

Remarks on the epidemic disease called cholera, as it occurred in Newcastle / [Thomas Molison].

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Molison, Thomas, -1835 or 1836.

Publication/Creation

Edinburgh : M'Lachlan & Stewart, etc., 1832.

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REMARKS

ON

THE EPIDEMIC DISEASE

CALLED

CHOLERA,

AS IT OCCURRED IN NEWCASTLE.

BY

THOMAS MOLISON, M.D.

FOURTH EDITION.

EDINBURGH:

PUBLISHED BY M'LACHLAN & STEWART,
AND LAING & FORBES, EDINBURGH; AND
BALDWIN & CRADOCK, LONDON.

MDCCCXXXII.

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EDINBURGH:

Printed by ANDREW SHORTREED, Thistle Lane.

REMARKS.

HAVING felt deeply interested in the character and progress of the Asiatic Cholera, I determined, soon after its appearance in the north of England, to proceed to the spot, and there examine it personally.

I reached Newcastle on the 21st of December last. Many cases had already occurred there, and their number was daily increasing. On the 26th, the disease broke out at Gateshead, so that ample opportunities for observing it immediately presented themselves.

I shall ever entertain a lively gratitude to my friends in Newcastle, for the facilities that were afforded me in prosecuting my object. Through their kindness, I was enabled to observe cases which occurred in private families, and had liberty in the Cholera Hospitals at Shawside and Gateshead, to make such inquiries, and direct such plans of treatment as I desired. The cases I treated were put under my care by the public authorities; and the hospitals

being frequented by medical men, my practice, and its results, were observable by all.

My stay at Newcastle was limited to the period of eleven days. Not that I had accomplished all that I wished ; but circumstances, into which it is unnecessary to enter, constrained me to depart ; nor do I wish to conceal, that the severe bodily and mental fatigue, to which I was exposed, might have had their influence upon my decision.

I make these statements, that it may the more readily be understood, that I have no intention of writing a regular treatise on the epidemic. My sole purpose is, to furnish some of the results of the limited experience which I have enjoyed, and which, however imperfect, has served to afford me information which may not, perhaps, be destitute of importance. I propose to give an accurate account of the symptoms, such as I observed them, and of the treatment I found most efficacious ; and will subjoin a few remarks, which seem to be of practical utility.

I was very speedily convinced, that this disease is totally different from any other that I had previously witnessed. Some of its milder symptoms are common to it, and to the indigenous Cholera ; but, on the whole, the two diseases are widely and specifically distinct.

The disease CHOLERA may very properly be divided into three stages of symptoms, viz. 1st, one *Premontory* ; 2dly, a stage of *Collapse* ; and 3dly, the stage of *Reaction*. On the first of these, a very few remarks will suffice. The stage of collapse is that which truly constitutes the disease, and therefore demands our

principal attention. The third stage, or that of reaction, is dependent on the second, and is rarely of a formidable character.

THE PREMONITORY SYMPTOMS may be mild in their character, and short in their duration. They bear a close resemblance to the nameless uncomfortable feelings which are the prelude to so many of our serious and dangerous disorders, and therefore they cannot be regarded as characteristic symptoms distinguishing this from all other diseases. They are subject, at the same time, to considerable variations in their severity and combination. Most frequently there is general languor and lassitude, with occasional giddiness and headach. The pulse is weak ; and there is a diminution of the animal heat. These may be attended with a slight bowel complaint, in no respect different from the common Diarrhœa with which every one is familiar. Sickness and vomiting are occasionally present ; and the patient is sometimes troubled with slight cramps in the points of the toes and fingers. One or more of these symptoms may be present at intervals for several hours, or days, or even weeks, before the marked phenomena of the epidemic appear ; and they are to be found in many who are never seized with the disease in a decided form, but are speedily relieved by common and simple means.

It has been said, that, in this stage, considerable constitutional excitement may be observed, and that this, in fact, is the primary and most important of

the series of diseased actions which constitute the spasmodic cholera. Upon this I have only to remark, that I have never been able to detect any appearance of this general excitement, but, on the contrary, I have always, from the commencement, seen a marked tendency to debility and sinking.

Since the above was written, I have visited Musselburgh, where I observed a marked difference in the premonitory symptoms. Those affected in this stage were going about, and even out of doors. All of them had the pulse remarkably increased both in strength and quickness; face flushed, with suffused red eyes. The tongue was invariably loaded with a dirty brown looking fur. I observed also a fisherman whose wife had lately died of cholera. He had purging, with a strong quick pulse, flushed face, suffused eyes, and foul tongue. We really could not say whether he was inebriated or not; he could give us no account of his feelings, and appeared quite oppressed.

For the removal of the Diarrhœa, which in most cases exists for several days before any marked symptoms of sinking occur, we would advise, for an adult, from forty to sixty drops of laudanum, in the form of an injection of three or four tablespoonfuls of gruel. Should this not be sufficient, he should, in three or four hours, take eight or ten grains of Dover's powder, or the injection, if necessary, may be repeated. The patient must eat only of the lightest food, and in very small quantities; his drinks must be bland, and only in mouthfuls. Should there be no excitement of the action of the heart and arteries, I would advise a tablespoonful of brandy and hot water. Should the

pulse be strong and full, it would be most injurious to give brandy ; and it would be much more advisable to take some ounces of blood.

THE STAGE OF COLLAPSE usually comes on suddenly, and not unfrequently the first attack occurs in the course of the night.

Severe *purging* is often the first symptom. The evacuations are very copious, and, for a time, may be frequent and urgent. Occasionally the sensation of emptiness and sinking is so great, that the patient remarks, he feels as if the whole abdominal viscera, as well as their contents, had passed from him. The evacuations are now no longer the usual discharges from the primæ viæ, but appear like rice water, slightly muddy. As the disease advances, this appearance again changes into one of a peculiar albuminous matter, in which many flocculi are suspended. Sometimes this is quite thick, at other times it is more or less mixed with water. So far as I know, this flocculent discharge is peculiar to this disease.

A striking and very singular symptom is *an uneasiness at the pit of the stomach*. It is not permanent, and is only present in the earlier periods of the collapse and subsequent reaction. It is an undescribable heat and uneasiness, sometimes amounting to great pain. Sometimes it is most remarkable behind the lower half of the sternum.

Though the sickness is distressing, the *vomiting* is rarely so urgent a symptom as the purging. It appears, that bile is never discharged at this period.

At first it is the same muddy rice-water looking fluid that is passed by stool. But in the more advanced stage of the collapse, during the extreme exhaustion, there occasionally flows from the mouth a yellow or greenish matter, thick, ropy, and tenacious; apparently derived from the stomach.

The purging and vomiting are usually accompanied with *Cramps*. Beginning at the points of the fingers and toes, these rapidly extend to the legs and thighs, to the parietes of the abdomen and thorax, and to the neck. Slight spasms, I think, may occur without any pain; but, when more general and severe, the pain is excruciating, forcing the sufferer deeply to moan, or even to scream with agony. Sometimes the various parts are all attacked, when the whole body is spasmodically drawn together.

The *Respiration*, when not affected by spasms of the respiratory muscles, appears natural; and, as these muscles are not often attacked, it may be stated, that in general the breathing is quiet and regular, throughout the stage of Collapse. Sometimes, however, a very different spectacle presents itself. The spasm becomes nearly universal; the muscles of respiration, of the throat, and mouth, are thrown into violent action. Locked-jaw occasionally supervenes, or, it may be, the mouth is widely distended, according as the different classes of muscles happen to be affected. The whole frame is forced into a constrained and most frightful position; and after being, for a short time, riveted, a fearful spectacle of horror, the patient sinks down exhausted, with complete relaxation of the whole muscular system, as if he were to rise no

more. To all appearance he is dead. He has no consciousness, no sensation, no breathing. He is truly in a state of suspended animation, which may continue for a minute or two, when he begins slowly and gradually to revive.

I am of opinion, that the patient sometimes suddenly dies of cramp in the heart.

Accompanying these symptoms, there is a most alarming and determined sinking of the vital powers, which constitutes the peculiar characteristic of the disease.

The *action of the heart and arteries* appears to be diminished almost to total suspension. The extremities and the surface are exsanguined, as in a person who has been long dead. No pulse can be felt at the wrist, or ankles ; sometimes in no part of the upper extremity ; frequently the heart itself cannot be felt to beat. No doubt, the blood must still continue to flow, notwithstanding all these appearances ; and, to ascertain the fact, I have sometimes narrowly examined the state of the veins on the back of the patient's hand. I have insulated a portion of the superficial vessel lying between two of the metacarpal bones, and then emptied it by gentle friction in the course of the circulation. So long as I retained my finger on the *distal* part of the vein, it remained empty, but on my removing my finger, it instantly filled with blood. I was even struck with the swiftness of its course.

The *low temperature* of the body may be the consequence of the peculiar state of the circulation. The whole frame appears cold to the very core. The

extremities especially, are cold as in death, and the skin of the fingers is corrugated. The entire surface is often clammy, or bedewed with a copious sweat, apparently exceeding in quantity the large secretions from the bowels. Even the tongue feels cold, and flaccid; at an early period of this stage, it is often covered with a slimy secretion. I have never found it dry, at any period of the complaint. My impression is, though I did not examine with due attention, that the very discharges, whether from the stomach, or from the intestinal canal, are cold, or, at all events, much below the usual degree of temperature of the animal body.

The *surface* of the body is *livid*, as well as cold. The general dark hue is very striking. It is most apparent in the hands, and especially the nails; so much so, that this was, at Newcastle, not inaptly denominated the *Blue Stage*. The lips are very decidedly of this colour. If blood is attempted to be drawn, it will flow either very feebly, or not at all. When it does come, it is always extremely dark; and, in the worst cases, resembles tar rather than blood. A distinct blue areola appears to surround the eye. This appearance, however, is deceptive, and arises solely from a most marked shrinking, and collapse of the soft parts, by which the eyes being remarkably sunk, the shadow from the orbitary ridge is thereby proportionably increased. The cornea is sometimes glazed, and as if covered with a film. I have never seen it appear shrivelled.

This *shrinking of the soft parts* of the body, in the rapid progress of the disease, proceeds to an extent that appears scarcely credible. It so completely alters

the expression of the countenance, that it is scarcely possible to form a probable conjecture of the age of those who may fall under our observation. In short, in looking at the patient, you might fancy you were contemplating a *subject* that had lain for days in the dissecting room.

The *actual debility* is correspondent with these symptoms. From the commencement of the indisposition, there is great languor, and feebleness; but as the disease advances, it sometimes becomes altogether unexampled. The unwillingness to make the slightest muscular exertion, is remarkable; and soon the ability seems as much wanting as the will. If interrogated, the patient invariably replies, that he thinks he is dying. In some cases, it appears as if there was an absolute inability to move,—a complete loss of voluntary motion; whilst, in some of the less aggravated cases, the pulse still beating at the wrist, the patient, to your surprise, will rise, and contrive to walk a few hurried steps.

The *voice*, at an early period, even of the premonitory symptoms, is often greatly weakened. In the stage of which we are now treating, it is gone; and the patient can speak only in a whisper.

No *urine* is secreted in this stage, nor till some time after reaction has been established.

The *thirst* in this stage, and, I may add, throughout the whole disease, is intense, and the craving for cold drinks unceasing.

I have always found the *mind* perfectly entire throughout the whole of this stage. Neither the temporary state of suspended animation, occurring

from the violence of the general spasm, nor the state of almost apparent death, arising, it may be, from the complete exhaustion of the vital powers, form any proper exception to this remark ; for, in the former case, the mind regains its powers, as soon as the body again exhibits its vitality ; while, in the latter, although the physician might suppose, from the appearance of the countenance, which has lost animation and intelligence, that death had done its work ; yet on going up to your patient, and asking him a question, you find him as collected, and intelligent, as in perfect health. I have never witnessed what might properly be called syncope ; and have always found my patient quite able to converse with me, until the last moment of his existence.

In the cold stage, it has generally been believed that the blood, in great part at least, is driven upon the deep-seated organs. But if we are to credit this, how can we account for the remarkable quantity of cold sweat which is thrown off, as much, I think, or more, than what passes off by the mucous membrane of the bowels ? Besides, there is another reason why I do not believe that the lungs are so gorged. I have perfectly satisfied myself, and others, that the chest sounded naturally upon being tapped by the points of the fingers ; and on the application of the ear, and the stethoscope to the chest, I have always heard the breathing *murmur* most distinct. Sometimes, indeed, it was a little quicker than natural.

This sketch of the symptoms of Collapse may, I hope, serve to exhibit the real nature of the danger in this disease. I shall not stop to consider the remote

cause which produces, or the proximate one which, in fact, constitutes, the malady ; nor to inquire how far the nervous, or any other system, is involved. But having exhibited the successive steps by which the patient is rapidly brought to the confines of the tomb, I at once proceed to consider how that downward progress may best be arrested.

And here, I do not mean to deny that there may be a class of cases in which the tendency to death is altogether irresistible ; but I have seen enough to convince me, that if the most latent spark of life be discoverable, the physician ought never to despair, but should, with the hope of recovery, instantly use his most strenuous exertions. So long as we have not ascertained, and do not theorize upon the latent causes of the disease, what we mainly see in the patient before us, is a state resembling most nearly that of simple *asphyxia* ; and in this, as in other cases of suspended animation, it cannot be useless, far less absurd, to persist in the vigorous use of means, even after all the phenomena of life have ceased. I speak from experience, having laboured with those, who, to appearance, were nearly moribund, until, overcome with exhaustion, I have almost given up in despair ; and yet, after a time, beyond all expectation, the patient has recovered.

The first person I brought into reaction after severe collapse, remained at least a couple of hours without any improvement ; all this time I was busily engaged with my patient ; and the next two hours I, as well as all the attendants of the hospital, who had seen many previous cases, absolutely despaired. During the fifth

hour my patient, (a child of eight years,) became evidently better, and continued gradually to improve until complete reaction took place. I can only say I never had such complete satisfaction in medical treatment.

Of course, there is every variety in the intensity of the symptoms ; these being, in some cases, followed rapidly by death, whilst in others they are so slight, that the unassisted vital powers, would assuredly bring about reaction, and health. Betwixt these extremes, the varieties are numerous, calling for different degrees of exertion.

In aggravated cases, I would in one word say, that so long as the vital functions can be excited by the most powerful of our stimuli, there is no reason to despair.

The *Treatment* I am disposed to recommend, is of the most simple nature. The patient should be placed, with as little delay as possible, amid hot dry bed-clothes. A sufficient number of attendants, to the extent of five or six, should devote themselves exclusively, and under intelligent direction, to his service ; some to manipulate about his person, and the others promptly to prepare and apply the appropriate remedies. Two or three of these should immediately commence smart and continued *friction*, to be persevered in, if necessary, for many hours. This is intended to operate on the circulation ; and for the purpose at the same time of imparting *caloric*, they should be steadily and rapidly supplied, every three or four minutes, with quantities of very hot dry linen. I found this much more efficacious than woollen cloths : it seemed

to communicate the heat with better effect than any thing else that I had employed. It would be a bad case indeed, in which this continued application of hot friction did not produce some salutary effect.

This process being once in steady operation, *the internal use of hot fluids* should immediately be commenced. Large quantities of hot water, either pure, or, what is preferable, mixed with mustard or salt, (in the proportion of one or two tablespoonfuls to the pint,) as warm as the patient can swallow it, are now to be administered. When, from the presence of locked-jaw, or other cause, swallowing is impeded, one or two pints of the fluid should promptly be introduced, by means of a hollow tube, or the stomach pump. Speedy vomiting may, in this way, almost to a certainty, be produced ; and, if necessary, the usual mechanical means for exciting vomiting may be had recourse to. I am the more minute in this particular, as I esteem this remedy of the very first importance. My firm belief is, that if vomiting can be by any means excited, the patient may recover, however desperate his condition. Perhaps there is no stimulus to the frame that at all equals in effect the action of full vomiting. Besides, a large quantity of cool fluid is thrown off, which, I think, in the stomach must tend to keep up the state of collapse. A similar effect results from the injection of stimulating fluids into the bowels, as hot water, with the addition of either mustard or salt, or both conjoined, and this ought never to be neglected. The repetition of these remedies is to be regulated by the obstinacy of

the tendency to collapse, and by their effect in inducing the stage of reaction. I have never found that more than two or three vomitings were necessary; but advantage will be derived from the use of the injections for a longer time.

Whenever the pulse is perceptible at the wrist, *blood-letting* may be employed, and probably with benefit. When there is no pulse, the attempt will be futile. Bleeding relieves the pain at the pit of the stomach; and I have observed, that the pulse becomes stronger as the blood flows. Great care, however, is to be taken, lest, by carrying it too far, you again sink the vital energy. I would recommend, that, at first, the bleeding should be small, to the extent of ten or fourteen ounces, and, if judged necessary, repeated in half an hour, or an hour.

The vital powers, being thus roused into action, we have now only to maintain and urge them on, until the stage of reaction is fully established. For this purpose, I would advise the use of the common diffuseable stimuli—brandy, in teaspoonfuls or tablespoonfuls, according to the age of the patient; sal. volatile, in the dose of twenty-five or thirty drops; ether, or powdered ginger,—in a tablespoonful or two of hot water. These may be given every five or ten minutes, diminishing the frequency as the patient resumes his appearance of strength and safety.

All cravings for cold water should be steadily resisted, and hot fluids alone allowed for drink.

The remedies now specified are very few and very simple,—hot friction, hot vomits, hot injections, hot

stimuli, and blood-letting. In struggling immediately with this most urgent disease, I kept the one object, of exciting reaction, steadily in view ; and I resorted to the means which, at the time, appeared at once the readiest and the most powerful. I did not cast about for other means, because the efficacy of those employed exceeded my expectations, and, with few exceptions, accomplished a cure. I rejoice at their simplicity, as there is not a cottage in the land that may not have them ready at a very short warning. And, strongly do I indulge the hope, that the same simple end being kept in view, and the same perseverance being exercised, many a poor sufferer may be snatched, as it were, from death.

Other remedies for accomplishing the same great purpose may occur to the minds of others, and, under favouring circumstances, may be employed with advantage.

As to *external applications*, I regard hot bricks, and bottles, or bags of hot sand, or salt, as much inferior in efficacy to hot friction. Besides, from the confusion which may prevail, the stupidity of the attendants, and the languor of the patient, I have known some of these remedies materially to injure the skin, which the hottest linen never does. Nor should I at all anticipate so good effects from caloric applied through a liquid or humid medium. I have never seen the hot air bath employed ; but from the consideration of the cold and clammy state of the skin, I have no expectation of any beneficial result. I cannot speak from experience of the use of friction with oil

of turpentine, and such stimuli ; probably they might be useful.

There is no occasion for alarm on account of irritating the stomach too much, by exciting vomiting. Long continued urgent vomiting I have never met with ; nor have I ever witnessed the purging proceeding to a troublesome extent. On the other hand, I have been always glad to get rid of the watery dejections.

I have used oxygen gas by injection, distending the lower intestines, and, I think, with decidedly good effects. In the case of a girl of six or seven years, who was in the most marked sunk condition, I entirely failed in my attempts to introduce this gas, from the abdomen being so completely drawn in by the cramps of the whole muscles, although I had introduced a tube a foot up in the intestine.

I have never had an opportunity of trying the inhalation of this or other stimulating gases. Probably it might prove a powerful remedy.

In a very bad case, without pulse, I once added an ounce of oil of turpentine to the common injection of mustard and hot water, with a little apparent benefit. In another case, in which turpentine was administered in this manner, it was soon followed by severe purging of blood,—an uncommon feature in this disease. This injurious effect I attributed to so powerful a stimulus being given when reaction had considerably advanced.

I have never seen electricity or galvanism fairly used. As powerful stimulants, they are agents that should be tried, and probably would be serviceable.

Though I frequently saw *calomel* given in this stage, in large as well as in the more usual doses, I never observed that any benefit resulted. I have, however, seen it, in an early period of reaction, produce dark green dejections, which greatly resemble those passed in croup, after the free exhibition of the mineral. They differed in containing a large quantity of mucous fluid. Apprehensive of its specific effects, in the later periods of the disease, I latterly abandoned its employment.

I have but seldom employed *opium*. Its free use I should hold to be extremely dangerous. When laudanum has been given for the relief of spasm, I have thought the benefit accrued chiefly from the hot brandy and water in which it was administered. In one case I witnessed two drachms given by injection, and apparently with no good effects.

In a case of very marked collapse at Gateshead, I saw a physician give a strong and copious infusion of *tobacco* in the form of injection. I then decidedly disapproved of its use; in fact, I had a horror at it, and I am satisfied that it unquestionably hastened death.

My friend, Professor Delpech of Montpellier, the celebrated author of the *Chirurgie Clinique*, performed, at Fisherrow, the operation of injecting warm water into the veins. In one case he injected a pound of water with decided temporary good effects. The blood in the cold stage is inspissated, and like treacle, which undoubtedly depends upon the immense quantity of the serum of the blood

thrown off by the mucous membranes and skin during the early periods of this stage. It is my opinion, that the judicious injection of water as warm as the natural temperature of the blood, will be very efficacious in assisting restoration from the collapse stage, and must also act in the same manner as the injection of hot fluids by the intestine; but, in addition to this, the hot water thrown into the veins must dilute the blood. Were it afterwards judged necessary to bleed, this addition of water, by rendering the blood more fluid, will facilitate its abstraction. We must, however, be cautious not to throw too much water into the sanguiferous system, whilst we are careful to prevent the entrance of the smallest bubble of air, which would speedily prove fatal. The instrument of Professor Delpech affords every protection against this accident.

I would here call attention to a circumstance of vital importance, which has occasionally occurred to me. When I first visited a patient, or returned to him after a short absence, the nurses often stated that the person was in a quiet sleep; but upon softly speaking to him, I always found this to be a mistake: for there is never sleep in this stage, but a quietness which will terminate in death; and therefore, without any regard to such appearances, we must continue to apply our active remedies.

The account which I have now given of the stage of Collapse, and of the simple and efficacious

remedies employed in its treatment, must have impressed every intelligent mind with the conviction, that the rapid and determined tendency to sinking, constituting this stage, is that which gives the fatal and urgent character to this appalling disease. It is this which occasions the horror, and the mortality of the epidemic. The treatment employed was nothing more than a series of efforts to oppose and to overcome this tendency. And in proceeding, as we now do, to the STAGE OF REACTION, I have only to note the phenomena which this process usually evolves. The stage of Reaction I consider to be simply the *Stage of Restoration*; and, with due attention, disappointment in the issue should not often be experienced.

As to the *continuance* of this stage, I would remark, that there is a correspondence between the stages of Reaction and Collapse. If the latter has been mild, we may expect that the former will be short; on the other hand, if the Collapse has been desperate and severe, the stage of Reaction will be proportionably protracted. In this latter case, convalescence will be tedious, and recovery require weeks before it is perfected.

Among the *first* symptoms of Reaction, we observe some *return of the animal heat*. Yet we ought by no means to rest satisfied with this. *The restoration of the pulse* is what should be looked for; and, so long as this is delayed, the patient is in imminent peril, and, if we fail in restoring it, he must inevitably die.

Even when we have succeeded in restoring the

pulse, we are not precipitately to conclude that our work is done. With the pulse there is returning animation. Yet so strong does the tendency to death continue, that if we were to suspend our exertions, not only would the improvement cease, but a relapse would supervene. We must maintain and increase the heat. We must find the pulse long steady, and distinct, and the patient far removed from the confines of danger, ere our efforts can be relaxed, or our anxieties be permitted to subside.

Restlessness is one of the first signs of returning animation. This presents a great contrast to the listlessness and remarkable quietude of the previous stage. It commences previous to the return of the pulse. It proceeds to a great height, and is most distressing to the patient, who cannot continue for two minutes in one position, tossing about his legs and arms, and moving about in bed, in all possible directions.

At this period, too, *thirst* is apt to be intolerable, and many are the demands that are made for draughts of cold water. These, of course, must be resisted. When the thirst diminishes, it is an excellent sign that restoration is well advanced.

The *tendency to purging and vomiting* continues, though to a very moderate extent; and I have had occasion previously to observe, that in no one instance have I found either of them obstinately troublesome. When reaction is considerably advanced, I have often remarked that the fluids vomited greatly resembled the yellowish-green appearance of the juice of a spoiled

lemon. It may, however, be right to remark, that I have sometimes observed the patient distressed with sickness and vomiting, even for three or four days after full reaction. This, however, readily yielded to the common remedies. It was before noticed, that, as the collapse advanced, the discharge was converted from a watery into an albuminous substance. The reverse of this is witnessed during the recovery. The albuminous discharges in their turn now give place to the rice-water dejections, or to a foul-watery looking fluid, mixed, as it were, with oatmeal. As the cure advances, they begin to manifest an appearance with which we are more familiar; and when they acquire their wonted fœtor, the inference is most favourable.

The *Tongue* continues cold for a considerable time after the other appearances of reaction have begun to manifest themselves. By and by, however, it becomes warm, and the papillæ on its surface assume a light brown colour. This appearance is quite peculiar; nor have I been able, on examining it, to discover a resemblance to any known object. It is constantly found in this stage.

The same kind of turn in the symptoms is manifested in connection with the peculiar pain at the pit of the stomach. This is a frequent symptom in the earlier periods of Collapse: at its lowest ebb, it is wanting, and again it returns when the patient is considerably revived. I can form no opinion as to the nature of this peculiar affection. I have known it increased by a mustard vomit, and frequently relieved by the application of very hot linen to the part. Venesection

often afforded a most marked and instantaneous relief.

As the stage of Reaction advances, the *Pulse* first becomes distinct, though feeble ; then moderately full, and will be felt beating at the rate of 130 or 140 in the minute.

The *Respiration*, as will easily be conceived, with this state of the pulse, is somewhat hurried.

The *Skin*, over the whole surface of the body, gradually assumes its natural hue, and the cold clammy sweat gives place to the healthy perspiration. The countenance also improves, the sinking of the features disappears, and the natural expression returns. In a day or two, there is usually a marked tendency to flushing, and the eyes often become suffused, or blood-shot, of a bright arterial hue.

In the latter period, the *Voice* returns, and the *Urine* is afresh secreted. When this takes place, convalescence is established, and a cure may be expected.

In children, I have always remarked, that when this stage has existed for two or three days, the *tunica adnata* secreted a tenacious fluid, causing adhesion of the eyelids.

Having thus described the symptoms of the stage of reaction, we are now in a condition to examine an opinion which has lately been broached, and strongly maintained, that in this country we have not only Cholera, but Typhus Fever also to contend with ; and that, after escaping from the danger of the former disease, the patient has to encounter all the hazard of the latter. From the great *drowsiness* which usually

occurs at this period,—undoubtedly, a most marked symptom, but one, the consideration of which I have purposely delayed to this time—I was at first rather inclined to acquiesce in this opinion. A very short experience, however, served to convince me that it was erroneous. A moment's reflection will suggest, that the complete exhaustion from suffering so acute, and the extraordinary prostration of strength, must require much time for the recruiting of the enfeebled powers; and I believe that what has been regarded as the stupor of Typhus, is nothing more than the refreshment of the soundest repose. I am now of opinion, that I mistook sleep for stupor dependent upon an affection of the brain, and my treatment was in unison with my preconceived views. Latterly I was not so officious; and believing much sleep both necessary and salutary, I restricted my treatment to small quantities of wine and arrowroot, and never had any occasion to regret it: my views were only confirmed by my subsequent experience. For a day or two the patient is very drowsy, but it is amazing how speedily the tongue cleans. He continues in a very enfeebled and debilitated state for days or weeks, yet he is recovering as rapidly as the nature of things can allow us to expect.

By these remarks I do not at all mean to deny, that attacks of local inflammation may occur. The congestion of blood, before noticed, in the *tunica adnata*, shews that there is a tendency of this nature, and would put me on my guard against it. At the same time, no decided case of this description

has presented itself to my notice. Congestion was probably the cause of death in the only case known to me, which terminated fatally after days of full reaction ; but on this point I cannot speak positively, as I gave no attention to the case.

In the complete stage of reaction, and after sound and healthy sleep, I would recommend the lightest food, and in very small quantities. In most cases that I have seen, I should not hesitate to give small quantities of wine. This cautious diet, and management, will often be necessary for weeks after severe collapse.

All the little complaints, and irregular secretions, must be attended to, as in the continued fever of this country.

It was indeed gratifying to see how steadily the recovered cases at Sandgate Hospital were, at the period of my departure, advancing to convalescence.

I may mention, that in this hospital I met with two female patients, of middle age, who, on the sixth or seventh day after restoration from the cold stage, had a great part of the breast and arms covered with an eruption, resembling measles. It was slightly elevated ; and when at its height, was of a bright red colour, which gradually disappeared between the second and third day of its appearance. It greatly resembled the eruption which I often saw in the early stage of continued fever during last November in Edinburgh.

On the important, and much agitated question of *the* INFECTIOUS NATURE of *the* disorder, I mean not

generally to enter. In truth, my very short observation of the disease does not afford sufficient grounds for coming to a final result. However, I feel anxious to give my testimony, that, from all I saw, there was no ground to infer that it was contagious. The Sandgate Cholera Hospital had been open for a fortnight previous to my departure, and no attendant, among the nurses, or the medical men, had been attacked. To give confidence to my patients, I often sat for half an hour upon the bed, familiarly conversing with them; and I distinctly felt that this would have been very wrong and foolhardy in a case of the common continued fever of this country. The circumstance of my wounding myself with a lancet, which I had just been using in one of the cases, is an interesting fact, but the injury healed kindly, and has given me no trouble. From the uncommon weakness of the patient, more than the usual quantity of handling was required in the treatment, and it was rendered, when necessary, as freely as in any other complaint. Dread on this score, in short, little occupied my thoughts, and certainly never when actually engaged with my patients. So far as the unhappy sufferers are concerned, it would be the greatest misfortune that apprehensions should be entertained on this point. The panic would assuredly descend from the physician to the nurses, from the nurses to the common attendants, and the unfortunate patients would, in most instances, be the inevitable victims.

Every day I am more and more assailed upon my

views of non-contagion ; but still, from the history of all the cases I have read, and the ideas I have got on contagion from the writings of the contagionists,—I am only farther confirmed in my original views, that cholera is not communicable from one person to another, and that the recovery of the sick greatly depends upon the active employment of the means previously recommended. It is often said to me, How can you retain your opinion, when the reverse is so distinctly observable to other people? How can you doubt its contagious nature, when you see a boy seized and die of the disease, at a distance from his friends ; his mother visits and attends him ; she returns home, and soon also is affected with the disease, and dies? With such a case vividly before me, I still conceive that this circumstance is not a proof of contagion, but may be satisfactorily accounted for, by the mother being predisposed to the disease, in not enjoying good health, and then living for hours or days in a district where the disease is epidemic. I should consider the following as a proof of contagion :—if any of the attendants upon this boy's mother, who had not themselves been within the atmosphere where the epidemic prevailed, had been seized with it, while none of the persons in the neighbourhood, who had no such communication, had been attacked.

I believe that the disease will eventually occur in Edinburgh, from the circumstance, that several individuals who had passed a short time in infected places, have afterwards been attacked by the disease in this

town, and have died. Had not the disease, in this manner, occurred here, I should have had hopes that we should never have been visited by it, as has happened, I am credibly informed, in some parts of Germany.

As to THE CLASS OF SOCIETY *most liable to be affected*, there is no doubt that, even for some time after I had left the scene of its ravages, the disease was confined to the lower or working class of the community. There was not a single instance of its attacking any of a higher grade; and even the domestic servants in what are usually called respectable families, had entirely escaped. On the 6th of January, however, I received a letter from a medical friend in Newcastle, who says, “Two or three respectable inhabitants have been attacked since you quitted us, and have died suddenly.”

It is also to be remarked, that most of the sufferers from this by far the most numerous class of the community, were in their usual state of rude health previous to their seizure. This I ascertained by direct inquiry, and it was sufficiently apparent from their hale looks and general good condition. It was also sufficiently striking as exhibited in the families of those individuals, particularly the younger children, who, previous to being attacked, had been in perfect health. In calling attention to this remark, I mean not to deny that there may be peculiar liability in those whose constitutions are debilitated by habits of profligacy and intoxication; nor that the probabilities of recovery, in such individuals, may not be greatly diminished.

Notwithstanding all that I had previously heard or known, I must confess, I was much struck with *the suddenness of the attack, and the rapid progress of its course*. Sometimes an individual retires to bed in health, and before you reach him in the morning, he appears moribund; or, a stout man leaves his home at mid-day, and by five or six o'clock in the afternoon, you are almost forced to abandon him in despair. I introduce this remark to excite every one whom it may concern to lose not a moment of time, when the disease has once unequivocally shewn itself. This is doubly important, when it is proposed to remove the patient from his own dwelling. The exertion of removing, and the cold, and draughts of air in the transfer, are decidedly injurious, not to say hazardous. These considerations manifest how important it is that Cholera receiving houses should be numerous, and situated centrically, as regards every crowded district. They also shew the importance of keeping the sufferer as warm and comfortable as possible during the act of removal.

I was, if possible, still more struck with *the awfully appalling character of the symptoms*. Not that I would excite alarm. I have seen a good deal of suffering in my time, but none has equalled or approximated this. It puts me in mind of the agonies of tetanus, and of the horrors of hydrophobia. The physician, then, must nerve himself for scenes of deep misery, and death; he must not lose his coolness and self-possession; he must, moreover, instil calmness and presence of mind into others. It is of no great use for the physician to come, in the usual routine of practice,

and pay a mere flying visit. After giving his directions, he may leave the relatives and attendants panic struck and dismayed ; and they, wringing their hands, thus waste, in unavailing agony, that opportunity on which hangs the only prospect of recovery.

It is melancholy to meet, in general society, with so many individuals, at the present time, who, though possessing strong and generally well regulated minds, are so much the slaves of *fear* on the subject of the Cholera. I think myself entitled to speak a word of comfort to these individuals—not that I would avert consideration from the whole subject, or that I estimate lightly the sufferings and dangers of the complaint ; but chiefly from this very cause, that I have seen how influential alarm has been, in inducing a state in which the symptoms of the Cholera were accurately mimicked. Nay, this does not sufficiently express the conviction of my mind. From minute observation I have been led to believe, that panic fear may be the exciting cause of all the peculiar symptoms in an individual otherwise healthy, and predisposed only to that degree, to which we may consider those in the midst of the epidemic must necessarily be. I have often noticed the effect of alarm on their nervous system to be prodigiously great. I am convinced I have seen the action of the heart and arteries greatly reduced, and the general temperature of the body correspondingly lowered, by this cause. This would necessarily affect all the secretions, producing, it may be, some of the most marked phenomena of the disease ; and causing, perhaps, some of the changes we find in the secretions of the intestinal canal itself. But be

this as it may, I would remark, that if I have seen terror a predisposing cause to the disorder, I have not been less astonished with the striking and extraordinary effects resulting from the infusion of confidence. This is the physician's task. A look of well grounded confidence from him, quickly calms the agitation, and dispels the gloom. If he be energetic in his endeavours, and his assistants assiduous, much may be expected ; and I will not refrain from expressing my conviction, that there is scarcely any disease in the whole range of maladies, where art, and perseverance, promise to be crowned with more marked success.

THE END.

EDINBURGH :

Printed by ANDREW SHORTREED, Thistle Lane.