Cholera, the bowels are pouring forth as much as is required to discharge the irritating matter, and are supplying it in such quantities, and ejecting it with such violence, that any assistance to this process is, to say the least, supererogatory,—I reply, yes, if the mere bulk of the mass discharged were an object, I allow the bowels of themselves will pour forth enough to satisfy any Paulo Purganti. But the cause of irritation is not thereby to be discharged; it is nervous, not visceral irritation. There is a course of action and reaction established betwixt the nervous and visceral organs, which requires first to be interrupted, and then checked, as in ague; we gain a point when we can break the regularity of the recurrence in the paroxysms. There is an inordinate secretion in progress (I speak of severe Cholera), which, originally a secondary symptom, and in mild cases a sanitary process, has attained a severity of action constituting it a disease, and which requires to be—checked? Yes, certainly; but how? Not by astringents, nor sedatives, nor acrid stimulants, but by inducing the bowels to assume their natural, instead of an unnatu-

ral action; and, to obtain this end, a mild excitement must be applied to the bowels, and it can be applied in mild Cholera as food, but in severe Cholera in no other form than as a guarded aperient. I first tried rhubarb, but the internal spasms soon suggested castor-oil; and the result proved so satisfactory that I have had few cases of Cholera under my care since in which I have not administered it.

This being my regular, and, I may venture to say, a successful practice, I was much gratified at finding, from the Madras Report, that this system had been proved, more than forty years ago, a safe and salutary course by Drs. Duffins and Davis, at Arcot and at Vellore; and I cannot but deeply regret that the valuable record in the journals of the Madras Medical Board were, to my misfortune, so long in reaching me, as it would have saved me no little distress of mind, during that anxious period which intervened betwixt my first experiment and my being ultimately convinced of the correctness of the reasoning which led to it, and the practice I was adopting.

The system of Celsus includes the administering even of food, to incite the bowels to assume their natural course of action, after having first assisted and encouraged the Cholera discharges. "But," says he, "when the crude matter is evacuated, the failure of strength is greatly to be dreaded: therefore it is requisite to have recourse to wine. And this ought to be weak and aromatic, and diluted with

cold water; the benefit of which is farther enhanced by the addition of Polenta * or honey; and as often as anything is evacuated either by vomit or stool, so often to restore strength by these." This, although well suited for mild Cholera, is not a practice sufficiently energetic for the Indian epidemic or severe Cholera. Here, though the indication is exactly the same, it must be answered by other means, the symptoms being too urgent to admit of such simple remedies alone being depended on.

The appearance of patients in Cholera has been so frequently, and, in truth, so interminably dwelt on, that I will pass it with the notice already bestowed on it. The indication, it has been stated, seems, in the second stage, to reduce the exciting irritability, to moderate the inordinate discharge, by inducing a healthy action of the bowels, and to support the constitution during the convulsive struggle it is undergoing.

* Polenta—"Polenta a farinâ Hordei distat, eo quod torretur,"—Pliny, 22, 25;—barley-flour, in fact, dried at the fire, and roasted, after having been sprinkled with water, and commonly used for a sort of gruel; as in India, by precisely the same process, they make the brown soojee.

Dr. Neale, of Exeter, in the trial above quoted, speaks of mutton-broth as one of the warm fluids he should cause his patients to drink plentifully of; and Mr. Chalmers—see the Madras Report, p. 145—in describing his practice, says,—"For drink, the patients have first warm conjee, with ginger or spirits, and then good Mulloogatauny!"—curry soup, an article of diet for patient or practitioner, which, when made by a Madras cook, may be quoted among the few good things in India. Given, however, in Cholera, it is certainly not far from the spiced barley-flour, sweet wine-gruel of Celsus.

I know no better method of answering these, than by abstracting blood, in reference to the strength and state of the patient for the extent; by administering castor-oil with laudanum, the former as a mild purgative, to induce a healthy action of the bowels, in place of the inordinate and now diseased secretion; and the latter to assist in allaying the irritation of the stomach and bowels, and to guard against the over-action of the oil; with a blister applied to the scrobiculus cordis, as a counter-irritant, to assist the operation of the oil and laudanum; and camphor, in substance, with opium, in pills, to allay the spasms, and check the violence of the purging, after the vomiting has ceased; and, finally, exciting, but not intoxicating! or acrid stimulants! as cordials, to support the sinking strength of the patient.

The whole of these are requisite in almost every case, at least to expedite, if not to ensure the cure; but where the presence of a medical officer cannot be obtained—that is, in the town, streets, or remote villages, I have instructed the native practisers of physic, in a simpler form, of the same general tendency.

During the prevalence of the epidemic, I have always been in the habit of preparing bottles of what I term Cholera Mixture, and boxes of what I call Cholera Pills; and of these I have given a bottleful of the former, and a box containing fifty pills, to any officer or respectable native who applied to me, for the use of their own servants, dependants, or neighbourhood. Of these the quantities I distri-

buted would surprise the reader, could I mention the amount; but the idea of keeping the record, requisite to be able to speak accurately, never occurred to me.

For the mixture, I mingled of castor-oil and honey each six ounces; tincture of opium, twelve drachms; and camphor mixture, ten ounces and a half. For the pills, I powdered three ounces of camphor* by friction, adding the necessary small quantity of spirit of nitric ether in lieu of common alcohol; then dissolving two ounces of gum opium in tenacious mucilage of acacia gum, I had the whole effectually beaten into a mass, and divided into 480 pills, each of course containing three grains of camphor and two of opium.

The directions were, that the patients, as soon as they were attacked, should be made to drink plentifully of hot water, which being vomited up, and the irritation of stomach for a moment relieved, two ounces of the mixture were to be administered; if sickness returned, a copious draught, or at least a pint, of warm infusion of the toolsee† (Ocimum gratissimum), an herb always at hand as the sacred plant of the Hindoos, should be given. This infusion was generally at first vomited up; but the second draught, if it did not allay the sickness, always came up with less of pain and spasms. One of the pills was then to be given, and, if vomited up, to be re-

* Subsequently, one ounce each of powdered camphor, ginger, and red pepper.

† Infusion of dried ginger was afterwards found more agreeable and more easily procurable

peated after each vomit. When the stomach was soothed by the pills, and, one ghurry* after the last vomit, a second dose of two ounces of the mixture was to be administered, and the patient was permitted to quench his thirst, or allay the burning heat at the stomach, by drinking equal parts of milk and thick rice-water cold; after which, in ordinary cases, the patient would sleep. If these did not, however, give relief, but the vomiting continued, they were directed to apply scalding water to the scrobiculus cordi, so as to raise an instantaneous blister: this was to be done by laying a piece of thick cloth over the spot to be blistered, and dropping hot water on it until it was thoroughly moistened; then taking it off, and wringing out the moisture, to reapply it in the same manner, again and again, until the cuticle was abraded, when the sore was to be dressed with an ointment made of equal parts of turpentine, wax, and sweet oil; or, as they could not generally be brought to this rough process, they were to procure one of their barber-surgeons, and apply the actual cautery to the region of the stomach,—a much rougher practice, certainly, but, being in ordinary usage among themselves, they seldom make any violent objection; and, in this case, it is not so much the feelings of the patient, as the superstition and prejudices of the by-

* On this side of India the natives divide their time into three paers, or equal parts, of the day, and three of the night; each paer is subdivided into eight ghurries, so that a ghurry is exactly half an hour.

standers, that require to be overruled. Their mode of applying the cautery is to draw a kind of network of cross-lines, with a reed pen and common ink, over the spot to be operated on; this, as soon as dry, is gently touched wherever the lines intersect each other, with a needle nearly red-hot,* and a poultice of cow-dung and turmeric is applied on the completion of the operation. After this operation the pills were to be repeated every ghurry, and, as soon as the vomiting ceased, a third dose of the mixture was to be administered. In the mean while, the belly and extremities were to be rubbed with a liniment formed of two drachms each of opium and camphor, and half an ounce of wax, dissolved in a pound of sweet oil. The frictions were directed to be suited to the feelings of the patient, and not be carried on with a roughness likely to prevent the accession of sleep. Finally, the pills were ordered to be con-

* The natives are rough enough in their application of the cautery to themselves, and especially to their children, who are sadly scored, poor creatures, on very trifling occasions; but towards animals their system is very cruel. They never think of rest as a requisite for a sprain or an ulcer, but work the unhappy beast until it drops. They then begin to think what is best to be done; and as making a coulter red hot is nearly the least expensive medicament they can have recourse to, they resort to it forthwith, and with the most merciless application that can be imagined. Supposing, therefore, the beast to have an ailment—which, being let alone, would, with rest and good food, get well in a month—they inflict a series of burns and wounds, which it requires two months to heal; as, therefore, the original affection gets well of itself in the interval of rest, they bless the omnipotent healing powers of the cautery, which prevails so triumphantly over all the natural shocks that bullock or camel flesh is heir to!

tinued every ghurry until the patient slept; and soo-jee (a nutritious gruel made with wheat flour), cold, and diluted with milk, was to be supplied as drink, alternately with the aromatic infusion of basil.

This process was no doubt faithfully practised where any person above the most squalid poverty was affected; and I am satisfied was accompanied with great success, from the statements of people of all classes, Hindoos and Mahommedans, and their importunity in applying to me for medicines, whilst the administering of a glassful of the mixture and a few pills was so easy, that by leaving the medicines at the guard-rooms of the police establishments in the main streets, the meanest and humblest of the poor who resided in the vicinity, or were found dying in the streets, had the hopes of relief, and I entertain no doubt were immediately assisted. Such were the simple means by which very many lives were preserved, or at least by which they appeared to be preserved, not only to my judgment, but in the opinion of the natives themselves, of all ranks and characters.

In my hospital practice I have never made the pulse at the wrist the criterion for bleeding; but the question of its necessity has depended on, whether the vomiting and purging have been of long continuance, and accompanied with copious evacuation; for where such is the case a real and positive exhaustion of vital powers is induced, totally independent of the apparent debility of the collapse;

respecting which there is no necessity of stopping to argue that it is not actual weakness, but a symptomatic syncope of the animal powers.

If the discharges, by the mass of the matter evacuated, have induced positive debility, bleeding is to add exhaustion to exhaustion; and our attention is required to the visceral irritation, and to support the sinking powers of the constitution.

But if native strength be inherent, and not as yet broken down; if the discharges have neither been of long continuance, nor voided in preternatural quantities, I would always have recourse to bleeding. First, it relieves the spasms, and saves the patient the anguish of pain, and the fatigue and languor which follow it; and secondly, by abstracting a portion of the circulating fluid, it is withdrawn mechanically from the secreting vessels of the viscera, and the congestion there is instantaneously relieved: by this the quantity of the future discharge is diminished, and the venous evacuation is less exhausting than the unnatural visceral secretion which it interrupts. These alone are satisfactory reasons, independent of the reduction of nervous irritability, the exciting cause, which forms, in my view of the case, the first and leading reason for bleeding, but which will not of course be taken into consideration by those who do not consider the disease to be dependent on nervous disorder.

It has, therefore, been my invariable rule to practise bleeding under such circumstance, I always

feel it a subject of regret when I cannot bleed: it is in my mind next to signing the patient's death warrant, when I decide that the critical moment is past, and he no longer capable of undergoing it. The surgeon who makes his duty conscience work, will find this a painful point to decide on; it is the life and death question, and in the emphatic words of Celsus, "neque tamen *ulli* morbo *minori* momento succurritur." There is in Cholera but a very brief moment indeed allowed us for consideration.

Should bleeding be considered unadvisable, the indications are to interrupt the unnatural secretions which the bowels are employed in discharging, and to support the vital powers; nor do I know any better system to pursue than the plan already detailed, excepting that, when under my own observation and control, I have added port wine in moderate quantities to the aromatic infusion supplied, perfectly cold, as a drink for the patient.

When bleeding is decided on, false tenderness should never prevent the immediate application at the same moment of a large blister over the region of the stomach, and the action of it should be expedited by rubbing in a liniment of lyttæ and turpentine: of the acid blister, as it is called, I will make no further mention, than that I have seen patients who recovered from Cholera cripples for life from the effects of these applications; they were regimental seapoys, and were finally obliged to be invalided. The blister being applied, and one, or if

necessary two, veins being opened, and the blood oozing drop by drop, for it takes half an hour to bleed the patient, the next object is to assist the action of the stomach, which is best done by a copious draught of warm water: the rejection of this is unaccompanied with spasms, and the warmth of the drink or the action of vomiting assists the flow of blood.

The first appearance of improvement is in the manner of the flow of blood, which, by the slowest possible progression, changes from falling in black heavy drops to a natural stream; the next is generally the cessation of vomiting; and in favourable cases, warmth also is gradually restored to the extremities. It now becomes necessary to decide on the extent of the exciting aperient that is to follow. My plan has been, from half an ounce to an ounce of castor oil, with an equal quantity of honey, and from a drachm to two drachms of laudanum, referring to the patient's age and strength. The honey is necessary: it prevents the oil passing through the bowels unchanged, which, when such a spasmodic action is going on, is of frequent occurrence: further it makes the draught less nauseous, and its very bulk acts beneficially, giving the bowels a bland substance to act on.

Should this remain upon the stomach, the patient in general sinks quietly to sleep: if vomited up, the pills of camphor and opium should be exhibited after each ejection, and an opiate enema after each dejec-

tion; and whenever the stomach seems capable of enduring the draught, the oil with laudanum should be repeated; the patient being permitted in the intervals to drink in small quantities, of any aromatic infusion cooled, such as mint or basil tea, with a trifling addition of spices and port wine. Finally, frictions, of the liniment of opium, camphor, wax, and oil, above described, are gently to be continued, to restore the warmth and circulation of the extremities; and if after the vomiting has ceased, but the purging continues, the patient can be induced to swallow sago or soojee with small quantities of port wine, the food will be of use to support strength, and to excite the bowels to a healthy action.

I have known military gentlemen who have been attacked when travelling; one took a tea-spoonful of laudanum after every vomit, and after the fifth dose began to improve; another, the moment he was taken ill commenced drinking hot brandy and water, and literally finished a bottle of brandy without intoxication, before the disease subsided; and another was physiced by a friend, who having some indistinct notion of a tea-spoon being concerned as a measure, administered a tea-spoonful each of calomel and laudanum. All three recovered, but the latter, as might be expected, nearly died of dysentery occasioned by the dose. Thus, when I describe the practice I am in the habit of pursuing, I by no means pretend to assert it is the only safe practice; all I venture to argue is, that it seems the most plausible

in theory; and all I can aver is, that it has succeeded better in my experience than the calomel with laudanum system, or any other.

The most interesting history which I have seen, is the one given by Dr. Rogers, superintending surgeon Madras establishment, of his own sufferings; in perusing which we may well say, that "the uses of adversity are sweet:" and if Dr. R. have suffered no lasting bad consequences from his dreadful indisposition, we may congratulate ourselves on his misfortune, since it has elicited so valuable a document. In this case, the purging ceased within half an hour after bleeding; but the vomiting or tendency to vomit, continued ten hours afterwards. In my practice a precisely opposite result always follows: I therefore wish, for the patient's sake, that the vomiting had been assisted, and the stomach relieved, in the first instance by draughts of warm water, and that an ounce of castor oil had been substituted for the brandy in the anti-spasmodic draught. I think he would have suffered less from the intense thirst he complains of, and that the flatus would have been a less prominent and distressing symptom.

The case of a medical officer is always the most interesting and important; his personal knowledge of the value of certain points of information makes him an able coadjutor to his attendant, whilst his professional friends conscious that every part of their practice is understood and reflected on, are more than usually solicitous to be accurate in their observations,

philosophical in their opinions, and correct in their suggestions.

I will, therefore, without any fear of reproach for adding to the number of my pages, but certainly at the risk of being charged with making too free with other works, reprint the case in my appendix;* a freedom for which, though I would apologize, I am in every respect excusable. In the vast mass of materials that has been published, it is scarcely to be expected that any one should provide new facts. As for new cases, I could copy from my journal a hundred of the same tenor as easily as copy this; but would they be equally satisfactory to the reader? Certainly I should suppose not. All that is wanted is a more philosophical mode of explaining the facts already before us; and when new notions are to be promulgated, the author is fortunate to be able to support them with old histories.

As far as my observation extends, the calomel practice is nearly discontinued; the lancet and opium appear the system universally prevalent; and very little further is wanting, but that we should acknowledge the epidemic cholera to be nothing more than the Cholera of Celsus under its severest form; and rectify the error of Cullen, who has described Cholera accompanied with bilious diarrhœa, as it occurs in its mildest form, and in temperate climates; but was totally ignorant of the acrimony of its symptoms, and the pestilential malignity of its character under less favourable circumstances.

* See Note D, at the end of the volume.

There remains nothing now but that I should remind my reader of the after consequences of Cholera, the febricula of Celsus; this may be, as in ordinary cases, nothing more than the symptomatic feverish excitement following excessive pain, or a great degree of nervous irritation. In this case it need not occasion much anxiety, the simplest treatment will suffice, nor will it prove of long continuance; but if it depend on inflammation of the lining of the intestines, occasioned by the violent spasmodic actions and convulsive secreting process to which they have been subjected, the danger is as imminent as urgent, and the least neglect or deficiency of energy in treatment must be fatal. In this case, however, the indication is the same as for simple inflammation, and any observation thereon is unnecessary, further than to caution the practitioner of the possibility of such an occurrence.

The same reasoning which led me to pass unnoticed certain theories, which I considered only as scientific speculations, difficult to be proved, and promising no useful results to repay the labour of investigation, will also cause me to decline registering the many opposite systems of treatment that have been attempted and recommended. But the two efforts to introduce the evacuating system deserve my consideration, since the basis of any argument in their favour, when they are closely examined, must be founded on the self same principles of calculating on the operations of nature, which I have endeavoured to divest of the

unphilosophical encumbrance with which they have been obscured.

The first of this was the effort to supersede the calomel practice by the simple substitute of magnesia and milk. It was originally promulgated anonymously in the public prints, and seems to have been tried repeatedly by the profession. The case published by Dr. Scott, in the Madras Report, p. 57, has a satisfactory result; others were less fortunate. The remarks on this case by Dr. Scott are to the point: amongst others, one is, that there is at least a *considerable affinity* betwixt the Cholera spontanea of Europe and our epidemic!

If calomel in scruple doses, and acrid stimulants beyond bounds, be even safe practice, it would seem at first sight, as if such a succedaneum as magnesia and milk were trifling with the patient's life; the experiment was certainly hazardous: that it should have failed, can be accounted for by its being inadequate to fulfil the ends for which alone it could have been administered: that it should have succeeded in less malignant cases, admits of philosophical explanation. The mild aperient gently stimulated the bowels to resume their natural action, and the nervous irritability was reduced by a wholesome purging brought on by art, instead of the crude and unnatural secretions which form the Cholera evacuations.

This practice, however, is never safe: there is no judgment to be formed at the commencement of an attack of malignant epidemic Cholera respecting the

course it is to pursue, and the mildness or severity of the secondary stage. In this disease, whatever acts quickest is the best, and the intention here sought, is therefore best fulfilled by bleeding: further, the risk of inflammation is heightened by any plan of simple evacuation. As for using magnesia after bleeding, I have done it with success; but I must say, I have a strong prejudice in favour of the oil. I think it helps to allay the internal irritation by its oleaginous and demulcent nature, independent of its aperient qualities.

But if the reader should wish to use magnesia, he must remember that the milk is a necessary adjunct; it forms part of the system of Celsus; and by giving the bowels something on which to act, of the most bland and unirritating character, combined with so mild an aperient, it interrupts the diseased, or rather unnatural secretion which is going forward by a double stimulus.

The second of the plans I mean to allude to, is the endeavour that was made to treat Cholera with emetics. This system is reported on by Messrs. Wilson, Neilson, and England, at pages 92, 96, and 179 of the Madras Report, and by all with a successful result, which can be explained only upon the principles I endeavour to establish, that the nervous irritability requires to be reduced, and the sanitary operations of nature require to be assisted. But again I must observe, the promptest and safest mode of effecting this is bleeding; if blood can be obtained,

hot water is sufficient stimulus to excite the stomach and bowels to the salutary operations required; if blood cannot be extracted, and the patient is sinking with or without (especially the latter) much vomiting and purging, the tartarized antimony is decidedly the best remedy, and it should be worked off with infusion of camomile. Finally, when the surgeon finds the patient sunk and exhausted, and straining and vomiting, notwithstanding the exhibition of opium, and application of a blister acting at once as a counter-irritant by the previous abrasion of the cuticle by scalding water, we must keep in view that the crisis is fast approaching, when the stomach itself will be paralyzed, and incapable of being acted on by any stimulus, in the same manner as the liver, probably, and certainly the urinary bladder, appear from the first to suffer the same collapse as benumbs and chills the extremities: under such apprehension, the antimonial emetic is decidedly the best resource, without including the last consolation of uncertain practice, the "satius est enim anceps auxilium experiri quam nullum." Such was the idea under which Mr. England seems to have tried this when every other hope had failed, and the result seems to have been as unexpected as it was fortunate.

Mr. Wilson states, that the native practice in Malwah was to drench the patient with large draughts of salt and water: this must be attended with the double effect of emetic and purge, and

administered at the outset, would meet the indication of the first stage of the disease: but under this treatment there is a fearful risk of inflammation; nor could it have any other than a fatal termination, in any constitutions except the natives of India, whose diet, enjoined by religion, denies every stimulus, and whose frigid constitutional habit is still further kept at the lowest temperature by the regular drain of perspiration dependent on the sultry sun of a tropical climate.

As for the other "thousand and one" plans of procedure, I know none that it would be of the slightest benefit to discuss: they are in reality to a great degree the same, though differently described; and various medicines of similar properties are exhibited. Some of the prescriptions which I have met form the most heterogeneous compounds that were perhaps ever mingled since the days of the "preparazioni delle pietre, delle terre, &c. &c.* De' polmoni di volpi, del fegato e degli intestini del lupo, de' rospi, de lombrici, de centogambe, del sangue d' irco, delle vipere, del cranio umano!"† Everything allowed by modern practice seems to have been suggested,

* Farmacopea di Lemery, in Venezia 1742!

† "To what base uses we may return, Horatio!" To trace the noble dust of Alexander until it was found stopping a beer barrel was indeed considering it too curiously! But to trace the mummy of Sesostris into an apothecary's shop, and to fancy the clay which kept the world in awe, condemned to the ignoble purposes of apozem or enema is positively within the stretch of likelihood. Paracelsus has a "liquor mummiæ;" and mummy may be purchased in any bazaar

and everything tried; and if the odious list above recited seem abhorrent to the reader, he will perhaps hear with surprise, that a serious effort was made, not many years ago, to exalt the spider's web into a specific for intermittent fever. As I am not quite sure that this piece of empiricism is exploded, I will, for the benefit of its advocates, give the "oleum aranearum, mindereri" of the Venetian pharmacopæia, together with the learned commentary, in the Appendix,* for their exclusive use, and to show the reader that there is nothing new under the sun.

It would not, however, be the slightest advantage to the reader for me to enter on a discussion respecting the relative merits of half the articles in the modern pharmacopæia in the treatment of Cholera. It has already been well done by Mr. Scot in the Madras Report; and to his able work I refer those

on this side of India. As for the "cranio umano," the passage I have alluded to is curious enough to deserve copying.

"Si fara lo stesso del cranio umano: ma bisogna scegliere quello di persona morta di morte violenta; si rompera in pezzi, e si fara seccare, affinchè possa esser ridotto in polvere.

"E' buono contro l'epilessia, la paralisia, l'apoplessia, e' l'altre infermita del cervello. La dose n'è da mezzo scrupolo sino a due scrupoli.

"Il cranio di persona uscita di vita con morte violenta e presta è migliore per li medicamenti che quello di uno morto di malattia lunga, o che fosse stata tratta da un cimiterio, perchè la prima ha ritenuti quasi tutti i suoi spiriti, i quali nell' altra sono stati consumati o dalla infermità, o nella terra." Cap. 48.

* See Note E, in the Appendix.

who may be curious to see what has been done experimentally; and what may in future be done without particular risk, by those who think it necessary or desirable to diversify their practice.

It is now time that I should conclude. The most classical of modern Latin writers has justly observed, that the theory of medicine constitutes the science, which marks it from the imperfection, the uncertainty, and the danger of empiricism.*

I have endeavoured to supply the deficiency I saw, or thought I saw, in what I consider, and have experienced to be, the best treatment in Cholera; but I am no bigot to my own opinions, and feel to the utmost, that he who is not perfectly conscious of willingness to learn, ought therewith to be convinced he is incapable to teach. I offer my suggestions, therefore, as one who has laboured much to attain a right conclusion, and foreborne its publication until he has tried it by every other test in his power; yet at the same time as one inviting discussion, and soliciting information, and rather as pointing out the dark spots of science that require to be enlightened, than presuming on his own capacity to dispel that darkness.

* Conspectus Medicinæ Theoreticæ, Greg. p. 70.

APPENDIX.

Note A.

The Bombay Report on Cholera was printed at the expense of Government, and gratuitously circulated; it is consequently out of print, but a second edition is not very likely to be called for by the public. I therefore feel it a duty as well as a pleasure to republish the elegant and classic dedication of the work by Dr. Stewart, then President of the Medical Board, to that truly excellent man and distinguished public character, the Right Honourable Sir Evan Nepean, Baronet, then Governor of Bombay. They are both dead, after long, active, and useful lives devoted to the public service; and the only return in my power for the favours they did me the honour to confer on me, is to remember and acknowledge them.

DEDICATION.

To the Right Hon. Sir Evan Nepean, Bart. &c.

Sir,

We take the liberty of prefixing your name to the following reports, because they belong to you by a double

title. They relate to the measures taken, under your sanction, to check a most singular and alarming disease, which, after sweeping the provinces of Hindostan, extends into those under your government; and without the prompt, liberal, and we may say unlimited powers, which you bestowed on the Medical Board for the purpose of arresting the progress of the evil, the best exertions of the Medical Establishment must have been comparatively eeble and inefficient. *The many thousands who owe their lives to the extent and efficacy of those measures owe them to you.*

You have seen the British dominions in this country enlarged in territory, in revenue, in wealth, and in power, far beyond the most sanguine hopes that could have been entertained when you landed in India: and in accomplishing these objects, the aid derived from your government has, confessedly, most essentially contributed. These are noble and generous sources of pride, even though necessarily attended with much immediate misery and bloodshed. But splendid as they are, they will not, we think, lessen the feelings of pure and unmingled gratification which you will derive from having been the means of saving so many human lives, and of alleviating so much human suffering. These local and domestic occurrences may find no place in the page of history: but you will find a humbler, though a rich reward, *in the pleasing consciousness of having done good.*

We have the honour to be, &c. &c. &c.

(Signed) R. Stewart.

B. Philipps.

Bombay, March 24th, 1829.

Note B.

The opinion of Sir Gilbert Blane is delivered in two letters addressed to the Honourable the Court of Directors, and written expressly for publication; my reprinting them is consequently only meeting the intentions of the Honourable Court, and the truly distinguished and scientific writer.

From the Bombay Gazette, Oct. 1825.

The Cholera is said still to prevail with unabated malignity in many parts of the country, and the idea of its being contagious, we regret to hear, is becoming more prevalent than heretofore.

Having been obliged with a copy of Sir Gilbert Blane's opinion on the progress of this dreadful malady, we offer it to our readers, under the conviction, that at the present period, it cannot fail of being acceptable to many, not only from the great importance of the subject, but also the established reputation of the author, who delivered his sentiments at the request of the Court of Directors, expressly for the benefit of India.

No. 1.

London, 16*th January*, 1825.

Gentlemen,

Absence from town, and urgent business, have prevented me from acknowledging sooner the receipt of your letter, together with the Report of the Medical Board of Madras,

which you did me the honour to send to me on the 15th of last month.

Though I almost despair of throwing any farther light on this very obscure, but important subject, I must not decline offering such remarks as occur to me regarding it; for though I have no actual observation nor experience of it, my public duties have led me to bestow much time and attention on the subject of contagion in general.

I begin with congratulating you on the high professional talents of your medical officers in India, which have never been more conspicuously displayed than in the great ability, candour, zeal, and unwearied diligence observable in the late Report from Bombay.* It is, therefore, with all due diffidence that I venture to make any comments upon it, in which I shall confine myself to the question regarding its infectious nature, and whether on any occasion, means preventive of its spreading can be available.

1st. The first remark I shall make is, that those who advocate the opinion of non-contagion, appear to me to lay too much stress on the circumstance of great numbers escaping the disease, who have been exposed to it by the near approach or contact of the sick; for it is well known in the history of contagion, that in consequence of the

* This compliment proved the apple of discord betwixt Madras and Bombay, a correspondent in a Madras paper arguing on date and collateral evidence deducible from the text, that it was an error of the scribe who had copied the original document, and that it was necessary, in order to make sense of the paper, to read Madras for Bombay. The reply from Bombay was amusing enough, but foreign to the object of this work.

great variety of the predisposition of individual constitutions, this is the case more or less with regard to every species of contagion: and indeed if *this were not the case the human species would long ago have become extinct, through the operation of pestilential disorders.*

2ndly. My next remark is, that it does not seem to me, that those who have argued this question have been sufficiently aware, that whatever weight may be allowed to the above mentioned argument, it militates much more forcibly against the supposition of aërial influence; for in this case, and in conformity with this argument, not a single human being could escape, inasmuch as every living creature must breathe the external air, whether pure or contaminated; whereas it is easy to conceive, that if the noxious principle resides in the morbid emanations of the human body, great numbers may never come within the sphere of them, either by contact or approach.

3rdly. I have next to observe, that there does not appear to have been sufficient importance annexed to a circumstance which I apprehend may be considered as a satisfactory criterion for discriminating contagious, or what are technically called epidemic diseases from those depending on the state of the soil and air, called endemic: it is this, that if any disorder affecting a whole community arises from some noxious principle in the soil or air, it must in the nature of things attack simultaneously* all

* How well was this illustrated by the influenza of May, June, and July 1824, which attacked almost every individual in Guzeratte, in the same months exactly, that it was raging with a similarly indiscriminating prevalence in Bengal and the Birmah empire! The Cholera was exactly twelve months in travelling across the Peninsula.

those who are exposed to it; whereas if it proceed from any morbid principle generated in the human body, its attack will be progressive, a certain space of time being necessary for it to pass from individual to individual, and still more from one region or community to another: I ask if it is reconcileable to reason, that this disease could have advanced gradually from Bengal, where it first appeared in September 1817, to Bombay, which it reached about twelve months afterwards, following the track of the army in the commencement of the Pindaree war, through any other medium than that of human intercourse? The whole history of the disease is an exemplification of the same process, and may be strikingly illustrated also by the latest accounts we have had of its progress from India through Persia to Syria and Astracan, by the line of the caravans, which conveyed it to these countries last year. Can anything be more inconceivable or more repugnant to the plain good sense of the most ordinary understandings, than the idea that this could be effected by any quality of the air or exhalation of the soil, either following these tracks, or generated in them the last six years, during which so many countries have successively suffered under this calamitous scourge?

4thly. I wish next to remark, that those who have argued against the existence of contagion, from the impossibility of tracing it except at considerable distances, do not seem to be fully aware that the like argument might be adduced against the existence of the contagion of smallpox and measles, which, as every one knows, are frequently caught under circumstances of time and place which would be held decisive against their being conta-

gious, were not this fully established by other facts; such is the extreme subtlety of all infectious matter.

5thly. The last remark I shall make is, perhaps, the most important, though at first sight paradoxical. It is, that both parties in this controversy have truth on their side. Nothing I think can be more clear, from the very luminous history of the disease, as given in the Bombay Report, than that this disease has arisen on various occasions, without owing its existence to contagion, and without communicating it to others, as exemplified in cases of a very limited number of individuals unconnected and uninfluenced by each other; in which circumstances, after a partial prevalence, the disease has disappeared without spreading, as stated in several passages of the Report; while it is equally manifest from other parts of the narrative, that the disease was certainly contagious; nor is there anything in this contradictory or dissonant to reason and experience in analogous cases. For it is fully ascertained with regard to the typhus fever of Europe, and the yellow fever of the West Indies, that though they sometimes appear in a sporadic and uninfectious form, they do also under certain circumstances assume a form decidedly contagious; these circumstances are chiefly crowding, want of cleanliness, and deficient ventilation, which add concentration and virulence to the venomous principle. I must, at the same time, admit that there are circumstances stated in the Report so peculiar and anomalous, as not to be well accounted for on any known principle.

But the great point of practical importance in this discussion is, whether, from what we know of this dreadful disease, any hope can be entertained of employing prac-

ticable and available means of arresting and averting its ineffable horrors.

This point, as well as some others respecting the question of contagion, will receive considerable illustration from what occurred in the Isles of France and Bourbon, in the years 1818 and 1819. What is called the Indian Cholera, but which ought to be more properly styled the malignant spasmodic Cholera, made its appearance in the Isle of France, on or about the 20th November 1818. The Topaze Frigate from Ceylon, where this disease was prevailing, and which actually prevailed in the frigate, three men having died on the passage, arrived at the Island on the 29th of the preceding month. *Can there be a doubt in the mind of any rational being*, that this disease, never before known here in an epidemic form, was imported by that vessel? Is it conceivable, that the air of the continent of India or of Ceylon could be wafted hither, at the distance of near three thousand miles, or just at that point of time the air of the island itself became contaminated? After prevailing for a few months, it vanished; for it is one of the peculiarities of this disease, that after rapidly selecting its victims, consisting of those who by some obscure predisposition are alone susceptible of it, it disappears.

From the circumstances of its appearance in Bourbon, we are led to some still more important inferences. The governor of that island, under the strong conviction of its infectious nature, took measures, by proclamation, to bar all intercourse with the Isle of France. But in spite of this, a boat from the shore of Bourbon had clandestine communication with a small vessel from the Isle of France, probably about the 8th or 9th January, for she left Port

Louis on the 6th. After the usual interval, the disease showed itself, so as to leave no doubt of an infection traceable to the boat, and spread to one of the quarters of the town. The governor, with that vigilance and energy which was in his character, instantly adopted such measures of police, by cordons of troops, and by conveying the sick to a lazaretto; the farther progress of it was arrested, and in a short time it died away. In the Isle of France, on the contrary, where no such steps had been taken, the disease spread to the whole town, and to the rural population, to a calamitous degree.

The facts of this narrative are not unlike those which occurred two years ago at the Island of Ascension, regarding the yellow fever; the circumstances of which were such, as in combination with others of a like kind, left no room to doubt of its infectious nature, and of the expediency of taking precautions against its importation; as a warning to prevent the recurrence of calamities which in this and other instances were imputable to a neglect of due precaution, a historical statement of it was conveyed to all the naval stations liable to this malady, and the public authorities of the army directed copies of it to be transmitted to all the stations in the West Indies and Europe, where the troops had so disastrously suffered from it.

It is somewhat singular and curious, but deeply affecting, that the great Epidemic of the western world should have spread itself eastward, so as to reach one extremity of the Mediterranean Sea, while the great Epidemic of the east, in its progress westward, has reached the other extremity of that sea; for the yellow fever has made dreadful ravages in Spain, in the course of the last twenty-

five years, even Italy itself having not quite escaped it; and the Indian Cholera has reached Syria, as already stated; great numbers having perished by it in Antioch and Aleppo in the course of last year.

I have honour to be, &c. &c.

(Signed) GILBERT BLANE.

No. 2.

Sackville Street, 19*th January*, 1825.

GENTLEMEN,

Since I had the honour of addressing you two days ago, I have had intelligence, through a channel which I consider as authentic, that in the year 1821, when the cholera raged in Persia, the city of Ispahan was saved from it by the vigilant measures of the government; for as they saw every reason to believe that it was conmunicated by caravans, the Governor-General of the province of Ispahan, hearing of its being at Schiraz, and other places with which there was intercourse by caravans, gave order that they should not go through the capital but take the route of Iezd. Ispahan was saved from it, but it broke out at Iezd.

Through the same channel I have learned that this disease has reached the port of Laodicea on the coast of Syria, the coasts of Egypt, and even Cyprus.

Though I believe there are situations and circumstances in which no human precaution can arrest the career of this most dreadful malady, it seems equally clear, that there are occasions on which it may be stopped or averted.

I have the honour to be, &c. &c.

(Signed) GILBERT BLANE.

In sad confirmation, or rather support of my opinion, that Cholera is established to be a lasting scourge, and is now endemic to the peninsula of India, I may mention, that I have this day, October 18th, 1826, received information, that the Epidemic is now prevailing at Kairah, where, in His Majesty's 4th Dragoons, eight cases had occurred, two of which have proved fatal; and a third, the hospital apothecary, was considered hopeless.

Note C.

In reference to my remark respecting the treatment for the stings of less venomous reptiles, the following cases may not be considered out of place here.

I was once called to an officer, who had been stung in two places by one, or more probably by two scorpions. We were on field service, and he on duty in charge of a piquet: he had lain down on some grass spread in the tent, which was pitched on newly ploughed gound; and it being a night of heavy rain, the reptiles I suppose were peculiarly vigorous and active. When first stung, he bore the torture as patiently as he could, thinking it ridiculous under such circumstances to send for a surgeon; but at last, the pain overcoming his reluctance and his resolution, he sent for the medical officer of his own regiment, who gave him some *eau de luce* to rub on the wound, and administered a full dose in a draught, and left him.

About two hours after the accident, the seapoys of the piquet came running to my tent, which happened to be nearest, to say the "Sahib"* was dying. I hastened to the piquet tent, where I found the officer barely sensible: what we now call the collapse was completely formed, the extremities were deathy cold, and a cold sweat streamed from him, whilst rigor succeeded rigor, with scarcely five minutes rest betwixt the convulsive shudderings. I administered, as soon as I could procure it, three grains of tartar emetic, followed by hot water, as quickly as a kettle could be made to boil with wet wood in a wet tent. The vomiting was no sooner established, than he became self-collected, and said the pain was abated: the warmth returned, followed by a copious natural perspiration. He would then have gone to sleep, and felt very drowsy; but being on duty, he declared he would not. This was the most marked case of collapse I ever saw following a sting not fatally venomous, and I was much inclined to attribute it to the acrid stimulus of the *eau de luce*.

In reference to snake poisons, I will narrate a curious case of the effect of mere apprehension. I was one evening returning from riding, and arriving at my tent door, found my servants in a commotion, and the *mussaulchee* (lamp-lighter) stretched on the ground, foaming at the mouth before the door of the *routy*, or servant's tent. On inquiring what was the matter, I was informed he had been bitten by a

* The gentleman—their officer.

snake. I had not been absent half an hour, or three quarters at furthest, during which this had occurred; and the rapidity with which the symptoms were hurrying to the crisis, gave me no other idea but that the unhappy creature had been wounded by a snake of the most malignant character. He was cold and exhausted, and his legs seemed drawn up by spasms

On alighting from my horse, I asked where the accident had occurred: they answered, in the servant's tent. I asked for the snake: they replied they had not killed it, but it had not escaped, being under a box, which was elevated a few inches above the ground, camp fashion, on pieces of stone, for fear of the white ants. I really considered the poor man's case as hopeless, and proceeded to destroy the snake, rather to prevent another accident than in any hope of what resulted. On moving the box, the reptile rushed forth, and was immediately destroyed; but on examining the mouth, I found it was not of a venomous kind, and that all the derangement and syncope of animal, and almost mental power the patient was suffering, arose purely from fear. I therefore took the snake to him, and assured him it was not venomous; but as he was really ill from terror, I administered an emetic, with abundance of hot water. He began to get warm, as soon as the emetic acted. I left him to go to dinner; and when I rose from the mess table, four or perhaps five hours after the moment when I saw him in what I, as well as all the spectators, considered the agonies of death, he

was ready, to my astonishment, with a lantern to light me home. In this case, if the snake had escaped, and acrid stimulants had been exhibited, I am satisfied the man would have died of an agony of fear, improperly treated: but that is nothing to the purpose, though this is, that as snake poison would have acted on the patient precisely as fear did, I take it for granted, that an emetic in collapse is the best stimulus to the system, and preferable to alcohol and the preparations of ammonia; for the fact is, that in these cases of diminished nervous energy, pure brandy may be swallowed without the patient being able to distinguish it from water; yet it cannot be in contact with the delicate lining of the stomach without doing harm.

The anguish from the stings of scorpions and centipedes must be most excruciating. I have seen natives rolling on the ground, foaming at the mouth, and writhing as if convulsed with epilepsy; and I was once present when a young gentleman, an officer, was bitten by a centipede: though sitting betwixt two ladies, the poor fellow bellowed for pain; and when we, in no small commotion, hurrying round, were urgent to ascertain the cause of his outcry, he could make no answer, but merely roared again at the pitch of his vocal powers. At last the reptile was discovered dangling to his cheek, near his ear, having probably fallen on his shoulder from some tree, when in the garden, and crawled up his clothes. I cannot form a more perfect notion of

extreme agony, than that it shall be occasioned by a local cause, but of such intensity, that the sufferer cannot distinguish the seat of disease:—does this ever occur in gout? On this occasion, our young friend, when afterwards asked for a description of what his feelings were, said that he really could give none of the actual pang during the few seconds the insect clung to him, for he seemed stunned by a flood of liquid fire! and he thought perhaps being seized by the neck and heels, and plunged head first into a brew-house vat, when boiling, might be something like it! The subsequent pain was not, however, long severe; no general coldness, and very little local inflammation followed. An application of warm oil and laudanum, and a fomentation of hot water, and an anodyne draught at bed-time, was all I recommended.

Note D.

Case of Superintending Surgeon C. Rogers, M.D. Madras establishment, drawn up by himself. Copied from the Madras Report on Cholera, p. 289.

"Taken ill 12th June 1822, at Masulipatam. Ætat. 47. Constitution robust. 25 years' residence in India.

June 12th. 2 p.m. was suddenly seized at his garden house in the Pettah, with oppressive nausea, followed by

copious vomiting of a glairy, whitish fluid, among which was mixed some undigested food. Nearly at the same instant, brisk purging commenced, the first evacuation consisting of bright yellow coloured bile; but the second and third (after an interval of a few minutes) assumed the appearance of turbid water or congee, passing out of the bowels with great force, in jets, as if squirted from a syringe. Slight griping preceded each evacuation, but there was no tenesmus, nor any spasms felt, either in the muscles of the abdomen or extremities. Considerable depression of strength was experienced; *the respiration, which at first was deep and noxious, became freer soon after the vomiting*, and a general warm moisture pervaded the surface. The pulse beat irregularly, and slower than natural, and the subcutaneous veins collapsed. The face was pale, and the countenance dejected, resembling those of a person in typhus fever, but the mental powers were in no wise obscured. The feelings of the patient at once suggested that the present was an attack of the epidemic Cholera, which was fully confirmed on the arrival of Mr. Assistant Surgeon Paterson, whose professional aid became immediately available, and who at this crisis concurred in the necessity of adopting the most vigorous and energetic practice to avert the imminent danger of this horrible disease. The following prescriptions were accordingly duly and successively administered. R. tinct. opii. spts. ammon. comp. aa. gtt. 50. spt. Gallic. (brandy dict.) oz. i. ft. haustus statim sumendus et rept. pro re nata,—mittr sanguis e brachio magno orificio, add oz. xxx. aut usque ad syncopen—applicet. empl. Lyttæ epigastrio.—The first antispasmodic draught was retained on the stomach for 10 minutes, or until the conclusion of

the bloodletting, when a tendency to syncope coming on, violent vomiting and purging, but without any pain, recommenced simultaneously; the same watery fluid was discharged. The draughts were repeated a second, and third time, during the short intervals of vomiting, the purging having entirely ceased within the first half an hour.

3 P. M. During the abstraction of the blood, the pulse gradually became quicker, fuller, and more regular, the skin warmer, but the thirst now began to be intense, and the whole mouth parched and clammy; the tongue whitish; the blood flowed in a large sluggish stream, of a dark colour, and without any halitus; it coagulated almost immediately, but did not exhibit a buffed coat.

4 P. M. There has been no return of the purging, whilst the vomiting is only renewed at longer intervals; the matter ejected from the stomach consisted chiefly, if not entirely, of the liquids drank: *the debility of the system did not appear to be increased by these effects; on the contrary, the diffusion of heat and moisture of the skin has become more general and equal.*

6 P. M. The reaction of the system became every hour more evident by the increasing quickness of the pulse, the turgescence of the veins, the flush on the face, palms of the hands, and soles of the feet; but above all, by the intense sensation of thirst, which is unquenchable: every attempt to allay it, by drinking the mildest fluids, failed, and invariably renewed the vomiting. There was, however, neither pain nor burning heat felt in the region of the stomach, nor anywhere else in the abdomen. Cool air was eagerly desired, and immersion of the

hands and feet in cold water and vinegar was peculiarly grateful.

8 P. M. The blister has already begun to act as a rubefacient, for the first time since the attack. About 2 ounces of urine of high colour have been passed. The vomiting still recurs about once every hour, and is apparently excited by the smallest quantity of liquid taken, or by the large volume of air extricated in the stomach, occasioning as it were the mechanical stimulus of distention, an effect the more likely to happen from a spasmodic stricture on the pyloric orifice, which is suspected to exist. Fluids swallowed produce sound like water dropt into a bladder filled with air.

10 P. M. A considerable degree of restlessness prevails, imputable to the state of reaction, of which thirst continues the most urgent and distressing symptom. Mr. Surgeon Dean visited the patient at this period, and highly approved of all that had been done, but very judiciously recommended a total abstinence from every kind of drink, however painful, for a certain number of hours, and to substitute rinsing the mouth frequently with lime juice and water, as the most effectual means of subduing the vomiting, depending as it seemed on excessive irritability of the stomach. Midnight: retched only once within the last two hours, and flatus only was then discharged. The blister has excited considerable irritation; and vesications are rapidly forming; micturition; thirst and restlessness continue, but are not increased; pulse 100 and soft, skin warm, with partial moisture about the head and breast.

13th, 6 A. M. The blister has fully risen, and there has been no return of vomiting. Since midnight, the flatus

of the stomach has escaped in immense quantities by the bowels, affording proportionate relief. Mild liquids, such as toast-water, chicken broth, tea, can now be drunk in moderation; and although the mouth is clammy, and the tongue quite covered with a viscid mucus, the thirst has sensibly abated. A few short intervals of sleep towards morning.

7 A. M. R. Hydrarg: submur. gr. vi. confect. aromat. scr. i. ft. bolus statim sumendus.

11 A. M. Some nausea was experienced from the calomel bolus, but in the course of the forenoon were produced six bilious though rather scanty evacuations, *after which the thirst gradually diminished*, whilst liquids could be drunk with greater freedom and *relish*.

3 P. M. The restlessness experienced during the preceding night, and former part of this day, has now greatly subsided, the pulse is reduced to 90, and the skin to nearly its natural temperature and moisture. The salivary secretion is increased, but the taste is completely vitiated by a viscid mucus covering the tongue and fauces, and the thirst is still occasionally urgent.

7 P. M. Relished a cup of ginger and green tea, mixed, which was followed by free perspiration and pleasurable sensations over the whole body.

14th. Passed a good night, enjoying refreshing sleep, occasionally, however, *interrupted by disagreeable dreams*.

9 A. M. Sat up half an hour in the chair, and breakfasted on a cup of tea and a little toasted bread; pulse and skin natural, the thirst nearly gone, but the tongue remains whitish, and furred in the centre.

2 P. M. A slight return of appetite; dined on a bason of spicy soup, which excited a warm and grateful sensation

on the stomach, relieving flatulency; weak brandy and water effectually quenched the remaining thirst; and a sense of extreme debility only remains.

9 P. M. Capiat bolus calomelanos gr. ii.

15th. Passed another good night; the sleep as before being only occasionally *interrupted by dreams allied to incubus.* Soon after breakfast this morning, the dose of calomel produced two bilious and feculent evacuations, nearly natural in their colour, and without either griping or tenesmus. The tongue looks much cleaner, and the sense of taste slowly revives. Took a bason of spiced soup at noon, and at three some sago jelly, with wine, both of which sat light on the stomach. Sat up in a chair for three or four hours during the day, and derived amusement from reading, the mind being cheered with the hopes of a speedy recovery.

16th. Much refreshed from the sleep enjoyed last night, diversified as it was by *singular dreams;* breakfasted as usual on ginger tea and toast, and at noon took five grains of rhubarb in a glass of Madeira. At three P. M. feeling a little appetite, dined on a wing of grilled chicken. In the course of the evening the rhubarb operated mildly, and greatly relieved the flatulency of the bowels, a symptom hitherto so distressing.

17th. Slept well during the night, *the dreams being less vivid and disagreeable,* as the appetite and strength improves daily, and the complexion regains a healthy colour. It is intended to adhere strictly to a light and nutritious diet, and by occasional small doses of rhubarb to restore the tone of the stomach, and to regulate the bowels until the wonted exercise can be resumed.

In the preceding brief history of his case, the patient

has endeavoured to describe the symptoms as accurately, as he felt them acutely. The subjoined observations, as farther illustrative of the insidious nature of the epidemic Cholera, may be considered in the light of inferences from the premises, and it is hoped will be received by the Medical Board, in the same spirit of candour in which they are offered.

1st. The sudden invasion of this disease, and the rapid transition from a robust health, to a train of morbid association and commotion, threatening the immediate extinction of life, is peculiarly characteristic, and naturally suggests, that the "causa morbi," whether engendered in the atmosphere, or whether received into the system by the lungs, the stomach, or the skin, is highly deleterious and concentrated. The shock may in some measure be compared to that of electricity, deranging more or less every function of the human frame, yet apparently exerting its violence, chiefly on the chylopoetic viscera. It is proper to observe, that on the morning of the day of the attack, the patient had, with a view to obviate constipation, taken a small dose of drs. ii. of sulphate of magnesia, combined with a bitter and carminative, which had operated gently in the course of the forenoon. The patient, judging from his own feelings, is however disposed to view the constipation as merely accidental, and not premonitory of the epidemic; although it is possible that the cathartic might have accelerated, or in other words predisposed to the attack of the epidemic, as hinted at in the Board's circular of the 21st June 1821. It will be much more to the point, to state, that the weather at Masulipatam was intensely hot during the greater part of the month of May, in the latter end of which, the

periodical land winds prevailed; and that in the early part of June, there were sudden vicissitudes, and thunder storms, with abundance of rain. It often happened too, at this time, that whilst the days were sultry, the nights were remarkably cool. On the 4th of June, the epidemic first appeared among the Europeans at Masulipatam, and still continues to prevail sporadically, owing in all probability, to the unavoidable or incautious exposure to a moist and variable atmosphere.

2nd. With regard to the question, whether the epidemic Cholera is contagious, it deserves to be mentioned, that the patient, a few days previous to his illness, had visited the European hospital, in the fort of Masulipatam, where the Cholera was then prevailing, and had also attended a native servant, in his own compound,* who died of the epidemic *the very day preceding his own attack;* but no conclusion can be drawn from a single fact, especially when opposed by others of an opposite nature. It is indeed to be regretted, that we cannot, in the province of medicine, as in the exact sciences, institute the "experimentum crucis" to establish axioms or principles; and hence the great difficulty of separating the causes of disease, and allotting to each its due proportion of the effect. Men, as justly observed by Bacon, "deceive themselves in consequence of this continually, and think

* This is the only defective part of this singularly interesting narrative; the number of days should have been particularized and the number of cases of Cholera then in hospital. The word "compound," should my pages ever be read in England, may require interpretation: it is applied to such part of the premises of a house, as would there be termed court-yard or stable-yard, or in fact to the whole enclosure forming the housestead. I suspect the derivation to be from the Portuguese.

they are reasoning from fact and experience, when in reality they are only reasoning from a mixture of truth and falsehood. The only end answered by facts, so incorrectly apprehended, is that of making error more incorrigible."

3rd. There are strong reasons for believing the epidemic Cholera to be a disease "sui generis," allied to the species of congestive typhus fever, recently so ably described by Dr. Armstrong in his essay on fever, which may be regarded as forming a new era in medicine. The analogy is supported from an attentive consideration of the juvantia and lædentia. In reference to the practice in the case of the epidemic above recorded, it will be seen that the remedies were few and energetic, and that their success may (under divine Providence) be ascribed to their early application, especially the bloodletting, which might be said to have at once cut short the disease, aided by a constitution naturally sound. The same remedies used a few hours later, might have altogether failed. The patient cannot conclude these remarks without once more gratefully adverting to the skill and decision, and unremitting attention, evinced in his treatment by Mr. Assistant Surgeon Paterson, in the early stage, and afterwards to the benefit derived from the friendly advice of Mr. Surgeon Dean.

Note E.

Oleum Aranearum, Mindereri.

℞ Araneas pingues et magnas n. XLV.
Foliorum rutæ recentium
Florum sambuci recent; ana man i. ss.
Oleorum Nymphææ et
Lumbricorum terrestrium ana lb. ss.
Hyperici oz. ii.
Aceti Rosati, et
Calendulæ ana oz. iii.

Decoquantur omnia simul in vase duplici ad aceti consumptionem, colentur, et exprimantur, in hoc colato infunde rursus.

Araneas pingues num. XXV.
Camphoræ in spiritu rosarum dissolutæ oz. ss.

Digerantur per horas duodecim in balneo mariæ, vase probe obturato ac sine colatura, postea reponantur ad suum.

Osservazioni.

Si prenderanno quarantacinque ragnateli dé più grand e dé più vigorosi, si metteranno in un vaso di terra vernicato colla ruto pesta e cò fiori di sambuco; si verseranno sopra di tutto cio l'olio e gli aceti; si coprira il vaso, e si farà bollire la mescolanza con un fuoco lento sino alla consumazion dell' aceto; si colera l' olio con espressione, vi si metteranno in infusione in un vaso o fiasco di vetro ben chiuso per lo spazzio di dodici ore in bagno maria tiepido, venticinque nuovi ragnateli, e nezza dramma di canfora dissoluta in due o tre dramme di

spirito di rose; si conservera l' infusione, e non si colera se non a misura del volersene servire.

Si adopera perle Febbri maligne, per la peste, per lo vajuolo, se ne ungono le arterie e gli emuntori. L' autore pretende che possa supplire il disetto dell' olio di scorpioni del mattiole.

Parmi che l' aceto e l' olio di nenufar che sono astrignenti e condensanti, non sieno bene appropriati in questa compozione; perche possono fissare ed impedire in azione de i sali volatili degl' ingredienti. Vorrei dunque riformare la descrizione nella maniera sequente.

OLEUM ARANEARUM REFORMATUM.

℞ Araneas pingues et magnas n. LX.
Foliorum rictæ recentium contusorum et
Florum Sambuci ana man l. ss.
Oleorum Lumbricorum lb. i.
Hyperici lb. ss.

Macerentur simul calide per horas 24 in vase fictili vitreato bene obturato, deinde coquantur balneo mariæ et exprimantur, in expresso oleo depurato dissolve camphoræ drs. ss.

Fiat oleum usui servandum.*

If there be any virtue in these things for us to take the trouble to think about them, I would wager on the spiders, large and fat, in preference to their cobwebs. As the oil of earthworms, however, is an ingredient in both prescriptions, it is necessary I should add that, or I shall be chided for negligence, which after having done so much for the courteous reader's pleasure, would be a grievous misfortune.

* Farmacopea di Lemery, p. 392.

Oleum Lumbricorum.

℞ Lumbricorum terrestrium, crassiorum, lotorum et olei communis, ana lb. ii.
Vini albi lb. ss.

Macerentur horis 24 postea coquantur ad vini consumptionem et exprimantur, expressum oleum servetur ad usum.*

Note F.

The humane arrangement of Sir Evan Nepean's government in Bombay during 1818, were resorted to and carried out, with equal benevolence and as untiring zeal, in 1842, by the wise and good man Sir George Arthur, who now presides over that Presidency. The Epidemic was never more virulent nor more generally prevalent than in that year, not only telling fearfully on the general mortality of the island, but operating occasionally and inexplicably on detached portions of the community. One of the worst instances of the latter attracted particular attention, from its severity, and as being on board the steamer which conveyed Sir Charles Napier and a small detachment of European troops from Bombay to Scinde. The Earl of Altamont, now Marquis of Sligo, being on his travels in the east, was an illus-

* Farmacopea di Lemery, p. 388.

trious passenger, on whose safety all felt interested. The noble lord will remember the horrors of that voyage for the remainder of his life.

The following is an extract from my "Narrative of the Campaign of the Army of the Indus," and relates an occurrence of the Epidemic, with observations, which I reprint, as they are more in place here than in the volume where they first appeared. It was my fortune to be the senior medical officer of Lord Keane's army at Candahar, Ghuznee and Cabool, and chief of the hospital-staff of the Bombay Division; consequently the entire responsibility of whatever is described lies personally with myself.

"On the 17th of November, at Baug, commenced a most calamitous occurrence of Cholera, the most distressing and untoward event of the whole campaign. I have recorded my opinion in my "Notes on Cholera," published in Calcutta in 1826, that I considered the disease contagious. I have seen nothing since to shake that opinion, and much to confirm it. Let me be understood that, by contagion, I mean, not a degree of virulence of disease which shall as certainly spread into and operate on whatever it approaches, as fire explodes gunpowder, or destroys whatever is combustible. If such a disease existed, it would not stop until it had passed through the human race; and consequently the medical philosopher, when he writes of contagion, means something modified by rules and causes which we observe, but cannot understand—which, under predisposing circumstances of liability to receive it, may be transmitted from one that is

diseased to another that is not so, but passes innocuous over a large portion of those subjected to its influence.

"This is not the place for discussion on the law of contagion. Suffice it to say, that, on our arrival at Baug on the 16th of November, we had no disease in our camp. On the morning of the 17th, two servants from the staff-lines were taken ill in the village, brought out to camp, and died. The next morning, Surgeon Forbes, of the First Cavalry, was attacked, and two or three more servants.

"Poor Forbes was more accustomed to hold an intimate intercourse with natives than any other person in the force, and had spent the preceding day in the bazaar at Baug, discussing the statistics and local politics of the place and district with the people in the market. He was, I believe, the only officer of the camp who had been in the village. He called on me as he returned from thence, and sat half an hour showing some coins he had brought from Cabool, and relating what he had heard in the village. On the morning of the 18th, he breakfasted with the regimental mess of the First Cavalry, and was in high spirits, and with no sign of disease. He was attacked about eleven o'clock, and within two hours was considered past recovery. Some improvement took place at night. More cases had occurred among the followers; and the disease being found on inquiry to have been prevailing and still existing in the village, the column moved on next morning a stage of twenty miles. At this stage, we had no new cases, and poor Forbes was, beyond hope, better, and apparently doing well. The next morning, 20th, we made another stage of fifteen miles to Koonda. On arriving at the ground, I found my poor friend Forbes, after a

bad night, in that melancholy state which left no hope. He lingered through the day, and died in the evening.

"The following morning, 21st, we received two astounding articles of intelligence—the fall of Khelaut on the 13th, and an official intimation from Mr. Bell, political agent, to Brigadier Scott commanding, that he had received instructions from the Envoy and Minister to halt the column until farther orders, in consequence of a report having reached Cabool that the Russians in force were marching upon Khiva. We hardly knew which deserved the greatest degree of our wonderment. During the day, a few cases of Cholera occurred among the camp-followers; and in the afternoon, three European soldiers of her Majesty's Fourth Dragoons were attacked. I saw Brigadier Scott on the subject in the evening, and professionally recommended moving, as the disease was then in the village. The political agent's requisition to halt was, of course, in the contemplation of a very remote contingency, and the pestilence was among us and at our doors. Brigadier Scott at once concurred; and the move, which could not take place till next evening, was decided on if more Cholera should occur.

"We were on the edge of the desert, and had a thirty-four miles' march before us. We could not move without preparation, or we should have been off next morning. With daylight, I went the round of the hospital, and saw that, though no new cases of the disease had occurred in the night, a change had taken place in many of the sick, and that symptoms of Cholera were supervening on other disorders. I rode through the village, and ascertained that Cholera had been prevailing there, and that two of

the villagers had died during the night. The necessity for removal was not to be disputed.

"In the apprehension of deficiency of water in the intervening halting-places betwixt Khoonda and Shikarpore, the column moved in two detachments; and the first, consisting of her Majesty's Fourth Dragoons and a troop of horse-artillery, left Khoonda that evening at five, halted twice during the night, and reached Rojann before five in the morning,—a desert march of thirty-four miles done under twelve hours, including halt.

"It was near full moon. A clear, bright, cloudless sky was over head; and under foot the hard-sounding clay of the desert, that echoed as we trod, and over which the artillery-wheels rolled unimpeded as smoothly as the balls over a billiard-table. More advantageous circumstances for making a long march could not have occurred. The humane arrangement, in our Indian establishment, of doolies, or palankeen-litters for the conveyance of the sick, enabled the most serious cases to be carried along without the risk from fatigue and exposure that would have resulted from any other mode of transport. All the carts that could be found—nearly fifty—were hired, and used for the servants and followers; and thus we travelled, on the 24th, from Rojaun to Janadeera, on the 25th, to Jaugun, and on the 26th to Shikarpore. The rear detachment overtook us on the 27th; and the following day, the 28th, we moved on to Kye, and on the 29th to Sukkur. No new case occurred after the 27th; but, betwixt the 20th and 30th of November, we had lost, through this appalling visitation, two officers and fifty-six European soldiers on a total strength in camp short of seven

hundred. War, and all personal dangers, have their *fanfaron* and their excitements, as well as their hazards; but the pestilence that walketh in darkness, and the destruction that wasteth at noonday, strike their unresisting victims in the depression of a subdued mind, and spread over the most callous survivors, amid their falling comrades, that deep-toned anxiety and trouble of the soul which is, like the wounded spirit, unbearable.

"The two officers thus cut off, after only a few hours' illness—Surgeon Forbes, of the First Bombay Cavalry, and Captain Ogle, of her Majesty's Fourth Dragoons—were both men of unusually benevolent and warm-hearted dispositions, sincerely and unpretendingly good. It seemed strange that Forbes's disease could be traced to a peculiar and unusual intercourse with natives, and that Ogle, when the disease commenced, could not be kept out of the hospital, his native kindness impelling him, in spite of warning of the danger, to be almost constantly there. There were not two men in the force more kindly regarded, or that could have been more generally regretted. Only a few days after the decease of Captain Ogle, Lieutenant Janverine, of the same regiment, fell a victim to smallpox on the 6th of December—a melancholy catastrophe, and which robbed the force of a valuable officer. He had devoted himself to the study of the Asiatic languages, and of Oriental inquiry generally, and had acquired a great fund of information respecting Affghanistan. The loss of such a man would have been deeply felt at an earlier period of the campaign."

London:
Printed by STEWART and MURRAY,
Old Bailey.