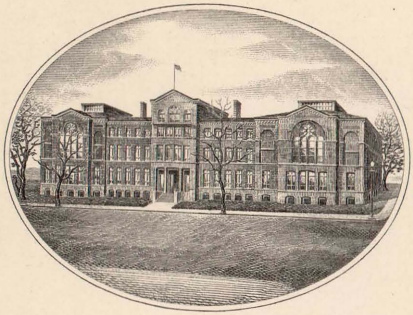
PRACTICAL OBSERVATIONS

ON

MALIGNANT CHOLERA,

AS THAT DISEASE IS NOW EXHIBITING

ITSELF IN SCOTLAND.



PRACTICAL OBSERVATIONS

ON

MALIGNANT CHOLERA,

AS THAT DISEASE IS NOW EXHIBITING

ITSELF IN SCOTLAND.

By D. M. MOIR, Surgeon,

AUTHOR OF "THE ANCIENT HISTORY OF MEDICINE;"

AND SECRETARY TO THE MEDICAL BOARD,

MUSSELBURGH.

SECOND EDITION,

REVISED AND GREATLY ENLARGED.

WILLIAM BLACKWOOD, EDINBURGH; AND

T. CADELL, STRAND, LONDON.

MDCCCXXXII.

EDINBURGH:
PRINTED BY BALLANTYNE AND COMPANY,
PAUL'S WORK, CANONGATE.

TO

SIR JOHN HOPE, BART.

VICE-LIEUTENANT OF THE COUNTY OF MID-LOTHIAN;

CHAIRMAN,

AND TO

THE MAGISTRATES, JUSTICES-OF-PEACE, AND GENTLEMEN,

CONSTITUTING THE BOARD OF HEALTH,

MUSSELBURGH,

THE FOLLOWING PAGES ARE RESPECTFULLY INSCRIBED,

BY THEIR OBEDIENT HUMBLE SERVANT,

THE AUTHOR.

PREFACE.

THE following hurriedly written pages have no other purpose than that of utility. As Secretary to the Medical Board in Musselburgh, the writer has been, day after day, addressed in letters from various parts of the kingdom regarding the personal observations he may have been able to make on the subject of this pamphlet. During the scanty moments snatched from sleep, and from the almost unremitted fatigue which has been a concomitant of the Cholera, he has done his utmost to give answers to the various queries proposed to him; but this has, necessarily, been managed in such a categorical manner, as to have rendered them very imperfect and unsatisfactory.

As well, therefore, in his own defence, as in satisfaction to this praiseworthy curiosity, he at length resolved on the publication of the following pages, containing views of the disease, suggested entirely by actual observation. Indeed, not a symptom has been described to which his attention has not, in a variety of cases, been distinctly called, nor a mode of treatment recommended which has not practice for its basis, and not mere theory.

With all deference to the opinions of abler men, and more extensive enquirers, it seems to him to

have been somewhat strangely overlooked, that a disease, without being stripped of its distinctive character, may lose many of its features in passing from one degree of latitude to another; and that, what may have proved efficacious in its management at the equator, may be far from being so near the pole. Indeed, every disease to which the human frame is subject, is more or less modified, not only by climate, but by the moral habits of a nation.

It is to be apprehended, therefore, that the British practitioner has found a stumbling-block in the way of his researches, regarding Cholera Asphyxia, in the Asiatic histories of that disease. The descriptions of it given us by Dr Keir from Moscow, and by Drs Russell and Barry from Petersburgh, shew unequivocally that it has much altered in many respects, even since progressing to us from the north of Europe; and it is but too evident, that many recent enquirers have been more assiduous in accommodating its appearances to Indian theories and descriptions, than to judging with their own minds, and observing with their own eyes. Having no hypothesis to support, the following brief observations can have no object but that of practical utility; and if they may only have the effect of somewhat simplifying the views of a disease, which has most assuredly been hitherto involved in needless complication, the purpose of their publication will have been entirely attained. Had it been his intention to have written a regular treatise on the subject, it should certainly have been very differently handled,—and may be;—the fates consenting. All that can at present be

given, are a few leading suggestions; which may be of use, not only in situations where the disease at present prevails, but where it may yet unhappily shew itself.

Bridge Street, Musselburgh,
6th February, 1832.

POSTSCRIPT.

A second edition of these Observations having been required within ten days after the publication of the first, is a sufficient proof of the favour with which they have been received by the public.

Subsequent experience has only tended more firmly to strengthen the Author in the opinions he originally formed, both regarding the nature of the Malignant Cholera and its treatment. On neither point has he found it incumbent upon him to express any change of sentiment; and has therefore deemed it better to retain the text nearly as before—throwing any additional information on the subject, which the writings of others, or personal enquiry has suggested to him, either into the form of notes, or into topics for separate consideration in the Appendix. A number of new cases are also added.

20th February, 1832.

CONTENTS.

PRACTICAL OBSERVATIONS

ON

MALIGNANT CHOLERA.

I.—ON THE CONTAGION OF CHOLERA.

WHATEVER Cholera may have been in India, surely the mind must be strangely constituted which can shut itself against the fact of its being virulently contagious, at least in this climate.* That it ever shews itself sporadically, I am very much inclined to doubt; for in the instances which have been adduced to support that supposition, the disease has uniformly stopped with the person attacked; whereas, in the Malignant Cholera, no sooner does a case shew itself in any particular street or district, than, if entire isolation be not immediately effected, a second and a third follow, and at length the whole neighbourhood is sub-

* It were well for the credit of medical writers, that proper distinction were made between the terms Contagion and Infection, which, as was well remarked by Mr Brown, in his Essay on Cholera, "though entirely distinct in their etymologies, are often used almost synonymously."—On Cholera, more especially as it has appeared in British India; a Letter addressed to Sir James M'Grigor, M.D. by Thomas Brown, Surgeon, Musselburgh. 1824.

jected to its influence. Not a single case has occurred, where communication with the infected could not be readily traced out. While, on the contrary, where intercourse has been completely cut off, the progress of the disease has been, to a certainty, arrested. What more is wanted than the corroboration of this fact—or call it, in the present state of our experience, assertion, if you will—that the disease is one communicable by personal contact? Wherever Malignant Cholera appears, ample opportunities will be afforded of substantiating its truth.

Of the contagious nature of Cholera, at least in this climate, I am as thoroughly convinced as of my own existence; and whoever will take the trouble, like an able writer in the Quarterly Review (No. XCI. for November, 1831), to investigate the facts connected with its progress in India, can scarcely come to a different conclusion. The mass of evidence there accumulated, must be perfectly convincing to all but prejudiced minds, and is not to be got the better of, even by the most ingenious sophistry. Indeed, the consideration of the subject reduces itself ultimately to the simple question, "Does Cholera Asphyxia propagate itself by some contagious quality, or does it not?" If it does, how is a sporadic case to be accounted for? and if it does not, why are the inhabitants of one village, hour after hour, falling victims to it, while another, perhaps not a mile distant, remains perfectly uninfected? How does it pass from house to house along a street, yet stop at the termination of it, where a family have shut themselves up within their garden walls? Were it an epidemic arising from atmosphe-

rical causes alone, no such phenomena would, or could, present themselves.

No stronger corroboration of this position could be any where looked for, than the circumstances connected with the third case which appeared at Musselburgh, and which happened to fall under my charge.* This was a girl, whose mother kept a lodging-house, and whom I found in a state of complete collapse on the morning of Thursday the 19th January—the day after the first appearance of the pestilence. She died on that afternoon, between five and six, and was buried by moonlight the same evening, in order that the fomes of the contagion might be more effectually counteracted, by having the body removed, and the house properly washed and fumigated. Notwithstanding every precaution, however, the mother, during the night of Saturday, was also similarly seized, and fell a victim on the following noon. Her sister, who had walked from Leith on the same morning, to condole with her in her family distress, was immediately affected on entering the house; but her symptoms being overlooked in the misery around her, medical assistance was not called in, until, on the return of the nieces from the interment, their aunt was discovered dead on the floor of the dwelling. Her husband, Baxter, a man of intemperate habits, came out to enquire into her fate; and, immediately on his return home to Leith, was seized with the distemper, and died. By the vigilance of the Board of Health there, the contagion, so far as

* *Vide* Cases in Appendix, No. I. B. M.

this individual was concerned, was, by active measures, successfully checked, and Cholera thus, for a while, held in abeyance.*

Taking another illustration from the first six in the schedule of District First, I find a boy, W. B.,† aged seven, to whom I was called at six on the morning of the following day, Friday, the

* Since the publication of the first edition of this pamphlet ten days ago, a sequel to this family category has shown itself in Edinburgh, in a case which seemed at first to delight the hearts of the anti-contagionists.

Of the previous three well marked and violent cases of Cholera Asphyxia, which had occurred in Edinburgh, all had been persons recently returned from Musselburgh, while the disease was raging. This fourth one was a Widow M'Millan, who had not been out of town for months before her death. She was seized on the night of January 27th.

In a precognition before the Sheriff, the following overwhelming facts have, however, been since elicited. It turns out that the son of this woman slept, on the nights of the 18th and 19th of that month, at Musselburgh, in the house of Mackay; and it will be seen by reference to the Appendix, that B. M. (see case first,) died on the afternoon of the latter day. This circumstance, however, was mendaciously concealed.

On the 22d he was, after his return to Edinburgh, seized with diarrhœa and vomiting; and was seen by Professor Alison and other medical gentlemen, who, from the nature of his evacuations, immediately set down his case as one of Cholera. It was, however, slight; and in a few days he recovered;—but not ere a woman residing under the same roof was similarly affected.

Lastly, on the 27th, his mother, Widow M'Millan, who had nursed her son during his attack, and occasionally slept in the same bed with him, was seized with the malady in a more malignant form, and fell a victim to it. Facts like these require no commentary.

† *Vide* Case third in Appendix.

20th. At eleven at night, a man lodging in the same house* was also attacked; and on the following morning the father of the boy. Within a week after, his youngest child, aged only three years, became also violently affected. Eight or ten other cases almost immediately shewed themselves, within a compass of thirty yards from this house; and this at a time when whole districts of the parish remained totally uninfected. Indeed, the whole history of the disease among us, from first to last, is nothing more than a consecutive series of examples, strikingly illustrative of the personal communicability of the contagion. That it can, besides, be conveyed by inanimate substances, is also very probable; but the testimony on this subject is more difficult of attainment, while it is less capable of proof.†

It is quite a mistake to suppose that the disease is either so erratic or whimsical, in its wanderings from district to district, as some would lead us to suppose; or that it will suddenly disappear, after having wreaked a desultory violence. This idea is founded on the erroneous supposition of its non-contagious nature, and a number of apparent illustrations have been brought forward in its support. The fact is, that Cholera will nowhere abate, or pass away, while a victim susceptible of its influence remains, provided such be exposed to its contagion;

* *Vide* Case second in Appendix. Wm. Bishop.

† In the cases of Stewart and Boatwood, which fell under my own observation, the disease was distinctly traceable to their having carried articles of furniture and apparel from the houses of deceased relatives to their own. *Vide* Appendix.

and no doctrine more dangerous or destructive to the safety of society can be promulgated. Until all are made aware of the risk to which they are exposed—adopt every means of prevention—and keep beyond the pale of contagion, the disease will propagate itself—and re-appear—and again re-appear with renewed force. The necessity is therefore urgent for continuing every preventive restriction and regulation in full force; to isolate every case that can be so managed; and to render the concentration of the pestilential fomes less virulent, by feeding and clothing the poor, as well as attending to the purification and cleanliness of their dwellings. The fear has been suggested, that public panic may become so universal regarding the infectious nature of the disease, that it may be found impossible to procure the necessary attendants for the sick; but hire every where—or the nobler incentive of moral obligation in a Christian land—will ever be able to more than compass this end. But even were it to act in a degree sufficient to be somewhat felt—better, perhaps, that it should be so, than that thousands should be running themselves, without caution or warning, into the vortex of death—and not only becoming uselessly self-sacrificers, but the very vehicle for scattering the seeds of destruction every where around them.

II.—MODES OF PREVENTION.

I. ASSUMING that Cholera is a contagious disease, the next consideration is, What are the best means to guard communities from its approach?

First, then, a Board of Health should be formed, consisting of two branches, a Civil and a Medical. To the former should be intrusted all matters relating to the feeding and clothing of the poor, and to the cleanliness and comfort of their dwellings. This will be most efficiently carried into effect by dividing the community into districts, and putting a part under the surveillance and superintendence of one or more resident commissioners. These must make inspection twice or three times a-week, or oftener if necessary, and give in written reports to the chairman, so that steps may be instantly taken to enforce cleanliness. A public fund should be consolidated for all exigencies regarding food, fuel, and clothing for the poor; and an hospital provided expressly for patients attacked by this disease, that every facility may be afforded for checking the spread of the contagion, by immediately isolating the infected. These hospitals should be properly furnished with all the necessaries, and with litters or palanquins for conveying the sick thither.

The community should in like manner be divided into medical districts, and this done in such a manner as best to suit the resident practitioners, according to

their places of abode,—as it is of the utmost consequence, as well for their patients as for themselves, that they may always be as much at hand as possible.

Arrangements should also be made for lime-washing infected dwellings, for fumigations, and for the provision of speedy sepulture of the dead. However repulsive to the common feelings of humanity, a strict adherence to the last-mentioned particular is of extreme consequence. Interment should take place within six hours;* and on no account should the

* Since this pamphlet appeared, Dr Alison has given the weighty sanction of his name to the same recommendation.

"It would appear," he says, "from the facts already established regarding the infectious or contagious nature of Cholera, that it is more decidedly so after death than during the life of an infected person; in other words, that there is more chance of its spreading from a dead body than a living one. When this is the case, it is the duty of every survivor or individual to prevent the probability or possibility of the progress of the disease, by immediately interring the body of their deceased friend or neighbour; and it is the duty of the authorities, who so anxiously watch over the common safety, to take care that it is done to the utmost of their power and influence.

"The public safety demands every sacrifice, however great, at present; it demands most resolutely of every individual, whatever be his rank, or his feelings, or his wishes, or his sorrows, to contribute to crush the dreadful destroyer, ere he raises his gigantic strength, or spreads his frightful desolations around us. This is not the time for unavailing delays, or hopes, or griefs—these must be buried with the dead themselves, however, even then, dear to us, or we too must be soon carried to the same tomb.

"It is quite evident, that, until interment takes place, it is impossible to prevent the crowding of visitors, with their too frequent practice of drinking, or the removal and total destruction of

coffin be carried on shoulders. Waggons or covered carts should be provided for this purpose, and the body attended to its place of rest by the least possible number of relatives or friends. All articles of clothing or furniture, which may be supposed most likely to retain the pestilential matter, should be destroyed. Police arrangements should also be made for cutting off all communication, through the media of vagrants and beggars, with the infected districts; and constables for this purpose stationed, day and night, at every outlet of the population.

every article belonging to the deceased person; and if eighteen or twenty-four hours are suffered to elapse before interment takes place, the probability of the escape of others is greatly diminished."

In complete opposition to this, and to my own sentiments, is the ingenious letter of Dr Craigie, addressed to the Lord Provost of Edinburgh, in condemnation of early sepulture. He himself admits, that "the medical world are still a good deal divided about the question, whether Cholera can be communicated from the sick to the healthy; and undoubtedly the facts are still so ambiguous, that they apply with equal facility to both sides."

Allowing, however, even that fancy is as good as fact, and that Malignant Cholera is not propagated by human contagion, the convenience and comfort of the living, during the prevalence of such an epidemic, require the speady interment of the dead. Of every hundred cases, ninety at least will be found to occur in crowded or ill-ventilated huts and hovels, where purification cannot take place until the corpse is removed—a family of five or six being probably cooped up in the same apartment along with it.

As a scientific speculation, it may be harmless to maintain that infection can only be generated by vital actions; but in our present ignorance of the remote cause of Malignant Cholera, we owe it to the public safety, to err—if it be doing so—on the side of caution. Dr Craigie's motives are altogether excellent; but the plan might—I will venture to say would—be attended with the most disastrous consequences.

II. In descending from public to individual considerations, we have first to consider the regimen supposed to be most conducive to the preservation of health. Moderation, therefore, alike in eating and drinking, is especially to be recommended; but, from the view which we have taken in these pages of the nature of Cholera, it will be seen—although an excess of stimulus is to be avoided—that still more pernicious is an unwonted abstemiousness; as the system may be thence lowered to the very state peculiarly predisposing to this disease. All acid liquors, unripe fruits, soups containing flatulent or ascescent vegetables, or, indeed, whatever is apt to create indigestion, and thence diarrhœa, should be avoided. The diet should be nutritive and invigorating, as such conduces to ward off bowel complaint; and a modicum of wine or diluted spirits is not to be condemned—more especially when such has formed a part of the habitual regimen. As a striking proof of the influence of mental affections on the digestive process, dyspeptic symptoms, followed by a tendency to diarrhœa, will be found to prevail generally wherever Cholera is committing its ravages; and, for this reason, it is particularly necessary to be attentive to the state of the stomach, as well as to guard against exposure to cold, damp clothes, or wet feet.* Saline, or drastic

* This circumstance, which particularly struck me, has been, I observe, also remarked in a letter from Mr Cox to Mr G. H. Bell; by Mr Bell himself; and by Dr Becker at Berlin. See Treatise on Cholera Asphyxia, 2d edit. p. 136.—I have also remarked, that, during the prevalence of Cholera, laxative medicines are exceedingly uncertain in their operation: the usual doses sometimes operating not at all, and at other times immoderately.

purgatives should be avoided, and indeed every thing which may possibly act in diminishing the tone of the nervous system. All extremes of bodily or mental exertion are therefore consequently unsafe. The clothing should be warm and comfortable ; and care taken neither immoderately to excite perspiration from the skin, nor to suddenly check it when excited. All nervous apprehension is hurtful, and to preserve a calm and cheerful mind is of the utmost consequence in warding off the attacks of this disease.

It should be needless to add, that personal cleanliness is of the utmost consequence. The linen should be frequently changed, and a little vinegar sprinkled on the clothes before going out into infected streets. It has been well remarked, " that as we are ignorant whether the pestilential matter enters the healthy body through the pores of the skin, the lungs, or the alimentary canal, prudence requires that we should act as if it may enter by all of them."* Smoking of tobacco has also been thus thought serviceable ; and camphor bags, worn about the neck, may, from their antiseptic aroma, be also of some use.

Exposure to night air should be avoided, as also going out in the morning without swallowing some portion of nutriment.

* Quarterly Review, No. XCI. p. 272.

III.—CHOLERA, A DISEASE OF DEBILITY.

THE Malignant Cholera, as it has appeared in this climate, is, if not a disease of direct debility, at least one which is dangerous only to debilitated constitutions; and, in not a single instance which has come under my personal observation or scrutiny, has it selected a victim from among the robust and vigorous. This is one of the chief reasons why its contagious nature has been so much a matter of dispute; for, that it is communicable in a most alarming degree, is, as has been shewn, matter of hourly observation. That there are any constitutions unsusceptible of its influence, it would be hardy to maintain; but those more immediately exposed, are unquestionably the weak and debilitated. Indeed, it strikes me, that there is almost as little chance of a man of sound health and temperate habits being subjected to this pestilence, as of his having the smallpox for the second time. Now and then a case appearing to contradict this opinion has exhibited itself; but, upon investigation into the real facts, the seeming difficulty has been explained. From whatever cause it might proceed, there was in all deficiency of nervous tone, and a consequent diminution of the powers of life.

This debility may be always traced to one of three great causes, or to their combination;—to exhaustion of nervous power, produced either,

First, by intemperate habits ;
Secondly, by scanty nutrition ;
Thirdly, by natural delicacy of constitution.

Humiliating as the confession must prove, there is no denial that three-fourths of the most intractable cases were distinctly referable to intemperance or starvation; and of those which might be classed under the remaining division—or delicacy of frame—whether natural or the effects of disease, one-half had their predisposition increased either by indulgence in excess of stimuli, or want of proper food. In a number of instances, the appearance of the Cholera Asphyxia was immediately consequent on a fit of debauch.* It should be kept in remembrance, however, that all debilitating causes, whatever may be the situation or circumstances of the person, create a predisposition to this disease. Diminution of nervous tone from alarm, or from excessive fatigue, in many instances imparts a susceptibility to the constitution where it did not originally exist.

* *Vide* Appendix.

IV.—FIRST STAGE OF CHOLERA.

DIARRHŒA is the first undoubted symptom of this complaint; and, indeed, such a decisive one, that I would be very much inclined to doubt the nature of the case in which it came not as a premonition. The evacuations are at first more or less bilious, but gradually diminish in hue and consistence, until they become like a commixture of ochre and water. Some headach is generally present, and the pulse is frequent and full; the heat of the skin above the healthy standard; the face flushed, and the eyes suffused. Griping is by no means a general concomitant. There is sometimes a degree of nausea at stomach; but this is seldom complained of, unless the patient is questioned. In a few instances, spasmodic twitches in the extremities exhibit themselves; although this is a symptom which, in the generality of instances, does not shew itself until after vomiting has commenced.

The length of this stage seems directly to correspond with the remaining strength of the patient; and, in proportion to the degree of this exhaustion, in a longer or shorter time the symptoms run into the second aspect.

Whenever the alvine discharges have exceeded three or four in number, or come away with unnatural violence, either one grain solid opium, or thirty drops laudanum, should be exhibited to an adult, in a

table-spoonful of brandy, diluted with half that quantity of water.* If much languor or debility be complained of, and according to the degree of violence in the symptoms, the patient should either be ordered to lie down in bed, or take gentle exercise in the open air. As thirst is an almost invariable attendant, great care should be recommended that liquids be moderately indulged in; for if attention be not paid to this particular, either the diarrhœa will continue, or vomiting will supervene.

Sometimes the exhibition of a second opiate is necessary, at the distance of an hour; but much more generally, the symptoms, according to their comparative degree of severity, gradually disappear. If not, nature may be assisted by the chalk decoction, or a mixture containing the electuary of catechu.

With a little care as to diet and regimen, the patient will be quite well in a day or two; and under this simple management, the disease, in a great majority of instances, will totally disappear. Sometimes it is necessary, after checking the bowel complaint, to rectify the functions of the stomach and liver by the exhibition of an aperient. One of the best is the powder of calcined magnesia, rhubarb, and ginger, in common use.

If, however, it unluckily so happens, that the diarrhœa is not checked, and symptoms indicative of the second stage make their appearance, the attention of the practitioner is called to the following particulars.

* It should be cautiously held in remembrance, that, in the doses recommended for exhibition in this pamphlet, a male or female adult is always presupposed.

V.—SECOND STAGE OF CHOLERA.

THE Cholera Asphyxia, after running into its Second Stage, puts on three distinct varieties of aspect, which may be thus severally described.

First.—Diarrhœa, with full pulse, and violent spasmodic affection of the muscles.

Second.—Diarrhœa, to which vomiting has supervened, accompanied with spasms — the pulse still retaining tone and distinctness.

Third.—Vomiting and purging of an almost colourless fluid—subsiding pulse—and spasms of more or less violence.

I. If the means recommended fail in putting an end to the Diarrhœa, that discharge alters its character from what has been described, and assumes the appearance either of rice-water, or of milk-whey, in which flocculent particles have been stirred, together with a slight intermixture of mucus. With little or no griping, the discharges continue frequent and large, and are emitted as if from a squirt; the patient, sooner or later, complains of faintness, tinnitus aurium, loss of locomotive power, and strong tendency to faint, with an occasional sense of burning pain in the epigastric region, principally referable to

the left side, or pyloric orifice of the stomach; and spasms of the extremities, sometimes extending to the lower division of the abdominal muscles, come on with great violence. The heat of skin remains for a little while not greatly diminished; and, in contradistinction to the usual symptoms of common deliquium, the pulse retains considerable tone and rapidity. If not, however, speedily relieved, it suddenly sinks; a chilliness pervades the surface of the body; vomiting supervenes; and the miserable sufferer falls into a state of collapse.

This, and this alone, is the stage and variety of the disease in which blood-letting may be practised with certain and unequivocal benefit. The quantity taken away should correspond with the violence of the symptoms; or the age, temperament, and constitution of the patient. As a general rule, from twelve to eighteen ounces may be abstracted with benefit; and while this is being done, a grain opium pill should be exhibited, with a table-spoonful of brandy and water, the patient placed in bed, amid warm blankets, and bottles of hot water applied to the feet. The nervous irritation then gradually subsides; the pulse loses its frequency; the animal heat returns to its natural temperature; and the patient falls into a comfortable slumber, from which he awakens with a degree of perspiration over his whole frame.*

* What the specific nature of the human effluvium producing Cholera Asphyxia is, we know not, and probably may never know; but its mode of operation on the sympathetic portion of the nervous system strongly resembles that of some particular poisons. Its immediate effect is increased vascular action, and

Care must be taken for a few days not to oppress the stomach, and to restore the secretions to their wonted state by the gentlest aromatic aperients.

II. After the Diarrhœa has continued for a

then a sudden diminution of the powers of the circulation—a suspension in the functions of the secreting organs—and a seemingly retroverted motion of the fluids naturally poured into the alimentary canal.

As the chance of ultimate recovery from the disease seems to depend on the remaining stamina of the constitution, these may, in most instances, be noted from the virulence or the duration of this stage; and hence it is, that in many of the cases where the spasms are most violent the sufferer escapes death. Where the symptoms run rapidly into collapse without much spasm, an unfavourable result is generally prognosticated.

In fact, the first stage of Cholera seems a struggle between health and its enemy—between the subduing effects of the poison and the powers of life. The whole efforts of the physician should be therefore directed towards strengthening the latter.

It is of the utmost consequence on this account, that a proper distinction should be made between this stage, or rather aspect of Cholera, and that of which we are immediately to treat; and I beg most earnestly to call the reader's attention to this point, as one of the niceties connected with the treatment of this disease.

As long as only Diarrhœa is present, accompanied by spasmodic action, we may with considerable probability regard it as an effort of nature to restore the balance of the circulation, by getting quit of the morbific matter; and, if properly seconded, it will do so in a great majority of instances. But if vomiting has supervened, the case immediately changes its character, and requires a different mode of management. We are at once to conclude that the powers of life are succumbing, and, unless speedily invigorated, that they will sink. To bleed in this state, even while yet the pulse retains firmness and volume, is to destroy all chance of recovery,—the subduing power of the poison rapidly extinguishing the circulation, and rendering collapse and death co-temporaneous.

longer or shorter period, vomiting also comes on, with the peculiar soapy-water or rice-gruel looking dejections; and yet, although spasms pervade the extremities, the pulse retains considerable strength and firmness. There is great anxiety of countenance—thirst—and jactitation of the body.

Blood-letting is in this variety a most destructive expedient, and only hastens the catastrophe, by exhausting the powers of life.* Let two grains of solid opium be instantly exhibited in a table-spoonful of brandy; a sinapism applied over the stomach; tin cases, or jars of hot water placed around the body, and a heated smoothing-iron run rapidly along the spinal canal, under the bed-clothes. Considerable benefit will be often experienced from frictions of the parts cramped with dry hot flannel, or with a stimulating turpentine embrocation. By perseverance in these means, the spasmodic symptoms will in some cases abate, and the patient sink gradually into a state of placidity; but, in a majority of instances, it is to be feared, that the disease has gone too far, and is too powerful to be arrested. With great rapidity the patient sinks into the third aspect.

III. This state has been characterised as that of collapse, and the external pathognomonic appearances are so striking, that a person, who has once beheld a patient labouring under it, can at once recognise the disease from the peculiar character of the countenance. The eyes are sunk in their sockets, and are

* *Vide* Appendix. Case IV.

surrounded with a livid ring, as is also the mouth. The nose is sharp and pinched, and the muscles of the face are shrunk, as if to exhibit the osteological structure beneath. The pulse rapidly subsides into threadiness, and dies away under the finger; the whole surface of the body becomes cold, and, in some cases, covered with a clammy moisture. If not relieved, the pulse gets imperceptible, and even the action of the heart is not to be felt. The features become more and more ghastly, cadaverous, and retracted; and livid patches commencing on the extremities, or such parts of the body as are exposed to the external air, gradually pervade the greater portion of the cuticular surface. The nails are blue or purplish; and the hands and feet appear as if they had been long soaked in water. The evacuations, both upward and downward, continue unabated, and have both almost exactly the same appearance, with a faint, peculiar odour. The spasms still continue; but, generally speaking, are not so violent as in earlier stages of the disease. The respiration is slow, feeble, and oppressed, and the breath feels as if it had come over snow. The inside of the mouth feels chill, and in almost all cases the tongue is moist. The patient complains of pressure, or pain about the epigastric region, more especially towards the left side; and sometimes a burning feeling is on the stomach. The voice loses all tone, and comes forth in whispers, occasionally with a degree of querulousness; and yet, while every thing indicates corporeal prostration, the intellectual faculties remain undisturbed, and the victim seems endued with a fearful consciousness of his situation.

So excruciating, however, is the thirst, that all other considerations are sacrificed to its gratification. Cold water is incessantly called for; and although the sufferer is cautioned that death may be the penalty of such indulgence, he seems to have no other wish than to drink, although it may be to die. How long this state may continue, seems proportioned to the remaining vital forces of the patient, or the means used for his resuscitation. Yet no case has occurred to my observation, wherein nature did not seem to make as it were a final struggle with the destroyer, and a faint gleam of hope awakens, as the countenance seems to regain a degree of reanimation—the skin a portion of animal heat—and the pulse a slight flutter. The oppressed respiration, and the distress about the precordia, however, still continue; and are evinced by violent jactitation of the trunk and arms. In some cases, the patient will, unassisted, rise from his pillow, and sit upright, appearing as if in a reverie; and, in a few minutes, lie down again to rise no more. Hiccup is by no means a common symptom; and death, if the disease takes place in this stage, is unaccompanied with convulsions or nervous tremor. Clamminess of the skin seems, in almost all instances, an unfavourable prognostic.

The treatment of this stage of the disease forms the most important consideration that we have yet touched upon. For, although to have in our power the means of counteracting it in its earlier ones, is a matter of immense moment,—to be able to resuscitate those who have sunk into it, would be much more so; because it unfortunately happens, that, in so

many instances, neither alarm is taken, nor medical aid called in, until the victim is already in its clutch.

When brought to a patient labouring under this form of the disease, an appalling spectacle is presented to the practitioner. Before him he sees a half animated corpse; voiceless, pulseless, yet retaining an intellectual accuracy, which renders his situation more dreadful, at least to the spectator. According to the approved practice of the East, blood-letting was the plan every where first resorted to; but after repeated trials, under a variety of circumstances and situations, it was confessed by all here, and by spontaneous assent, that the propriety of persevering in it was, at best, extremely doubtful. In the complete Asphyxia of this stage, not a drop of blood will be obtained, without mechanically emptying the vein of its contents by pressure with the fingers. Even by perseverance for a considerable time, although every half hour exhibiting stimulants, I have never been able to obtain more than eight ounces—a quantity but little calculated to have any decided effect, when we regard the quantity of the circulating mass. Add to this, that, during the operation, we are partially exposing the body of the sufferer, and losing much of the benefit to be looked for in the application of dry heat. The inspissation of the blood, as well as its deprivation of oxygen, are the effects, not the causes of the disease, as some writers would almost seem to assume; and unless the centre of the circulating system is stimulated through its nerves, to a performance of its office, all efforts at curing it are misdirected, and will prove abortive. Blood-letting

in the state of Asphyxia, can only operate beneficially by diminishing the mechanical pressure; and, when we consider how trifling the quantity is, that, by any method or perseverance, can be obtained while the patient is in collapse, we may be enabled to estimate its value as a curative process.

Let the patient then have instantly from one to two grains of solid opium, in a table-spoonful of brandy; and, with all expedition, let bottles of hot water, heated bricks, or bags of warm salt, be applied to the feet, sides, and stomach; an addition of bed-clothes be thrown over the lower extremities, and any other means of supplying external heat be resorted to, which may more immediately present themselves. Should the first opiate be rejected within the hour—or if the chance that it has been so be strengthened from the fact of vomiting having taken place within that time, let a grain more solid opium be exhibited, with a repetition of the brandy and water; and let a sinapism be applied over the epigastric region. The mustard poultice should be allowed to remain on until the severity of its application is complained of, which will generally be within the half hour. It will be of some consequence to the patient, however, that it produce sufficient external irritation, and it should be kept on from three quarters of an hour, to an hour. Its failing to excite much uneasiness, may generally be set down as an unfavourable symptom; and indeed its effects generally may be regarded as a mark of the degree to which the nervous sensibility has ebbed; so much so, that an unfavourable prognosis may with much reason be hazarded, when its stimulus is

altogether unfelt or ineffective. The application of a sinapism along the spine, seems also to operate with excellent effect, under the same circumstances; and, by indirectly stimulating the nerves of that canal, assists in raising the powers of vitality to a state of reaction.

If the opiate be retained, some hope is held out that our endeavours may be ultimately crowned with success; but should this not be the result, there is every fear that the case will progress to a fatal termination. The vomiting and dejections of water, with albuminous-looking flocculi in them, continue from time to time, and in a quantity that is quite astonishing. Indeed it would appear, that all the fluids of the frame are rapidly distilled into the stomach and intestinal canal; for, almost immediately after the stomach and bowels seem to have completely emptied themselves, the discharges recommence. It would almost seem, indeed, that the serum of the blood itself is thus abstracted; for when drawn from the vein, under these circumstances, it flows almost like tar, and is black and grumous, exhibiting a very deficient proportion of the watery part of the fluid, after coagulation has taken place. The pain, or rather burning, at the pit of the stomach continues unabated, and thirst is ever and anon most piteously complained of. At length the powers of life wax fainter and fainter, the lividness of the surface continues, but in some cases becomes less perceptible, and almost always something like a slight reaction of the system takes place. But it is only a precursor of the death which speedily follows.

Should, however, the stimuli have the desired effect, the pulse after some time—it may be many hours—begins to be felt at the wrist with a feeble indistinctness; disappearing altogether when the finger is more forcibly applied. The oppressive languor of the eye is lightened, and as the lividity of the skin disappears, a degree of warmth returns to the surface, the patient becoming more alive to some external impressions. The greatest caution should now be still used as to the exhibition of liquids; any quantity above half an ounce being almost certain to be rejected. The external warmth should be continued, and great benefit may be derived from running a heated smoothing-iron from time to time along the dorsal muscles.

No opiate should be exhibited after the vomiting abates; as by pushing the practice too far, there is reason to fear that apoplectic stupor has been induced, although I have never witnessed any such result, even where solid opium has been given to the extent of four grains in the same number of hours.* It is still necessary, however, to continue the stimulus of the brandy, which may either be given with an equal quantity of water, by tea-spoonfuls at a time; or, after its acridity has been removed by burning, spiced with ginger, mace, or nutmeg.† The utmost atten-

* *Vide* Appendix, case fifth, Mrs L.

† In a letter published since the first edition of this pamphlet, Professor Lizars says—"All the practitioners of Newcastle, and particularly Dr John Fyfe, observed that reaction was not in proportion to the stimuli employed, but in proportion to the collapse." The observation is correct and valuable.

tion will, for several hours, be necessary, even after the vomiting has entirely disappeared, to give only the least possible quantities at a time, as the slightest over-bulk of liquid, be that what it may, will most assuredly re-excite the vomiting; and a great proportion of deaths has, I doubt not, taken place from inattention to this circumstance alone. Nothing can be more pitiable or earnest than the prayers of the sufferer for water to quench his thirst; and, although it is impressed on him that to drink is to perish, he will rather choose, as before mentioned, to fall a victim than abstain. It is, therefore, imperatively necessary for the attendants to be possessed of sufficient self-command to refrain from complying with these urgent demands, and only to go the length of, from time to time, giving these by teaspoonfuls, or wetting the fauces with a feather.

If, by perseverance in these means, the irritability of the stomach and bowels—but more particularly of the former—abates, the dull, leaden hue of the surface diminishes, and the pulse begins to be felt, then some gleam of hope breaks in upon us, and the chance of resuscitating the patient becomes more apparent and inviting. The application of the external dry heat should be sedulously persevered in, and every half hour, a table-spoonful of warm spiced wine, or brandy and water, be exhibited, taking care not to excite the morbid irritability of the stomach, by exhibiting more than it can safely retain. When the opium, and plain or burned brandy, with nutmeg or ginger, or spiced wine, have failed to overcome the retroverted action of the stomach, it will, I fear,

be of little use to apply to the less grateful stimuli of camphor, ether, valerian, or ammonia; as the chance of their being immediately rejected is greater. But, as these have severally been recommended as alternatives, recourse may be had to them when other means fail—the quantities exhibited being regulated according to circumstances.

Powder of Mustard has been also recommended in this stage, but the *rationes medendi* leading to its use must, I apprehend, be very imperfect and unsatisfactory. If meant as an emetic, it is to be held in mind, that whatever may tend to counteract the action of vomiting is indicated; and if as a stimulant, it is one much less grateful, or likely to be retained, than those already recommended.

There are, it strikes me, only two ways in which something like a defence may be tried for the exhibition of mustard emetics—either that they may act as counter-irritants, or by producing something like metastasis—as opening a vein in the arm is sometimes efficacious in bleeding from the nose. But the parallel reasoning will not hold good, the stomach being in this case both the organ affected and the organ acted on. That Mustard possesses any virtues of a specific kind, I have never heard; and to tell us that it is useful to stimulate the heart by the mere action of evacuating the stomach, at a time when such action is going on but too briskly, is a mode of reasoning beyond my comprehension.

A succedaneum of much more efficacy in overcoming the irritability of the stomach will be found in a starch enema, to which forty or fifty drops of lau-

danum have been added. It should be exhibited of a tepid heat, and a warm cloth applied to the extremity of the rectum; continuing pressure with the hand from fifteen to twenty minutes, or until the immediate desire to empty the lower portion of the bowels goes off. Should we succeed in having it retained for an hour or two, the most beneficial results may be anticipated.

When the vomiting remains for an hour or two subdued, there is reason to hope that the ultimate event will prove favourable, and the stimuli should be persevered in, but with caution and care. A third hour, elapsing under these favourable auspices, gives hope both to the practitioner and patient,—but until the expiry of a fourth, after the cessation of vomiting, it will be imprudent to attempt restoring the powers of the system by nourishment.

This should be begun, by ordering a table-spoonful of bread gruel, or panada, with a little brandy in it, every half hour; and, when the stomach has sufficiently regained its tone, beef or chicken tea may be substituted. The external warmth should still be sedulously attended to; and must be persevered in till the pulse regains some tone and firmness.

Should this object be happily accomplished, the skin gradually regains something of a comfortable heat; and the patient shews an inclination to sink into a repose. Sleep supervenes; and, after awakening, he seems to have acquired a great additional vigour. He, however, still complains violently of thirst, and is anxious for its being quenched. After a little liquid is administered, the tendency to slum-

ber returns, and thus the case progresses, until a reaction in the powers of the system shews that the exhibition of stimuli may be dispensed with.

It has been supposed necessary to exhibit calomel in combination with opium, in order to stimulate the biliary system to a renewal of its healthy functions; but it is not the biliary system alone which is affected; and calomel, from its nauseating effect, is apt in some measure to counteract the beneficial influence of the stimulants, and continue the very miseries which require to be remedied. All the other secretions, as well as those of the biliary system, are suspended; and we might with equal propriety resort to diaphoretics to restore perspiration, or to diuretics to bring on the flow of urine. When we consider, that even the serous part of the blood, as well as the contents of the lacteals and lymphatics, are, by a retrograde movement, poured into the alimentary canal, all these things cease to be matter of surprise. Indeed, in many cases, it is not until bile becomes again apparent in the dejections, that a single drop of urine is voided.

VI.—STAGE OF REACTION.

WHEN the pulse begins to rise under the finger, and the vomiting and purging, together with the spasms and insatiable thirst, have abated, the disease puts on a new phasis; and now commences what has been termed the stage of reaction. The practitioner, rejoicing over the resuscitation of his patient, is apt to pay less attention to his new situation than its urgency still requires; and the greatest caution is necessary for many days, that he fall not again back into a state of extreme danger.

In fact, the difficulties we have now to contend with are neither more nor less than those characteristic of typhoid fever. From being white and moist, the tongue becomes loaded; the pulse is frequent and variable; the urine scanty and high-coloured; the eye languid and heavy; and a brown sordes is apt to collect about the lips and teeth. The skin is generally dry, but not much above the natural temperature, and the *toute ensemble* of the patient exhibits that languor and listlessness, at once recognisable by any one who has been in the habit of seeing patients in low or nervous fever.

The attention is now principally directed to the state of the secretions; but great care should be taken that we produce not injury by hurrying matters. In almost every case where the patient recovers from the state of collapse, bile, urine, perspiration, and sa-

liva, begin spontaneously to flow; and our sole attention should be directed, not towards compelling, but assisting nature. With this end in view, the colour and consistence of the alvine discharges should be attended to, and diaphoresis promoted by antimonials, sack-whey, and such diluents as are known to elicit discharge by the skin. Calomel in small doses, and under particular circumstances, may now be of use, and its administration may be followed up by decoction of senna, with coriander seeds, castor oil, powder of rhubarb, and other aperients. When much irritability of stomach or nausea is present, the common aloetic, or compound rhubarb pill, will be found convenient formulæ. When these are slow of operation, or cannot well be borne by the stomach, it is necessary to stimulate the intestines by injections of gruel and salt, or decoction of senna, with castor oil. To prescribe diuretics is unnecessary; for, in all cases, the kidneys will return to their functions of their own accord, when the circulation regains a portion of its natural equilibrium. The exhibition of moderate laxatives should be persevered in until the tongue cleans, and the alvine dejections indicate a more healthy action of the stomach and bowels.

Local affections should be treated on the general principles. When symptoms of determination to the head shew themselves in suffused eyes, headach, or flushed face, leeches may be used to the temples with advantage, as well as blistering. Irritability of the stomach is to be combated by moderate doses of magnesia, and diarrhœa kept in check by the exhibition of the chalk decoction. If attention be paid to diet and

regimen, general blood-letting will seldom or never be required; and ought not to be resorted to, unless unequivocally indicated by the temperament or situation of the patient, else the equilibrium of the system may be again overthrown, and indications of constitutional debility shew themselves in a rapid pulse, prostration of strength, and anasarcous swellings. In several cases, after the return of the secretions, I have remarked that the stools have been tinged with blood, or have consisted only of a bloody fluid. Mucus is also frequently observable in considerable quantity.

For a considerable time the functions of the chylipoetic viscera seem liable to derangement from slight causes; and from any errors of regimen, or exposure to cold, a tendency to return of diarrhœa manifests itself. These circumstances require attention and regulation; and in due time the patient will find himself restored to health and society.

VII.—DISSECTION AFTER DEATH.

DISSECTION of the bodies of those who may die of Malignant Cholera can never, I fear, be expected to throw much light either on the theory or treatment of the disease,* for the simple reason, that it is one

* Probably the proximate cause of Cholera Asphyxia consists in a paralysis of the sympathetic system of nerves. I have often hazarded this conjecture in conversation, long before I ever saw a case of the disease, or read Mr Bell's able book. This, however, is altogether apart from the purpose of these pages, which is that of practical detail alone, and not of physiological or pathological speculation.—*Vide* Appendix, No. IV.

consequent on disturbance of functions, not on diseased structure. Nothing more has been found than the appearances on the internal surfaces of the stomach and bowels, arising from violent and unnatural action,—an appearance of efflorescence, or sub-inflammation, as it has been somewhere not unhappily termed. That the right side of the heart, and the venous system, throughout its most minute ramifications, should be found gorged with viscid and unoxygenated blood, is what is also to be looked for, and will be always found. Wherever appearances denoting change in organic formation are observable, we may, with little fear of error, set them down to the effects of previous disease.*

* From the regulations regarding early sepulture, only two opportunities of dissection have occurred in Musselburgh, both of which were admirably conducted by Dr Coste; and I had the good fortune to be present at the first. Nothing remarkable was found, except the general venous congestion—the total absence of fluid from all the cavities, gall and urinary bladders, brain and pericardium—and an exudation of mucous matter about the solar plexus. The last-mentioned circumstance was regarded with some attention; but in the subsequent case, no traces of such filtration or exudation were to be found.

APPENDIX.

No. I.

HISTORICAL NOTE ON CHOLERA.

As considerable curiosity has been excited regarding the history of Cholera Spasmodica, I cannot resist transcribing the following passage from Dr Clarke's admirable "Observations on the Diseases which prevail in long voyages to Hot Countries, particularly on those in the East Indies, and on the same Diseases as they appear in Great Britain. London: 1792." Since the publication of the first edition of this pamphlet, my attention was directed to it by my friend Mr Veitch, joint-surgeon for our third district.

"Spasmodic affections," says Dr Clarke, (Vol. I. p. 105, ed. 2d.) "were the first diseases which appeared amongst the troops that arrived at Madras, in October 1782. They were not only extremely general, but carried off fifty men within the first three days after they were landed; and in less than a month, upwards of a thousand were attacked. These complaints began with coldness of the hands, feebleness of the pulse, and spasmodic contractions of the extremities, soon extending to the muscles of the abdomen, diaphragm, and ribs. The muscles soon became rigid as cartilages; sometimes keeping the body immovably extended, sometimes bending the trunk through its whole length forwards, and sometimes, though seldomer, backwards. The hands and

feet were sodden with cold sweats; the nails livid; the pulse feeble and frequent; and the breath so condensed as to be both seen and felt, issuing in a cold stream at a considerable distance. The thirst was insatiable; the tongue whitish, but never dry; vomitings became almost incessant; the spasms, cold sweats, and thirst, increased with the vomitings; which last soon terminated the existence of the patient. Some died in the first hour of the attack, others lived a day or two with remissions, when they died either of universal spasms, or an apoplexy. On dissection, it appeared that no injury had been sustained by the brain, liver, gall-bladder, stomach, or heart."

Dr Girdlestone, from whom the above account is taken, considers cold as the most general exciting cause of these spasmodic affections; and it appears that not only the damps from the earth, but drinking large quantities of cold water after intoxication, and sudden exposition to the winds when wet with perspiration, had the most powerful influence in producing a sudden and dangerous attack. See Dr Girdlestone's Essay on Spasmodic Affections in India.

In perusing Dr Clarke's work, I have also found the following passage in Vol. II. p. 462.

" The spasmodic affections which appear upon the coast of Coromandel, seem to have a near analogy to the Cholera. The vomiting is a leading and dangerous symptom; but if it and the coldness of the extremities can be removed, there is no immediate danger from the spasms."

In a note on this passage, it is added—" Dr Girdlestone observes, that if the spasms were ever so general, with warmth of the extremities, there was no immediate danger; on the contrary, if the spasms were ever so trifling, with coldness, every danger was to be feared. This is agreeable to the observations of a medical gentleman of great discernment, who had resided near twenty years in the country. He informs me, if heat could not be speedily restored, and

the vomiting removed, the disease always terminated unfavourably."—P. 442.

Although differing in some particulars, this is, in all probability, the same disease described in the seventeenth century by Bontius as being "attended by a weak pulse, difficult respiration, and coldness of the extreme parts; to which are joined great internal heat, insatiable thirst, perpetual retching, and restless and incessant tossing of the body. If, together with these symptoms, a cold and fetid sweat should break forth, it is certain that death is at hand."

Dr Mason Good informs us, that Cholera Spasmodica "is supposed by some writers, though without sufficient authority, to be glanced at by several Greek physicians, and even by Celsus. But we may at least affirm," he adds, "that it has of late years assumed an activity, fatality, and extent of range, that it does not seem, from any history that has descended to us, to have possessed in earlier times, and that cannot be contemplated without horror."—*Study of Medicine*, Vol. I. p. 255.

Sauvages has given a species of Cholera, which he has termed Indica, taking his description from Dellon, who says that the natives denominated it *Mordekie*, the Arabic for "death-blow." The same disease is distinctly noticed by Sonnerat, under the title of *Mort de Chien*—an appellation which Bartolomeo, who also describes it, informs us he had transformed rather than translated from the native term of Mordezym.

Passing, however, over these and the more recent accounts of Mr Curtis, who, in 1807, was the first who proposed to term it *Cholera Spasmodica*, and of Dr James Johnstone, in his Essay on the Influence of Tropical Climates, we beg to refer the reader for an account of the more fatal and extended form in which it shewed itself as a contagion, to Mr Corbyn's letter to Sir Gilbert Blane, inserted in the Transactions of the Medico-Chirurgical Society—which

gives in detail the history of the disease in Bengal during the years 1817 and 1818; and to the Report on Epidemic Cholera, as it appeared in the Presidency of Fort St George, drawn up with great ability by Mr Scott, Secretary to the Medical Board at Madras.

A sketch of its subsequent history and progress is given in Appendix, No. II.

No. II.

NOTE ON THE CONTAGION OF CHOLERA.

This awful pestilence, in its present form, first arose in August 1817 at Jessore, about a hundred miles north-west from Calcutta, according to Dr Bisset Hawkins, in his excellent work on the Cholera Spasmodica of Russia, and spread from village to village along the chain of human communication, till it at length reached that city, and thence spread in rapid succession through most of the great cities of the Indian Peninsula. It was in September that it made its appearance in Calcutta, and in the exact space of a year it reached Bombay. The epidemic had also branched away to the east, along the Coromandel coast, and shewed itself in Madras in October 1818; thence it was carried across to the province of Jaffna, in Ceylon.

A great deal has been said regarding the appearance of the disease on board the Topaze frigate, on her voyage from Ceylon to Port Louis, in the Mauritius, and of the breaking out of the epidemic at the latter place three weeks after her arrival. Now it will be observed, that the Cholera, having shewn itself in Ceylon in January 1819, and the Topaze not having arrived at the Mauritius till the October of the same year, no doubt remains as to her having come from an infected quarter. The best proof of this is,

that the disease broke out among the crew during the voyage; and although it had spent its rage among them ere they reached their destination, the convalescent were sent on shore to recruit. Indeed, according to the report of the Army Medical Board, from which an extract is given by Dr Kinnis, it appears that a medical officer, who had gone on board on the forenoon of her arrival, *saw a man affected with severe vomiting and spasms.* The following observations on this subject are so conclusive, and so well expressed, that, notwithstanding the length of the extract, I cannot help giving it. It is from the Quarterly Review for November, 1831.

"There are three considerations which may possibly be urged in favour of those who deny that the Cholera was introduced into the Isle of France by the Topaze. The first is, that there was no case of Cholera on board the frigate at the time of her arrival. The second is, that three weeks elapsed between the arrival of the vessel and the appearance of the malady. The third is, that the crew of the Topaze remained free from the disease, though they had unreserved communication with the shore, and with the ships in the harbour, where Cholera was raging. As to the first, it is evident, that in the case of the Topaze, Cholera must have been communicated by the medium of some inanimate substance, to which the morbific exhalations of the sick had adhered. Are we to believe, that a ship, in which so many had died, was incapable of retaining the virus in it, either in the vestments of the dead, the substances with which the sick had been in contact, or the places in which they had breathed their last? Can it be proved that no slave or servant was exposed to the action of a poison thus preserved? The fact stands fairly and clearly out, that an infected ship did arrive at a healthy port, and communicated with it, and that shortly after such communication, the identical malady which had existed in the vessel, broke out for the first time

among the inhabitants of the port town. It is in vain to urge, that many who went on board the frigate escaped infection. Many always escape every epidemic; and were this not so ordered, the world would long ere this have been depopulated by smallpox and other pestilences. The second objection amounts to this—that three weeks having elapsed between the arrival of the Topaze and the appearance of the Cholera at Port Louis, the two events ought not to be regarded as cause and effect. This confident assertion relies on a supposed accuracy of knowledge, which we possess neither with regard to the laws of Cholera, nor those of any other contagious malady. It supposes, 1. that persons who went on board the frigate on her arrival, were *immediately* exposed to the influence of the morbid poison; 2. that they staid sufficiently long within its sphere of action to have made it impossible for them to have escaped infection; 3. that the disease could not lie latent in such persons for so long a period as three weeks. In refutation of this last point, we shall be enabled, in our narrative of the progress of Cholera in Russia, to bring forward three instances, in two of which it is proved that the Cholera did not break out in the individuals till more than a fortnight had elapsed from the time they had been exposed to contagion; and in the third, it will be shewn that individuals carried the seeds of the malady about them for twenty-five days, and communicated the disease to others.* In the interim we shall endeavour to prove, from the analogy of smallpox, that many circumstances may occur to account for the delay in the case of the Topaze. In the first place, we find, in cases of inoculation, in which we know the exact moment when the individuals have been sufficiently exposed to the action of the smallpox poison,

* "Two persons left Orenburg, at which city Cholera was prevalent, and arrived at Uralsk, in which it did not exist. They performed quarantine of fourteen days at this last place; after which it would appear, from Sokoloff's report, they became the victims of the malady."

that a certain number do not become infected at all; that others exhibit symptoms of the disease in six days, and others not till the fourteenth or fifteenth. This was the result of the experience of one of the most extensive inoculators of the last century, Baron Dimsdale. When the smallpox is caught casually, by inhalation or some other means, the period which elapses between exposure to the malady and its appearance is found to be still longer, and to vary from eighteen to twenty-five days. Dr Patrick Russell, whose situation of physician to the British factory at Aleppo, gave him opportunities of collecting the valuable materials which he has embodied in an admirable treatise on the plague, says, p. 303, 'From what I observed at Aleppo, I was inclined to think the infection (viz. the plague) rarely lies latent beyond ten days, but wider experience is necessary to determine a matter of so much importance.' From a consideration of these and similar facts, it is acknowledged that the constitution of a patient modifies the action of a poison, and that, in those examples in which we know the exact moment at which the person became infected, it is impossible to tell, except generally, when he will exhibit the characteristics of the peculiar disease. If there is so much uncertainty when we possess one fixed point to start from, how much more complicated and uncertain does the investigation become when we have no accurate data to guide us; when we neither know the constitutions of those supposed to have been exposed to a contagious malady, nor the precise time when they imbibed the poison!

"The circumstances which hinder or delay the communication of a contagious malady are very various, and often inappreciable; so that what appears to be sufficient exposure, turns out to be the reverse. A striking illustration of this is furnished by Dr Haygarth. Being desirous to ascertain the period at which smallpox appeared after the exposure of a patient to the action of its poison, he collected 37 cases

which occurred when this disease was epidemical at Chester, in the year 1774. ‘ The individuals affected were selected,’ he says, ‘ from the children of the poorest families, among whom the intercourse was very intimate, living in the same room, and generally lying in the same bed, and not kept at a distance by any fear either of their parents or themselves.’ Whenever the smallpox attacked one of a family, he noted the time of its appearance in the rest, and found that, out of these thirty-seven cases, some of the individuals were attacked as early as the third, seventh, and eighth days ; four were seized on the eleventh ; two on the twelfth ; six on the fifteenth ; and seven on the eighteenth ; one patient was not attacked till the twenty-first day, two till the twenty-second, and one till the twenty-third. In these last four examples of close intimacy, and apparently sufficient exposure, the Doctor supposes the children not to have become infected till the seventh, eighth, and ninth days ; that they then received the contagion, which lay latent for the usual term, in this malady, of twelve days, before the eruptive fever commenced. Let the circumstances under which these children were exposed to a disease confessedly far more infectious than Cholera, be compared with those which accompanied the introduction of this latter malady into the Mauritius, and the objection as to length of time will cease to exist. If children can be exposed constantly, day and night, to the full effects of smallpox at its acme of virulence, and yet escape for eight or nine days, is there any improbability in supposing that the casual visitors of the Topaze might have escaped the contamination, for a similar period, of a poison which was possibly concealed a part of this time in some obscure corner of a trunk or bale of goods, or which gave out its pernicious exhalation in a part of the vessel to which they rarely descended ? Allowing, then, eight or ten days to elapse before any one became infected, and a week before the symptoms declared themselves, the difficulty

founded on the interval of twenty days between the arrival of the Topaze, and the appearance of Cholera in Port Louis, vanishes.

"The third objection, founded on the immunity of the crew of the Topaze during the whole time the epidemic was raging around them, is easily answered. In the first place, they who are willing to believe that the Cholera was not communicated by contagion, but depended for its cause on some general atmospheric change, must account for the escape of those on board the frigate, who were day and night in the same air, which, on their hypothesis, was infecting the people on shore, and those on board the rest of the ships in the harbour. But not to stop at this point. It is a constant phenomenon of all contagious epidemics, that the malady only rages for a time in one place, and that they who have lived through the term of its visitation, may afterwards have communication with infected persons or places without much risk. When the same army, which, under the Marquis of Hastings, had a little before been so dreadfully ravaged by Cholera, was once again subjected to its influence, it was observed that the malady was principally confined to the fresh levies—those who had witnessed the first epidemic escaping.—(*Bengal Report.*) In the history of the plague, no observation is commoner than the one, that after it has ceased to affect the inhabitants of a city, it seizes on the strangers who come into it from the country, so that they who have been exposed to the influence of a contagious malady, possess or acquire a privilege of immunity which is denied to those who have not. The sailors of the frigate come under the former predicament—the ill-fated inhabitants of Port Louis under the latter—or the Topaze, with its crew, may be looked on as a village, in which the Cholera had swept off all who were peculiarly susceptible of the malady; and under this view we are only witnessing, on the ocean, with

regard to this ship, that which was abundantly evident among the hamlets of Hindostan."

The fact is also conclusive and singular, that Cholera has always chosen the thoroughfares of a country, and has attacked places in their geographical succession. It observed this course in the presidencies of Bombay and Bengal, as also in the continent of Eastern Asia. The Quarterly Reviewer remarks, that in Persia the malady followed the caravan road, beginning at a seaport mart for Indian goods, and attacking successively Schiraz, Ispahan, Tabriz, and Tiflis. From Tiflis, it traversed the Caucasus, by the only pass which leads to the Russian province of Astracan. On the coast of the Caspian each port was successively attacked, and where there was but one road, again it followed that road. In Asia Minor, the malady, which began at Bassorah (another mart for Indian goods), travelled along the banks of the Euphrates to Annah—a town situated on the borders of the Syrian desert. Apparently not able to overcome this natural obstacle to its progress, it quitted the caravans which enter Syria in this direction, to follow, in the next spring, those which reach Aleppo. In Mosul, Diarbekir, Orfa, and Bir, the breaking out of the Cholera was coincident with the arrival of the caravan. "From Aleppo," continues the same able writer, "the disease radiated in three directions—along the coast of the Mediterranean downwards towards St Jean d'Acre, upwards to Adana, and inland through the towns of Famia, Hems, and Damascus. These latter towns are the resting-places of the caravans; the others are on the coast road. In Russia, the Cholera began at Astracan, which is situated on the Volga, a river which traverses the largest towns of the empire, serving as a great medium of intercommunion between them. These towns suffered successively. Near one of these, Zaritzin, three great roads branch off, one along the Volga, leading to the northern provinces, another to the southern, and a third to the central

portions of the empire. The disease took these three roads to devastate the north, south, and centre of Russia simultaneously."

Indeed, the more narrowly we scrutinize the historical progress of this disease, the more assuredly will we be convinced of the slowness or celerity of its propagation, according to relative distances, and means of communication between bodies of people; and that every thing which facilitates intercourse, hastens its spread. The capriciousness of its propagation is also easily and most satisfactorily accounted for on the same grounds. Indeed, in every point of view, the contagiousness of Cholera can be established. It can be proved, that the disease has been *positively* communicated by the intercourse of the infected with the healthy. It can be exhibited in proof *negatively*, that those in infected districts, who can avoid the sick, escape the malady. And it can be shewn, thirdly, as a corroborative coincidence, that the disease has been communicated to a healthy district, by persons, themselves not labouring under it, but who have come from infected places. The works on Cholera by Dr Hawkins, Mr W. Scott, Dr Lichtenstadt, and Moreau de Jonnes, abound in illustrations of the positions here taken.

It is time, however, to draw this long note to a conclusion. The subject would not have been so strenuously insisted on, had not the opposition of the anti-contagionists been so formidable from its subtlety. We shall conclude it by an extract from a letter to Dr Sommerville of Chelsea College, from Dr Becker of Berlin, who had extensive opportunities of witnessing the disease, last autumn, in the Prussian capital, and whose authority is in itself a host.

"I am a most decided contagionist, and it is the force of facts which has made me so; for on the authority of your Indian practitioners I formerly believed the Cholera not to be contagious. The appearance of the disease in Berlin, and

the manner in which it has spread, is also very remarkable, and affords supplementary evidence in favour of contagion. The conclusion at which I have arrived is, that the *efficient* cause of the Asiatic or malignant Cholera is always a virus, the production of *human effluvia*, and which, according to common medical language, undoubtedly deserves the name of a *contagious principle;* but that this virus, in order to produce the disease, requires, first, like the contagion of the smallpox, measles, typhus fever, and even the plague, a disposition of the atmosphere favourable to its developement; and secondly, a peculiar disposition of the animal economy in every person who is exposed to it. This disposition appears to be brought on by previous disease, particularly bowel complaints, by excessive fatigue, cold, errors in diet, drunkenness, fear, &c.

"This theory of the cause of Cholera appears to me to be the only one which can explain the phenomena in a satisfactory manner. It appears to me nonsense to assume, that in the year 1831 one man gets the Cholera *because* he has eaten cucumbers, and another *because* he has slept on a damp field; for the same causes never have produced the same effects at other times, or in other places. Nor is it the marsh miasma, or, as the phrase now is, the malaria, which produces the disease, for we now have villages with intermittent fever, and others with Cholera, and others with both diseases, which in no manner interfere with one another. The only other possible supposition is that of a peculiar *moving* epidemic influence or miasma, which of itself is the sufficient cause (not as I maintain, merely a disposition of the atmosphere favourable to the disease);—but the singular manner in which the disease spreads, following no other lines but those of human intercourse, namely, roads, rivers, and canals, is quite unaccountable on such a supposition."

As far as my personal observation extends, truth is en-

tirely enlisted on the same side. From the appearance of the disease in Mid-Lothian, to the present moment, there has not been a single break in the chain of contagion—not a single instance in which its source was not to be traced. Since the illustrations I have noted were marked down, a third more remarkable sorites has occurred in the family of Mr M——, a gentleman of extensive connexions in the mercantile world, and whose loss has been very generally regretted. Underneath his counting-room lived an aged dependent, Jeanie Findlay, who was taken ill on the morning of Saturday, 28th January, and died on the evening of the same day. No suspicion of contagion attached to her death, although thus sudden, being in the eighty-fourth year of her age; but on the Tuesday Mr M.'s third son was seized with Cholera,—himself, and eldest son on the Wednesday,—and Mrs M. on the Thursday. All died from the immediate attack of the disease except the first, who lingered on till the seventh day; and it was found that they had severally been sitting by the bedside of their old servant. As a still farther proof, however, that the contagion was thus engendered, two neighbours, Mr and Mrs H., who had gone in to see the old woman, also sickened and died; and on Monday, 30th, her son, R. Stewart, a shoemaker, having carried from her house to his own some articles of furniture, was shortly after taken ill. When called in to him, I found him in a state of collapse, from which he could not be resuscitated; and he died on the following morning. Within twenty-four hours of his death, his wife was also taken ill, and was sinking into the cold stage when seen. This, however, she was brought through; but being feeble and somewhat advanced in years, she fell a victim to the consecutive fever, five days afterwards. By unremitted exertions as to fumigations, the contagion has been checked, in so far as regards the other branches of the family.

No. III.

CHOLERA MALIGNA, PROBABLY MODIFIED BY CLIMATE.

In the preface to this tract I have said, that "a disease, without being stripped of its distinctive character, may lose many of its features in passing from one degree of latitude to another; and that every malady to which the human frame is subject, is more or less modified, not only by climate, but by the moral habits of a nation."

The position can in no way be better illustrated than by reference to the disease termed Cholera Spasmodica. When so varied were the appearances, no wonder that so discrepant should have been the treatment. The following is the account of the disease as it appeared at Bombay, taken from Mr Orton's essay on the Epidemic Cholera.

"In a large proportion," he says, "there is no appearance of spasm in any part of the system. In many there is no purging; in some, no vomiting; and in others, neither of these symptoms. I have already observed, that these last were by far the most dangerous cases, and that the patients died under them, often in an hour or two, the nervous power appearing to be exhausted almost instantaneously, like the electric fluid from a Leyden jar."

Dr Burrel, in the Bombay Report, states, that he found those cases most tractable in which the retchings and spasms were most violent. Indeed, he informs us, that he succeeded in saving eighty-eight out of ninety cases, where "the retching was constant, and the spasms so violent, as to require six men to hold the patient on his cot."

Mr Orton also informs us, that "the bile appears in excess only in the milder cases." The testimony of Mr Curtis (Diseases of India, p. 66) is to the same effect. "The cases," he says, "which occurred after this were all of a

different nature, much less severe, and none turned out fatal. They were all of them combined with bilious accumulations."

In one division of the army, the spasms came on before the vomiting, while in others they succeeded these symptoms.

From an examination of these Reports, Dr Mason Good drew up the following general results: "There was soon great debility and sinking of the pulse; the extremities became cold; the eyes sunk in their sockets; the vessels of the tunica adnata were injected with red blood, over which, if the disease advanced, a film was formed. The patient invariably complained of great heat at the stomach, and called incessantly for cold drink, although warned of the danger attending its use. The tenesmus now became violent, while nothing was discharged but the fluid just noticed, and a substance like the coagulated white of an egg. The pulse was by this time not always perceptible, although it was generally so till the spasms came on. When these reached the chest, the breathing became so difficult, and the sense of suffocation so extreme, that the diaphragm most probably associated in the spasmodic action.

"The most unfavourable and dangerous signs in the ordinary progress of the disease were, a coldness of the surface, extending over the region of the heart and stomach. The skin under the nails became incurvated; the tongue was icy cold; and universal colliquative sweat broke forth, with a shrivelling of the palms of the hands and soles of the feet; the spasms gradually declining as these symptoms increased. In general, all pain and spasm left the patient before death; and even when the heart could not be felt to beat, he expressed himself easy, and said he was better. Sometimes, however, he was at this period in the greatest agony, rolling himself on the ground, groaning, and even bellowing most piteously: signs chiefly occurring in patients who lingered three or four days before death came to their relief."

In Ceylon, where the Malignant Cholera raged with even still greater violence than on the Indian continent, we are told by Dr Davy that death frequently took place within twelve or fifteen hours of the attack, and that in these rapid cases the brain was found to be the principal seat of congestion. He also observed, on dissection of particular cases, that all the muscular parts had a flaccidity, as in animals hunted to death, or killed by electricity. Little difference could be discovered in blood, whether drawn from a vein or artery before death, and it never assumed a buffy coat.

In approaching our more northern latitudes, the disease materially changed in its pathognomonic signs, as will be seen from the following graphic account from Drs Russell and Barry:

"*Diarrhœa*, at first feculent, with slight cramps in the legs, nausea, pain, or heat about the pit of the stomach, malaise, give the longest warning. Indeed, purging, or ordinary diarrhœa, has been frequently known to continue for one, two, or more days, unaccompanied by any other remarkable symptom, until the patient is suddenly struck blue, and nearly lifeless. Often the symptoms just mentioned are arrested by timely judicious treatment, and the disease completely averted. When violent vertigo, sick stomach, nervous agitation, intermittent, slow, or small pulse, cramps, beginning at the tips of the fingers and toes, and rapidly approaching the trunk, give the first warning; then there is scarcely an interval. Vomiting or purging, or both these evacuations, of a liquid like rice-water or whey, or barley-water, come on; the features become sharp and contracted, the eye sinks, the look is expressive of terror, wildness, and, as it were, a consciousness on the part of the sufferer that the hand of death is upon him. The lips, the face, the neck, the hands, the feet, and soon the thighs, arms, and whole surface, assume a leaden, blue, purple, black, or deep brown tint, according to the complexion of the individual, varying

in shade with the intensity of the attack. The fingers and toes are reduced at least a third in thickness; the skin and soft parts covering them are wrinkled, shrivelled, and folded; the nails put on a bluish pearl white; the larger superficial veins are marked by flat lines of a deeper black; the pulse is either small as a thread, and scarcely vibrating, or else totally extinct. The skin is deadly cold, and often damp; the tongue *always moist*, often white and loaded, but flabby and chilled, like a bit of dead flesh. The voice is nearly gone; the respiration quick, irregular, and imperfectly performed. Inspiration appears to be effected by an immense effort of the chest, whilst the alæ nasi, (in the most hopeless cases, and towards their close,) instead of expanding, collapse, and stop the ingress of the air. Expiration is quick and convulsive. The patient asks only for water, speaks in a plaintive whisper (the 'vox cholerica'), and only by a word at a time, from not being able to retain air enough in his lungs for a sentence. He tosses incessantly from side to side, and complains of intolerable weight and anguish around his heart. He struggles for breath, and often lays his hand on his stomach and chest to point out the seat of his agony. The integuments of the belly are sometimes raised into high irregular folds, whilst the belly itself is violently drawn in, the diaphragm upwards and inwards towards the chest; sometimes there are tetanic spasms of the legs, thighs, and loins; but we have not seen general tetanus, nor even trismus. There is occasionally a low, suffering whine. The secretion of urine is always totally suspended, nor have we observed tears shed under these circumstances; vomiting and purging, which are far from being the most important or dangerous symptoms, and which, in a very great number of cases of the present epidemic have not been profuse, generally cease, or are arrested by medicine easily in the attack. Frictions remove the blue colour for a time from the part rubbed; but in other parts, particularly the face, the livor

becomes every moment more intense and more general. The lips and cheeks sometimes puff out and flap, in expiration, with a white froth between them, as in apoplexy. If blood be obtained in this state, it is black, flows by drops, is thick, and feels to the finger colder than natural. Towards the close of this scene, the respiration becomes very slow, there is a quivering among the tendons of the wrist, the mind remains entire. The patient is first unable to swallow, then becomes insensible; there never is, however, any rattle in the throat, and he dies quietly after a long, convulsive sob or two."

In drawing up my description of the symptoms of Cholera Maligna, as it exhibits itself in Scotland, I have referred to nothing save my own personal observation; and those, who have seen most of the disease here, will be best able to judge of its correctness. By instituting a comparison between the accounts of the Indian practitioners, and those of Drs Russell and Barry, it will be evident, that in passing from Asia to Europe, Cholera lost some peculiar features, and assumed others. All that they saw is not to be seen here, while the pestilence of Britain shows some singularities of physiognomy, which it has acquired in progressing to us from the Russian capital. That these require peculiar modifications of management admits not of a dispute. The practitioner who should treat hepatitis in this country, as he is called upon to do in Bengal, would soon find that he had reckoned without his host.

Before concluding this note, it may be deemed worth while to remark, that the Central Board of Health have given the following as the results of their extended inquiries into the incubative period of this singular disorder.

"1. Out of 171 cases of Spasmodic Cholera at Berlin, 159 occurred within five days, from exposure to the infected germ.

"2. At St Petersburgh, in the cases where single expo-

sure to infection was best ascertained, the period of incubation ranged between one and five days.

" 3. In the Austrian territory, according to the reports of the Genoese Medical Commission, it was observed, " that those who had absorbed the germs of the disease, were generally attacked before the third, and not later than the fourth day."—*Cholera Gazette*, No. 2, p. 60.

No. IV.

PROXIMATE CAUSE OF CHOLERA ASPHYXIA.

Whatever variety of opinion may exist regarding the treatment which Mr Hamilton Bell recommends in Cholera Asphyxia;—and after a fair trial in the disease as it here shews itself, the writer, for one, begs decidedly to dissent from it—all must admire the section of his work, which he has dedicated to the elucidation of its proximate cause, and which, for philosophical accuracy of thought, as well as for elegant perspicuity of expression, deserves to be studied as a model of medical composition. To the following extract, as it tends to throw much light on the nature of Cholera, we particularly direct the attention of the physiological reader.

" When in the animal body we find a *circle* of actions performed, distant parts united in function, and the flow of the fluids to particular organs determined, controlled, or suspended, as may be necessary for certain purposes; whatever may be our notions with regard to *contractibility*, we must attribute such combined actions to the power of the nervous system. And whatever may be our opinions as to the nature of those processes from which the various secretions immediately result,—whether we consider them chemical, or mechanical, or ascribe them to an unknown vital principle,—

still the determination of the pabulum to the secreting surfaces, must be attributed to a general, and not to a local agent. The nervous system stretches itself out to every point of the body, and we find it distributed most largely where we may expect the energy of such an agent to be most required; demonstrating, as it were, that those actions on which the performance of the various organic functions depend, are traceable directly to this system. Hence we seem to be justified in concluding, that if we find by disease or accident, that an entire class of the functions of the living body is at once suspended, such suspension must be ascribed to an injury to that portion of the nervous system by which these functions are carried on.

"In Cholera, in the very outset of the disease, all secretions, properly so called, are found to have failed; the alimentary ejecta are not gastric juice, pancreatic fluid, bile, mucus, or excrementitious matter. The kidneys cease to secrete urine, saliva no longer flows into the mouth, nor are the eyes moistened with tears; carbonic acid gas is not thrown off in its usua lquantities from the lungs, and animal heat is not evolved in the body. Here, then, is a disease which suspends secretion in every part of the body. The functions of the parts which are thus rendered powerless, are unquestionably dependent on nervous energy, the involuntary nerves being the class which have failed; and hence it seems to follow, that the immediate cause of this disease is to be sought in the nervous system.

"But here it may be asked, how can a disease be considered a nervous failure, in which we find the sensorium, the respiratory, and the voluntary powers unaffected? The answer to this difficulty may be comprehended in the following propositions, which embody the conclusions on this subject at which the author has arrived.

"1. The great ganglionic or sympathetic system of nerves is possessed of power wholly unconnected with cerebral in-

fluence, which it may retain after the brain and spinal marrow are removed, and which may cease to exist while these retain the full exercise of their functions.

" 2. To this system belongs the circulation and distribution of the blood; and it consequently has a most important share in regulating secretion, and in carrying on the involuntary functions. And,

" 3. To the suspension of this power of the system, as I conceive, is to be ascribed the disease which has obtained the name of Cholera Asphyxia.

" These conclusions are the result of an intimate practical acquaintance with this disease, and an anxious study of all its phenomena; and they are supported by a careful and minute enquiry into the nervous system in all its bearings." —*Treatise on Cholera Asphyxia, or Epidemic Cholera*, second edition, p. 29, 30.

No. V.

ILLUSTRATIVE CASES.

Case I.

Jan. 19.—Barbara Mackay, aged 17.—Has had bowel complaint for two days, but not to such extent as to preclude her from attending at her usual occupation in Mr Porteous's hair-cloth manufactory. Is tall, and rather slender; and of fair complexion. Took herring and potatoe last night for supper, which she vomited shortly after getting to bed, and, according to the accounts of her sister and mother, remained in a heated and feverish state till four o'clock this morning, when she began to complain of chill, and the whole surface of the body became cold. Watery evacuations, both upward and downward, now commenced; and, in the course of

an hour, were followed by spasms of the legs and thighs.—Continued in this state till seen.

10½ A. M.—When called in, found the body quite cold; eyes sunk; features collapsed; breath cold; pulse not to be felt at the wrist; motion of the heart faintly perceptible. Vomiting and dejections of matter resembling soapy water still continue. Gave two grains of solid opium, with a table-spoonful of brandy, and opened a vein in the arm. Not more than an ounce of blood could be obtained, and that by milking the vein. Had warm bricks, and bottles of hot water, applied to the back, feet, and stomach. Voice gone.

11½.—No vomiting or purging, since giving the pill. Made her swallow another table-spoonful of brandy, with an equal proportion of cold water. Application of heat continued. No pulse to be felt either at the arm or temples.

1½.—No vomiting or purging—no perceptible pulse. Gave another table-spoonful of brandy, and applied sinapism to the stomach. Whole surface of the skin livid. Features still more shrunk and ghastly.

4 o'clock.—Pulse faintly perceptible, and slight warmth on the surface of the skin. No vomiting. Application of heat continued; and table-spoonful of brandy every hour. Voice a little recovered. General restlessness, and jactitation of the arms.

6 o'clock.—Died between five and six.

Case II.

Jan. 21.—William B., aged 53, thin and spare, said to be of temperate habits. Has had diarrhœa since morning, but not so violent as to prevent his attending his work, as a tanner. About eleven at night the dejections began suddenly to come away with excessive violence, and the lower

extremities and muscles of the abdomen were thrown into violent spasm. When sent for shortly after, found him in a state of great distress,—his countenance sunk, and a chilliness pervading his body. The pulse, however, was still distinct and full, and I immediately opened a vein in the arm, and bled him to the extent of fifteen ounces, giving at same time thirty drops laudanum in a table-spoonful of brandy and water. Bottles of hot water, and warm bricks, were placed to his feet and legs; and the body well covered with bed-clothes. In the course of half an hour the spasms had nearly altogether subsided; and I found him, in the morning, so far convalescent, as to be able to leave his bed.

Case III.

Jan. 20.—William B., aged seven, a boy of delicate make, and pale complexion, was seized with diarrhœa at three A. M.; vomiting had shortly afterwards supervened; and, when called in this morning at six o'clock, found him in a state of collapse, and with all the peculiar appearances indicative of that stage of Cholera. Vomiting, and purging of the matter resembling a weak decoction of rice, were going on; the skin livid; voice gone; thirst insatiable, yet tongue moist; and no pulse perceptible either at wrist or temple. Opened a vein in the arm, and administered half a grain of opium in a little brandy and water; ordering, meantime, bottles of hot water, and warm bricks, to be applied to the extremities. With difficulty obtained a table-spoonful of blood, and felt obliged to desist, the opiate having been rejected; and the dejections going on violently. Repeated the opiate, with the brandy and water. External dry heat continued.

7½ A. M.—Still no pulse; skin livid; has had several eva-

cuations downwards; but opiate retained. Repeated brandy and water, and gave strict injunctions about letting the patient have no more than a tea-spoonful of liquid at a time. External heat continued.

10 A. M.—Vomiting has returned, but only one dejection since last seen. Applied sinapism along the spine, and another over the epigastric region. Gave two tea-spoonfuls of brandy in a little water.

1 P. M.—Neither vomiting nor purging since last visited. Sinapisms had remained on half an hour, and produced considerable uneasiness. Prescribed a table-spoonful of panada with a tea-spoonful of brandy, every hour, until again seen; and repeated caution about indulging in above one or two tea-spoonfuls of toast-and-water.

4 P. M.—Pulse now perceptible at the wrist; lividity of skin diminished; and a sensible degree of warmth on the surface of the body. Occasional retching, but no farther discharge from the bowels. Same orders continued.

7 P. M.—Sensibly better. The lividity of skin has nearly disappeared: pulse distinct, although thready and small. Nausea abated, and only one watery dejection.

11 P. M.—Continues improving. Feet now feel somewhat comfortable; and the skin returning to a natural temperature. Thirst still urgent; but neither vomiting nor diarrhœa. To give a table-spoonful of panada with a tea-spoonful of brandy every two hours during the night.

21*st*. 7 A. M.—Still improving. Has had some sleep during the night. Thirst still great. Two watery dejections since last seen. Has passed no urine since attack.

11 A. M.—Ordered some weak beef-tea, a table-spoonful to be given at a time; and panada, with brandy, to be continued occasionally. Pulse improving in strength, and heat of skin returned.

4 P. M.—Has passed a little high-coloured urine, and has

had a motion, in which some tinge of bile is evident. Beef-tea continued, with panada at less frequent intervals.

6 P. M.—Much the same as last visit. Pulse becoming quickened, with slight flushing of cheek. Was accompanied on this visit by Dr Kirk of Greenock, and Dr Moleson.

11 P. M.—Continues improving. Has had another dejection, in which bile is still more apparent. Natural heat of skin restored, and thirst considerably abated. Panada and toast-and-water occasionally during the night.

23*d*. 9 A. M.—Symptoms of the consecutive fever have now decidedly set in, and the more urgent ones of Cholera have disappeared. Complains of headach and uneasiness of the bowels; tongue has become loaded, and there is occasionally a degree of nausea. Gave a half drachm of calcined magnesia; and allowed panada and weak beef-tea moderately.

3 P. M.—Has had two motions from the magnesia, both of which are feculent; and appears lighter, and less oppressed. Saw him properly washed, and his linen changed. Same regimen continued. Shews inclination for sleep.

10 P. M.—Has slept for two hours, and has had another dejection. Pulse 100, with slight moisture on skin.

24*th*.—Continuing improving. From this date, symptoms of amendment gradually shewed themselves; and within eight days from his attack, he was able to be taken occasionally out of bed. Is now quite recovered.

CASE IV.

Jan. 21.—Margaret J——. Was called in to see this patient at eight o'clock evening, and found her cramped all over the body, with vomiting and purging, and violent jactitation of the body.

Is of spare habit; and said to be temperate. Her age 52.

Finding her pulse full and bounding, I opened a vein in the arm, and bled to the extent of sixteen ounces; after which I gave an opiate, in a table-spoonful of brandy and water; applied external heat, and ordered frictions of hot flannel to the legs and arms. In the course of half an hour, the opiate being rejected, a pill containing one grain was exhibited, and the application of external dry warmth was ordered to be continued. The thirst being excessive, directions were also given about the cautious exhibition of liquids.

11 P. M.—Symptoms by no means improved; countenance more sunk and cadaverous; pulse rapidly sinking; diarrhœa somewhat abated; but great irritation of stomach still continuing.

Died at two, morning.

This woman had laboured under bowel complaint during the day, yet was able to walk two miles from town in the afternoon, to see a friend in the country, with whom she had tea, after which she returned home in a state of exhaustion. I fear that the fatal result in this case was expedited by the blood-letting.

The daughter of this woman, who was a servant with Mr Johnston of Southfield, came down to Musselburgh, and was taken ill after her return home. She was there attended by Drs Vallange and Thompson of Portobello, and was afterwards removed to an hospital in Edinburgh, where she died. Proper precautions having been taken at Southfield, as to fumigation and cleansing, no bad consequences have followed in that quarter.

CASE V.

Mrs L——, aged 37. Was called to visit this patient at seven o'clock, on the evening of Thursday, 19th January,

and found her in a state of complete collapse, with all the symptoms characteristic of that state. Nothing could be more ghastly and appalling than her appearance. Although perfect consciousness of her situation remained, the voice was gone, and no pulse at the wrist. Even the motion of the heart was but faintly to be discovered on pressure with the hand.

On questioning her husband, found that she had been labouring under severe diarrhœa from the evening of Tuesday 17th, and that vomiting had also supervened since the morning.

Having given immediate orders for the application of heated bricks, irons, and bottles of hot-water, I exhibited a grain of opium in a table-spoonful of brandy, and proceeded to open a vein. Only a few drops of dark tarry-looking blood could be pressed from the orifice, and in the course of a few minutes the brandy was repeated. By persevering for some time, I thus, with considerable difficulty, abstracted from five to six ounces. The thirst being intolerable, I gave strict caution against its being attended to, except in the most stinted degree, by a tea-spoonful of cold water at a time; and ordered the brandy to be repeated every hour, until again seen. Another one-grain opium pill was left to be given, if vomiting returned within an hour-and-half from the administration of the first. External heat continued.

10 P. M.—When now seen, no improvement was discernible on the features, and the whole surface of the skin was livid. The second pill had been given, and still the peculiar watery evacuations continued, both from the stomach and bowels. A third pill was now given, with some brandy and water; and the latter ordered to be repeated every hour-and-half during the night.

11½ P. M.—Still no improvement, except in the violence and quantity of the vomiting, which was somewhat abated.

A fourth opiate was now prescribed; and the other directions ordered to be followed out.

Friday, 20*th*. 6 A. M.—Has had a restless and miserable night; but the vomiting gone. Pulse still imperceptible; and the lividity of skin much the same as last night. Gave a table-spoonful of panada, with half a table-spoonful of brandy, and directed the same to be repeated every two hours, with still the same cautious use of liquids. Ordered two table-spoonfuls of panada every hour-and-half, with two tea-spoonfuls of brandy. External heat continued. Pulse somewhat more distinct, but rapid and feeble. Countenance still cadaverous, and occasional inclination to retch. No headach, and perfectly distinct and collected.

11 A. M.—A little improved; but still considerable nausea; pulse languid; and as yet no secretion of urine. Has had three watery dejections since last seen.

3 P. M.—Has had a table-spoonful of decoctum cretæ, to which a little tincture of lavender was added; and nausea somewhat abated. Same dose to be repeated every four hours. Breadberry, with brandy, and beef-tea for nourishment.

10 P. M.—Much the same, as also on morning of Saturday.

21*st*.—Was seen on forenoon of that day by Dr Gregory, and several other medical friends. No symptoms of coma, nor even of determination to the head, ever exhibited themselves. Her symptoms are entirely those of typhoid fever, and urine has been passed in a small quantity. On the evening of the same day, a commixture of bile was evident in the secretions.

This patient was some days afterwards removed to hospital, for the safety of her family and neighbours, and continued for a considerable time in a state of much emaciation and prostration of strength. On Saturday, February 4th, she returned home convalescent. Her case from the first was extremely unpromising, not only from the length it had

been allowed to run, but from her previous ill health, and natural delicacy of constitution.

Case VI.

Mrs P., aged 51, of rather intemperate habits, and scantily fed, was seized on 29th January with diarrhœa, which, after a continuance of two days, was succeeded by vomiting. Was labouring under both when seen, on 2d February.

Her features exhibited great prostration of strength, and her pulse, although perceptible, evidently sinking; all the symptoms indicating approaching collapse. 1 P. M.—Gave a grain opium pill, which was immediately rejected, along with a quantity of fluid, which she had previously swallowed, the thirst being insatiable. In a little while repeated the opiate, with a table-spooonful of brandy, and ordered the application of heated bricks and irons to the feet and legs.

3 P. M.—Has kept the pill, but the appearances of collapse still more marked; skin livid, eyes hollow and sunk, and breath cold. Diarrhœa has abated, but inclination to vomit still continues. Ordered two table-spoonfuls of panada, with brandy, every two hours. External heat continued.

7 P. M.—Continues much the same. Pulse perceptible, but small. Complains of oppression at precordia. Nausea rather abated. Panada and brandy as before. External heat continued.

9 P. M.—Much the same. Skin still livid, and pulse thready and small. Has had two watery evacuations, and cramps of extremities. Same regimen and applications to be continued for the night.

3d Feb.—Found her rather improved this morning. Some degree of heat has returned to the surface of the body, and the pulse rising. Nausea, but no vomiting; occasional

diarrhœa. In the afternoon her pulse indicated reaction in the system, and her features began to expand. Was persuaded to be removed to the hospital, where she went through the consecutive fever, and was discharged cured.

Case VII.

G. R., aged 24, of florid complexion, and stout make. Is supposed to be of temperate habits; but has been for some time very scantily fed, from having been discharged from her employment; *enceinte* five months.

Feb. 2.—Was called in at eleven o'clock forenoon, and learned on enquiry that she had laboured under severe diarrhœa for two days. Vomiting had that morning supervened, and both were going on with great violence. Continued spasms of the lower extremities. Pulse quick and small; coldness of the hands and arms. All the symptoms, in short, indicating approaching collapse. Thirst extreme.

Gave an opium pill of one grain, with table-spoonful of brandy and water, and ordered the latter to be repeated every hour. Ordered the application of heated bricks, and bottles of hot water to the feet and legs.

2 P. M.— Diarrhœa still continues, with occasional vomiting. Skin becoming livid; pulse scarcely to be felt, and dying away under the slightest pressure of the finger. Features indicating collapse; with sense of oppression and burning uneasiness over the epigastric region, chiefly referable to the left side.

Repeated the opiate with brandy; and applied a large sinapism over the stomach. External heat continued.

3½ P. M.—Has only vomited once since last seen. Diarrhœa abated. Skin still cold and blue. Great general prostration. Ordered panada with brandy every hour and half

—and table-spoonful of cold water at a time, when urgently called for. External heat continued.

7½ P. M.—Rather recruited in look; but pulse thready and indistinct. No vomiting; no diarrhœa; but occasional cramps of the legs. Same regimen to be continued.

9 P. M.—Looking more relieved, and pulse more perceptible. Spasms of the extremities occasionally returning, but with less violence. No return of vomiting. Continue the external heat; and same regimen during the night.

February 3*d*. 10 A.M.—Considerably improved since last night. Has had two alvine watery evacuations, but no return of vomiting. Pulse rising, and features beginning to expand. Same regimen continued. On the afternoon of this day was removed from the house where she lodged to hospital. Consecutive fever went on moderately, and she was discharged cured in about a week.

Case VIII.

Mrs S., aged 56, caught the contagion in attending on her husband, who had died of the disease some days before. Is of a feeble and worn-out constitution, but of temperate habits. Was seized with diarrhœa yesterday, which was accompanied with vomiting this forenoon, February 3d.

5 P.M.—Found her in a state of great exhaustion, with spasms of the lower extremities. Vomiting and purging of rice-looking gruel going on with great violence. Features collapsing, and pulse scarcely to be felt at the wrist. Prescribed one grain opium pill, with table-spoonful of brandy and water; sinapism to the stomach, and the application of external heat.

7 P.M.—Vomiting continuing, but diarrhœa somewhat abated. Pulse imperceptible; and lividity on the surface of the skin. Eyes hollow; breath cold; great thirst; tongue

moist. Opiate repeated with brandy and water. External heat continued.

10 P.M.—Rather improved. Pulse perceptible, but very small. Feet recovering warmth. Diarrhœa less violent; has only vomited twice since last seen. Great thirst. Allowed table-spoonful of cold water every hour; brandy and water, and panada every hour and half during the night.

Feb. 4th. 7 A.M.—Has had a restless night, but has vomited only once. Pulse more perceptible, and a degree of warmth returned to the surface. Features more relieved, and thirst less urgent. Continue the same regimen, and the external heat.

11 A.M.—Rather improved. Pulse rising; bowels not moved since seen in the morning. Has vomited once. Ordered table-spoonful of chalk decoction, to which tincture of lavender was added, every four hours. Panada and brandy every two hours. External heat to be attended to.

6 P.M.—Continuing to improve. Has had no vomiting since last seen. Bowels moved twice, and ejecta evidently tinged with bile. Has also passed a little urine for the first time since attack. Pulse becoming strong and full, with suffusion of the tunica adnata of the eye. Thirst still great. Continue panada every three hours during the night.

Feb. 5th.—Much improved this morning. Pulse 90; tongue a little loaded; skin comfortably warm. Has had several hours sleep. Three evacutions from the bowels, the last of which was kept. Bile quite evident in the secretions. Has passed urine twice.

Feb. 6th, 7th, and *8th.*—Has continued improving steadily, and taking nourishment. Pulse steady, and averaging from 80 to 86. No nausea; no vomiting; alvine motions of natural appearance; thirst greatly moderated. Has for the two last days been allowed beef-tea, and panada with white wine.

Feb. 9th.—Much exhausted this morning, with inclination

to somnolency. Found that she had been allowed to pass the night without being pressed to nourishment or cordials. Ordered blister to be applied to the nape of the neck, and heated bricks to the feet. Gave some panada with sherry, and ordered the same to be repeated every three hours.

3½ P.M.—Evidently sinking. Has made no complaint of blister, and refuses nourishment, except when roused. Hands and arms cold, and bedewed with clammy perspiration. Died at 7 P.M.

CASE IX.

Feb. 3*d.*—Widow H., aged 47, of rather intemperate habits, and scantily nourished, has laboured under diarrhœa for the last two days. Vomiting has supervened this morning, and both have been going on for some hours with considerable violence. Prescribed opium pill of one grain in table-spoonful of burned brandy spiced, and dry warmth to feet and legs. Features sunk; pulse subsiding; dejections watery. Spasms of the lower extremities.

Evening.—Considerably better, but with occasional returns of vomiting and diarrhœa. Opiate repeated; external warmth continued. Panada with brandy every three hours during the night.

Feb. 4*th*, morning.—Vomiting abated, but diarrhœa occasionally returning. Pulse small and thready; skin cold. Ordered chalk decoction, a table-spoonful every four hours. Regimen as yesterday.

Evening.—Considerably better. Pulse improving. Occasional diarrhœa, but neither vomiting nor cramps. Thirst abated, and bile apparent in the dejections.

From this time continued to improve, but with occasional threatenings of return of bowel complaint.

The notes of this case not having been extended at the

time, it is necessarily imperfect. It exhibits nothing, however, particularly to recommend it to attention.

OUTLINES OF CASES.

Case X.

Jan. 27th.—W. A. aged 32. Temperate, but slender and emaciated. Was attacked at 7 morning with diarrhœa, accompanied by spasms of extremities. Has vomited occasionally for last two hours. Symptoms running into collapse. Treatment, opium, brandy, external dry heat. Chalk decoction. Consecutive fever moderate.

Case XI.

Jan. 28th.—E. C. aged 25. Of delicate habit, pale, and slender; has had diarrhœa for two days, followed since this morning by vomiting. Symptoms running into collapse; the matter vomited, as also the dejections, resembling thin rice gruel. Treatment, opium, brandy, chalk decoction, electuary of catechu, sinapisms, glysters of beef-tea with laudanum, &c. From the strong tendency for several days to return of vomiting and diarrhœa, this case required particular management. No appearance of bile in dejections for three days—almost entire suppression of urine during same period. Consecutive fever somewhat violent and tedious.

Case XII.

Feb. 3d.—Mrs S. aged 36. Intemperate, and of lazy, indolent habits; has for two days had bowel complaint, and vomiting has supervened during the last night. Symptoms

rapidly sinking into collapse, skin cold, and features contracted. Opium, brandy, external heat, chalk decoction. Consecutive fever sharp for several days.

Case XIII.

Feb. 5th.—Mrs G. aged 29. Temperate; five months advanced in pregnancy. Diarrhœa during the night, followed by violent vomiting and spasms. Symptoms running into complete collapse. This patient has been in a state of great nervous alarm for last fortnight, and during that period had nearly lost all relish for food. She remained from between two to three days without perceptible pulse, and the exciting means used to restore her, proved ineffectual. Treatment, opium, brandy, ether, beef-tea, enemata, with wine and laudanum, sinapisms, &c. Died on 7th.

Case XIV.

Feb. 9th.—A. S. aged 9. Of slender make, and apparently indifferently fed. Has had diarrhœa for two days, to which vomiting has supervened this morning. Symptoms running into collapse. Treatment, opium, brandy, external heat, chalk decoction. Next day, symptoms of reaction having shown themselves, she was removed to hospital, where she went through the consecutive fever.

Case XV.

Feb. 17th.—W. M. aged 47. Of intemperate habits, and spare make. Was seized with diarrhœa last evening, and vomiting has supervened at three this morning.—10 A. M. Symptoms rapidly subsiding into collapse, skin livid, and

features sunk. Treatment, opium, brandy, sinapism, external heat.—1 P. M. Pulse faintly perceptible, diarrhœa occasional, vomiting checked. Enema with laudanum.—3 P. M. Passed glyster within hour; pulse small and thready, features still retracted and sunk. Panada with brandy every hour-and-half.—5 P. M. Pulse rising, nausea, but no vomiting. Two dejections; still looking like weak decoction of rice and water.—9 P. M. Rather improved; same regimen to be continued during the night.

Feb. 18*th.*—Has had some sleep. Two motions of the bowels since last seen. Ordered chalk decoction every four hours. Panada and brandy continued.—2 P. M. Complains of uneasiness in the region of the liver. Sinapism applied.—5 P. M. Pulse becoming full. Has had alvine evacuations twice, both of which exhibit commixture of bile. Has also passed a little urine for first time since attack.—9 P. M. Reaction briskly going on; pulse full and throbbing; skin hot; suffusion of tunica conjunctiva of the eye; face flushed. Sinapism has removed pain of right side.

Feb. 19*th.*—Has had good night, and continues to improve. Consecutive fever, however, going on violently.

N.B. The five first cases are taken from those which occurred in District First, under the superintendence of Mr Brown and self, during the three first days after the Cholera shewed itself among us; and are selected merely on account of blood-letting having been attempted in them all. Almost all those which followed in the same district, were treated on the principles laid down in the foregoing pages.

The other ten are taken consecutively from the last Schedule relating to that District.

To Mr Brown unquestionably appertains the idea of first considering Malignant Cholera as a disease of debility; and the foregoing cases bear testimony to the conclusions deducible from such a theory, having been resorted to in practice with very marked success.

No. III.

EXAMINATION OF PRACTICES WHICH HAVE BEEN RECOMMENDED, &c.

THE writer had intended, under this head of Appendix, to have entered into an examination of the various modes of treatment, which have been suggested by medical writers for the cure of this disease; but this design, together with a Historical Sketch of the Disease, as connected with the Local Situation and State of Society in Musselburgh, must be postponed for the present. In reference to the last mentioned, the following extract from a letter of Mr Brown, published in the Courant of January 28, is well worthy of attention, as explaining the causes of the alarming violence and rapid propagation of the disease at Musselburgh.

From Courant of Saturday, January 28.

"I FEEL perfectly satisfied that, had the public been carefully impressed with the contagious nature of the disease, the very great apathy and false confidence which prevailed here and elsewhere, together with the revelries of Handsel Monday, might have been altogether prevented, or very much circumscribed; but from the population of Edinburgh and all round pouring into East Lothian to see their friends, when the disease was actually encompassing them, and at a moment too when they were fully exposed to its influence, by their excess and consequent exhaustion, they returned to their homes a complete hotbed of infection, and produced the immediate appearance of Cholera, in such an extended, alarming, and fatal form, as to cause, in the first four or five days, one hundred cases, and thirty deaths.

" To me, who am perfectly acquainted with the nature of the population of this parish, the progress of the disease was not surprising; for, before its appearance, I had repeatedly declared that this would be the case. My reason for hazarding such an opinion was, the perfect information regarding the constitution and habits which I possessed of the labouring and manufacturing classes, together with their very great number.

" The population of the parish of Inveresk is upwards of nine thousand one hundred, and the population of Musselburgh, Fisherrow, and their immediate connexions, is fully seven thousand five hundred. Since the year 1800, the population has increased nearly three thousand, and this addition is entirely owing to the establishment of several extensive manufactories. Of this population of the whole parish, we may very safely take fully one half, viz. four thousand six hundred, as peculiarly exposed to the attack of Cholera; for to the manufacturing class is to be added the population of the collieries and their dependences, amounting to nearly one thousand five hundred more—who, having been out of work for two months, are in a state of great misery. Under these circumstances, we cannot expect any decided mitigation of the disease for some time."

It is melancholy to think, three weeks having only yet elapsed, that the deaths from Cholera alone should exceed the average annual mortality of the parish.

Feb. 22.—Total cases 435.—Deaths 193.—Cures 235.

FINIS.

EDINBURGH:

PRINTED BY BALLANTYNE AND CO., PAUL'S WORK, CANONGATE.

LATELY PUBLISHED, BY THE SAME AUTHOR,

In small 8vo., Price 6s.,

OUTLINES

OF THE

ANCIENT HISTORY OF MEDICINE;

BEING A VIEW OF THE RISE AND PROGRESS OF THE HEALING ART AMONG THE EGYPTIANS, GREEKS, ROMANS, AND ARABIANS.

W. BLACKWOOD, EDINBURGH: T. CADELL, LONDON.

"IT has often been to us matter of much surprise that, among all the various suggestions offered of late years for the improvement of medical education, no notice has been taken of the great advantage that might be derived from the study of medical history; and it is the more remarkable, as the course pursued by the soundest lawyers and divines has long been so clearly marked out, and its beneficial effects so thoroughly proved and tested. * * In the practical physician the history of the healing art is far from being matter of mere curiosity.

Mr Moir has acted with much wisdom in the management of what he has done: his work is just the thing to create an appetite for a similar production on a larger scale. It is quite popular enough to allure the perusal of even unprofessional readers, and executed with so much ability as to throw open the field very advantageously, either for himself or some other man of eminent attainments. That Mr Moir, however, should proceed as he has begun, is a proposal of the propriety of which we cannot entertain the slightest doubt; in two volumes more of the same calibre and construction as the present one, he might readily bring the history of the profession, from where he has left it, to the commencement of the nineteenth century; and thus bestow on the profession and the public one of the most instructive and interesting of works. * * We must hastily take our leave, once more expressing our general sentiments of satisfaction with the excellent style and spirit in which the volume has been composed."—*London Medical Gazette, June* 18, 1831.

"In medical as well as in miscellaneous history, discriminating taste, faithful description, and faultless expression, are attributes essential to an able writer; and in none of these respects has Mr Moir very seriously disappointed us. His style is generally beautiful, and occasionally eloquent. His narrative is neither biassed by prejudices, nor bloated with partialities; and his selection of subject is generally judicious. * * As a historical manual of ancient medicine, Moir's is a concise, correct, and valuable volume."—*Westminster Review*, No. xxxi.

"This work is a strong proof of the varied and versatile character of the author's talents. No one is entitled to our confidence as a medical attendant, who does not add to an extensive experimental knowledge, such clear notions of the capabilities and limits of his art, as can only be obtained from a careful study of its history, from the first rude chirurgery of the savage, up through the gradual extension of the knowledge of anatomy, nosology, and materia medica, crossed and thwarted as its progress at times was by superstition, hasty generalization, and fraud, to its present advanced state. This is a department of the study of medicine, which has hitherto been shamefully neglected in this country; but we trust that Mr Moir's Outlines, characterised as they are by diligent and critical enquiry, and simple elegance in their arrangement and style, will go far to awaken the attention of medical men to a topic so important."—*Edinburgh Literary Journal.*

"To this work we are happy to award our warm recommendation. It aptly fills a wide and unsightly chasm in the medical literature of this country; and reflects great credit on the ability, learning, and discrimination of its author. * * * We have no hesitation in recommending the volume to all those general students who desire abundance of valuable matter, compressed within compendious but adequate limits. The work we have thus examined will, we doubt not, arrive at very high popularity."—*Lancet, July* 16, 1831.

"This is an excellent work. There is nothing more difficult than to collect facts, and arrange them in a small compass with perspicuity and order; and this the author has done in the most creditable manner. We cannot take leave of the subject, without acknowledging that the discrimination and ability shewn by Mr Moir, in collecting and condensing with so much perspicuity all the facts relating to the ancient history of medicine, makes us anxious to have from him a history of modern medicine—it would be at least as interesting as the ancient, and more extensively useful. All the works on the history of medicine we possess, are unfortunately so diffuse, that few students have either the courage or the time to study them attentively; and they must be considered only as books of reference. For this reason the publication of Mr Moir's work is doubly valuable; it cannot fail to be extensively read, and must be as extensively useful; it is written with great ability, and references to the best authors who have written on the several subjects occur in almost every page."—*Athenæum, June* 4, 1831.

"This is a book of great and laborious research. Mr Moir's work will be in the hands of every disciple of medicine, and indeed of every scholar who wishes to trace up the history of the healing art to the earliest times. It is given in a condensed form, and therefore the more adapted to be useful to professional men, who have seldom time to master large treatises, recommendable for any thing but perspicuity. This volume is a most valuable concentration of knowledge, and is the product of no common mind. It will be valued as long as medicine is cultivated in this country, and the student in the healing art would do well to master its contents among his initiatory steps in acquiring professional knowledge. Mr Moir has laid the profession of medicine under deep obligations to him for the valuable present he has made to the healing science."—*Metropolitan, June* 1831.

For equally favourable criticisms of this Work, see New Monthly Magazine, Fraser's Magazine, Englishman, Presbyterian Review, London Literary Gazette, Scottish Literary Gazette, &c. &c. &c.

Also just Published,

Price 6s.,

The Second Edition, very greatly enlarged, of

A TREATISE on CHOLERA ASPHYXIA, or EPIDEMIC CHOLERA, as it appeared in Asia, and more recently in Europe. With Practical Remarks on the Disease in Europe, an Appendix of Cases, and the Reports and Regulations of the Boards of Health of London and Edinburgh.

By GEORGE HAMILTON BELL,

Fellow of the Royal College of Surgeons, Edinburgh; late Residency Surgeon, Tanjore; and Joint Medical Secretary to the Edinburgh Board of Health.

"We cannot part from Mr Bell without expressing the pleasure and profit with which we have perused his work, which ought to be in the hands of every practitioner without delay."—*Johnson's Medico-Chirurgical Review,* January 1832.