

## **On sulphur as a remedy in epidemic cholera / by John Grove.**

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ON

SULPHUR

AS A REMEDY IN

EPIDEMIC CHOLERA.

BY

JOHN GROVE, M.R.S.C., L.S.A.

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LONDON :

JAMES RIDGWAY, PICCADILLY.

1849.



TO

T. H. SILVESTER, ESQ., M.D.


THESE PAGES

ARE DEDICATED

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BY HIS FRIEND

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## P R E F A C E.

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EVERY man has certain general duties to perform to society and to his profession. But circumstances occasionally arise which cause him to deviate from the ordinary track which he conceives himself intended to pursue.

Such has been my case. The awful scourge which is now inflicted upon mankind, is only to be mitigated under Divine assistance by our profession. We here again find another and a sacred duty to perform. Being fully alive to the responsibility of my office, and anxious to acquit myself with credit in the discharge of my calling, I weighed well the matter which pressed heavily upon me during the few months which it was known would intervene between the warning and the full accomplishment of the visitation.

Having determined upon the course to be pursued in the treatment of Cholera, and feeling the necessity for medical and statistical records, I kept an abstract of the results which came under my notice. At first they were intended for one of the Medical

journals; but, at the suggestion of medical friends and patients, I was induced to place my cases with a few observations in a separate form before the public. My friends, I am aware, have over-rated my capacity for the work; but as they placed it in the light of a duty, I cheerfully ventured into the battle-field of criticism.

## THEORIES CONCERNING CHOLERA.

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THE Epidemic Cholera which now rages in this country is the theme of every mind, the terror of every individual. The cause of the disease, and the mode of treatment, are the enquiries of almost every person with whom you come in contact.

The discordance of professional opinion on the subject is the main topic of public consideration and melancholy foreboding. It would be difficult to find any member of society who has not lost a friend, relative, or connexion under an attack of the disease, and it becomes almost a painful task to converse on the subject, though everybody is eager to catch a glimpse of hope from a new discovery, however visionary it may appear. This alone would be sufficient to shew the national anxiety at the present eventful period.

As in all sublunary matters, there are differences of opinion, so are there on this subject. Some persons believe that a disturbed condition of the electricity of the atmosphere is sufficient to account for any sudden influence being effected on the living body, and the experiments made in Paris during

the prevalence of the disease in that city, have tended to confirm that opinion among those who have chosen the electric theory. Others, and these form a large proportion of the whole, who have thought on the subject, attribute the epidemic to miasmatic effluvia which, borne by currents, are carried in the atmosphere, and according to laws which are not yet sufficiently understood, ascend and travel many miles, then descend to be raised again, and travel onward until their power is exhausted by diffusion, or those susceptible of their influence have either succumbed to their virulence, or triumphed over their powerful agency.

Again, some few attribute Epidemic Cholera to atmospheric animalculæ, which being first generated in the hot climates of the East, have been brought by the winds hither and thither, have found the localities adapted to their growth and development, when, having attained a certain amount of increase, exhaust the materials which furnish them with the means of life and reproduction, that during their maximum of development the disease is at its height, and during the decline the diminution of attacks observe a gradual ratio.

*The Fungus Theory.* This theory which I believe originated with a Dr. Cowdell, seems to account more satisfactorily than any other for those extraordinary effects which we see produced by the disease called Asiatic or Epidemic Cholera. I may here remark the same idea occurred to me which

appears to have been so very well carried out by Dr. Cowdell. The same data which he used as his stronghold on the subject, were applied for the same purpose by myself, without in any way being cognizant of his views.

There has already been too much anxiety about priority of discovery in some matters connected with medicine, without any additional bickerings, especially on a subject purely speculative. I will therefore, as far as I am able, give a sketch of Dr. Cowdell's views,\* combined with my own conjectures.

It is imagined that during the extraordinary seasons which preceded the outbreak of Cholera in India, in the year 1817, all the circumstances necessary for the development of new organic germs existed, that the extreme drought of 1816, and the extreme wet of 1817, were mainly instrumental in the production of a new fungus-growth, or perhaps only a modification of an old type, which became eliminated from the marshes and jungles in the State of Bengal. These floating in the atmosphere found a nidus for their development and increase in the blood of the human body, and that thus a new disease (as it were) was generated. The origin of the notion was simply this, that the blood seemed to be the seat of the disease, that in it changes took place, somewhat analogous to that of fermentation, that instead of the blood being composed of blood

\* I write from memory, away from home, and books.

corpuscles and liquor sanguinis, the whole liquid under the influence of the disease became changed in its composition and consequently unfitted for the process of nutrition.\*

Taking the analogy of fermentation, it was presumed to be possible that a minute fungus of a similar nature to the *Torula cerevisiæ*, entered the system by means of the lungs or otherwise, and finding the pabulum for its growth and increase in the blood, brought about that change in its elementary constitution which marks the peculiar disease under consideration. Having evolved this idea, it became necessary to shew that such a speculation carried any probability with it. This became comparatively easy, for instances came ready to the mind, from various authors, but none so striking as that mentioned by Dr. Carpenter, which shews that animals may be liable to disease depending on fungus growth within their bodies, and which is exceedingly fatal. He says the silk-worm breeders in the south of France were much troubled in consequence

\* It is said that the blood, by microscopic examination, is unaltered in its essential characters, but that it is really changed in the relative proportion of its constituents, cannot be doubted. Chemical analysis of the blood can hardly be supposed to furnish much information, for reasons too clear to require narration.

Dr. Bird states in his work :—“That Cholera begins in a change by the blood or morbid arrangement of its ultimate particles ; by which a diminution or altered quality of its fibrine and normal ingredients takes place, impairing the formative and vital power of the circulating fluid.”

of great mortality among their live stock, and that this mortality was found to depend upon a minute fungus, which might attack either the worm, the chrysalis, or the moth. It was capable of being propagated from one to the other by inoculation, or it spread spontaneously. No external evidence of its existence was to be detected during the life of the animal, but after death, the fungus would burst the skin and become visible. He says, in the first instance the germs of the disease must have found their way into the body through the tracheæ, and circulating with the fluids of the organism, there developed themselves to the detriment, and ultimately to the destruction of the animal. That other fungi are known to grow in and upon the bodies of living animals, is common information; this is the theory which bears with it more of the appearance of reality than any other, and though at present the materials are not sufficient for its proof, there is much in the idea which recommends it to the attentive consideration of the profession in reference to other epidemics, and especially eruptive diseases, for we cannot fail to notice how close is the analogy between the incubation, development, or maturation and decline of the eruptive diseases, and the same processes in vegetable and animal life.

As regards the Choleraic poison, its peculiar mode of increase and development, much might be said. The localities which seem to favour the increase of the poison are just such as we find adapted

to fungus growth. Decaying vegetable and animal matter, or the emanations from them, impure water, impure air of any kind, dark ill-ventilated apartments, all seem to favour (according to reports, as well as my own experience) the production of the disease. The fact that fungus germs find their appropriate soil and locality for their growth under the circumstances above-mentioned, is known to every one, and when we find that the great bulk of attacks of Cholera take place between the hours of sunset and sunrise, we seem to have another connecting link in the chain of evidence for the fungus theory, for fungi grow more rapidly in the night or in dark places.

Another feature of interest occurs to me; *viz.*—the fact that great fatigue predisposes to the disease. It is well known that the flesh of hunted animals soon passes into a state of putrefaction; this is easily understood, for the balance of waste and supply is disturbed, the muscles of the body after great exertion become softened, and their contractile power ceases, the blood exhausted of its nutritive properties is ready for decomposition, because its powers of vitality are reduced to a low state by the great demand made upon it during the exertion of the individual.

Dr. Lorimer, according to the Med. Chir. Review, “proves by a series of very conclusive Tables, that the number of attacks of Cholera occurring on the march, increases regularly accord-

ing to the number of miles, and to the number of days. Officers who are mounted suffer comparatively little, and cavalry suffer less than infantry." This appears to be conclusive in reference to the effect of fatigue in engendering a predisposition to an attack of the epidemic. Regarding the condition of the body under great fatigue and privation which always attend long marches as one in which the process of decomposition may be easily set up if it is not partially commenced, we may readily imagine an aptitude to exist for the reception of almost any poison; and since we find that it predisposes an individual more particularly to this disease, it is not unnatural to infer that the cause is such as we have supposed.

I have not, in making the foregoing remarks, intended to do more than allude to the conjectures concerning the cause of Cholera: time, however, may possibly furnish opportunity for carrying out some experiments which are already planned for future investigation. Nor do I fix my faith to any theory any more than the writer of the able article in the "Times" of Sept. 12th and 13th, who has supplied on the whole an excellent summary of the various theories of Cholera, but equal justice is scarcely measured to all. The animalcular and fungus theories are dismissed as improbable, and I think, on very slender grounds. "The supposed monads, animal or vegetable, can hardly be conceived (if analogy be fairly kept in view) as suscep-

tible of development or propagation during the opposite extremes of heat and cold, which have coincided with the prevalence of Cholera. Nor is the hypothesis of these infinitesimal germs floating in the air capable of accounting for the spread of a distemper which often travels against the wind." Two remarks will supply a sufficient reply to the above.

Remark 1st. Influence of temperature on development of organic germs. If there be no evidence to prove in a direct manner, that fungi or animalcules are the cause of Cholera, the argument from analogy, that their germs are not likely to be capable of development, under the great variations of temperature, in which Cholera is known to have existed, does not hold good, from the fact that great variations in the character of the disease are traced between attacks under a hot and cold climate, and just such results obtain as might be supposed from a modification in the materials, which engender the affection.\*

Remark 2nd. The passage of such germs from place to place against the wind, will not appear at all an impossibility if viewed in a different light to that which occurs to the writer in the "Times." The laws of currents are not yet understood sufficiently to allow them to be cited in opposition to a theory of this nature, since many facts connected with

\* Refer to the analogies with other Epidemic Diseases.

winds, would tend rather to favour than oppose the fungus or animalcular doctrine. One of these is the circumstance of ships at a distance from land, having the deck suddenly covered with a quantity of sand; another is the recent descent of a cloud of lady-birds (*Coccus punctata*) at Ramsgate, which must be well remembered; these and all other instances of the kind, shew that some peculiar ascending current, had carried these insects into the air, until a descending one again deposited them on terra firma. Why then may we not infer, that the supposed organic germs should be susceptible of journeying by currents of air unknown to us, and be deposited in a manner alike extraordinary. It must be remembered also, that though the disease may not be contagious in the strict sense of the term, there is abundance of proof to shew that it is portable, as explained by Dr. Copland.\* That the disease

\* Dr. Snow adopts the doctrine which declares the Cholera to be disease that can be communicated from one individual to another.

Dr. Budd, though not a contagionist, in Tweedie's Practice of Medicine, states the circumstances favourable to the opinion of its being a contagious disease are the following—its continued extension in all directions from the place in which it originated, with a rapidity not uniform, and never greater than that of human intercourse—its having, in many instances, appeared to follow the principal lines in which this intercourse takes place—and its having frequently shown itself in a port or town, soon after the arrival there of a vessel or caravan from one previously infected.

should appear in a locality unlikely, from the direction of the wind's course, to be affected is not surprising, if we admit, as all must do, who have seen much of Cholera, that it is conveyable from place to place, through the intercourse of individuals from an infected to a healthy locality.

The ozone theory, with many others, appears to have little to support it.

#### THE SYMPTOMS OF CHOLERA.

During the existence of Cholera in my neighbourhood, I have observed a marked difference in the mode of seizure, whether the attack has been of the nature of Cholera in a severe form, or whether the disease has stopped with a simple diarrhœa. Many patients have also applied to me with the following symptoms. They have complained of much uneasiness in the stomach and bowels, of nausea, loss of appetite, a sensation of faintness and lassitude, giddiness and noises in the head, these symptoms have been common; other persons, and these not a few, have added to the above a great diminution of the warmth of the surface, with an appearance resembling cyanosis, in some cases there had been slight diarrhœa, in others none at all. The number of these cases, all occurring at the time when the Cholera was at its height, induces me to believe that all these persons were suffering from the effects of a poison circulating with the blood,

and thus giving rise to these symptoms. I am partly justified in this view by the fact, that several cases of Cholera which I have attended, were ushered in with similar indications of disturbance. Holding the opinion that poison was to be counteracted to rid the patient of his malady, and believing that sulphur was the antidote to the Choleraic poison, I invariably exhibited it, and in a day or two as invariably the patient lost all his unpleasant symptoms. Whether this result may be taken as evidence of any real and practical value, I leave others to decide ; it is nevertheless a fact, and facts are always worthy of being recorded, for they are often applicable in a manner in which the person recording them has little anticipation.

I quite concur with those who state that attacks of Cholera date their commencement most generally between the hours of sunset and sunrise, that is, those which commence with diarrhoea and vomiting. In these cases no warning usually is given ; the patient is perhaps roused from sleep by an urgent call to evacuate the bowels, which is quickly succeeded by another and another, until a feeling of exhaustion comes on, vomiting may attend the first evacuation or may not appear till after several ; this varies much, but generally as soon as the vomiting is established, the spasms of the extremities succeed. Case 4, as narrated at page 32, exemplifies this form of the disease, which is successfully treated by sulphur ; this patient was quite

cured without any other medicine : his expression was " he felt it go all over him."

Another mode in which the disease invades the patient is by a gradually increasing diarrhœa, from being very slight for a day or two, it increases in severity, and at length perhaps after four or five days or a week, vomiting sets in, and the more urgent symptoms become rapidly developed. There are intense cramps in the legs, arms, and abdomen, the muscles of the abdomen may be so violently contracted (as in three cases I have seen) that the belly is forcibly drawn towards the spine, and instead of being convex in its outline, it formed a large and deep concavity : this is a most distressing state of agony, and unless the patient be relieved, exhausted nature rapidly sinks ; the skin becomes cold, the pulse imperceptible or slightly vibrating ; the diarrhœa and vomiting are accomplished almost without an effort, and the patient passes into absolute collapse. In this state the condition of the patient may be thus described. He lies as one quite exhausted ; he throws his arms and legs about, is exceedingly restless, complains of great thirst, prefers cold drinks, his countenance looks sunken and expressive of suffering ; the pulse ceases to beat, the skin has a livid appearance, and is bedewed with a profuse cold sweat ; the vomiting and diarrhœa, which before had been urgent, now begin to subside in consequence of exhaustion and the loss of tonicity and irritability of fibre, and the

patient either gradually sinks, or after a time, a new set of symptoms arise, which indicate a state of things called consecutive fever: but of this I have no experience, not having had any cases of the kind under my charge. Fever also occasionally attends those who have not suffered under the pure form of collapse. It has only occurred, however, in two or three cases with me.

The consecutive fever, which has been so much considered by the profession, and in most instances, I believe, looked upon as a form of typhus, appears to be the effort of nature to throw off the poison, which, in the first instance, had a tendency to pass through the bowels. This being in a measure checked by a temporary suspension of the vital powers, in the stage of collapse, in which, as in a temporary torpor, the patient for a time continues, the disease then exhibits itself under a new form, though still retaining the mucous surfaces for its particular seat, unless, as before mentioned, the patient succumbs under the violence of the shock. Looking upon the consecutive fever then, as the result of the particular poison, which produced the first symptoms of the disease, it seems but reasonable, our treatment should be directed to the neutralization of the agent, whatever it may be.

The fever, which is characterized by a hot dry skin, urgent thirst, occasional sickness, and diarrhoea, a dry tongue, and consecutively the head or chest symptoms, which occasionally attend upon an

attack of typhus, are all indicative of a poison existing in the blood, and though time may ultimately favour the patient, by an elimination of the poison through the natural channels, I cannot believe that any attempt at restoring the secretions by medicines, usually called alterative, can have any beneficial effect on the disease. The cause of the disturbance is the matter for our investigation, and by removing that, the secreting organs will of themselves be restored to healthy action.

#### ARE THERE ANY ANALOGIES BETWEEN CHOLERA AND OTHER EPIDEMIC DISEASES ?

Before answering this question we must distinctly understand what is meant by an attack of Cholera. We must not consider that only those who turn blue on the skin, become pulseless at the wrist, have the cold tongue, the vomiting, and diarrhœa, and cold clammy sweat, are suffering an attack, any more than we should wait for the severest and most extreme symptoms of small-pox, or scarlatina, before we pronounce our opinion on the nature of the disease. During an epidemic of small-pox or scarlatina, there are certain premonitory symptoms, by which we may generally be guided to a diagnosis of the disease, the eruption is the development of the previously latent poison, and our opinion is confirmed by this result. In these cases we do not withhold our opinion, because the patient has not evinced the most alarming symp-

toms, such as extensive ulceration of the throat, or enormous abscesses of the parotid glands, or sudden sinking of the vital powers from effects of scarlatinal poison, there are unerring signs of the disease long before these events take place, so are there in attacks of Cholera, and there can be no question, when we become more familiar with the disease, the profession will be more alive to its approaches, and the public more cognizant of its early symptoms.

The nature of an attack of Cholera, has before been considered. I now proceed to point out what appear to be the analogies between this and other Epidemic diseases.

We *first* remark, that a specific poison is the origin of this as of all epidemic diseases. *Secondly*, that there is a tendency in this disease as in others, to escape, as it were, from the system; an eruption on the skin, in small-pox, scarlatina, and measles, seems to be the mode of outlet for the poison, but in that under notice, the mucous membrane of the stomach and bowels is the region selected for the development of the full force of the affection. In the latter stage of Cholera, there is an exudation from the skin of a peculiar nature, unlike to anything we are in the habit of observing in other diseases, this appears to me to be analogous to the diarrhœa, which is an almost invariable attendant upon the latter stages of the exanthemata. We may, therefore, without any great stretch of

the imagination, regard the Cholera as an inverted form of an epidemic eruptive disease, which might, perhaps, be called Enanthem, for the evacuations of Cholera patients, contain a considerable amount of epithelium scales, and the liquid which passes from the bowels, is literally an exudation of serous fluid through the capillaries of the mucous membrane, the term enanthesis cannot be considered an inappropriate method of describing the affection.

*Thirdly.*—Cholera, like other epidemic diseases, appears sometimes in the sporadic, sometimes in the endemic form—occasionally, also, its visitations are mild—other times severe. Again, locality appears to exert much influence over the poison, either increasing, or diminishing, its intensity.

*Fourthly.*—The stages of Cholera, like other epidemic diseases, are not always marked by a regular gradation, the course of the disease is sometimes run in a very short space of time, and the train of symptoms, instead of observing intervals of considerable duration, pass in rapid succession on each other.

As to the period of incubation, not much can be said on the subject. It appears from all that is known, the period must be very short. The chief method of arriving at any conclusion on this head, is afforded by the attacks which have occurred on board vessels, leaving an infected port. Mr. Kennedy has stated that about two days may be supposed to be the time; and I have heard from a

person just landed from America, that they had Cholera on board the ship two days after leaving port, both the persons attacked died, and no other cases occurred during the voyage.

Another instance confirming the two days, has lately come to my knowledge, a person who washed the clothes of a cholera patient (an isolated case in the neighbourhood), took Cholera two days after and died, her son was also attacked by the disease and recovered.

Without proceeding further to trace analogies, I will apply the above observations to a common sense view of the matter.

If we are to regard the Cholera as a disease, having its various shades of intensity, as every disease invariably has, would it not be infinitely to the advantage of the public and greatly to the credit of the profession, to consider every attack of diarrhœa which makes its appearance, in a sudden or unusual manner, as a result of the Choleraic poison, and at once to treat the disease in a scientific and professional manner.

Further, we are not yet thoroughly acquainted with the nature of the disease, in fact, who shall say when diarrhœa commences whether it is likely to pass on to a severe form of Cholera, or at once subside. In many instances nature herself is sufficient for a perfect restitution, without the aid of art, and over-officiousness in checking diarrhœa, is, I believe, a fruitful source of injury to those who resort to the

practice, I mean taking the bulk of cases. If it be true that the majority of diarrhœa attacks would of themselves subside, by an ordinary attention to diet, which I believe, from some experience, to be literally the case, we must attribute the recovery to the *vis vitæ* of the individual in whom the power of resistance is superior to the *vis morbi*. It would appear to be the most scientific method to wait the result of nature's powers before we materially interfere with them, especially too if the diarrhœa of Cholera is to be regarded as a means of throwing off something from the system, as in the eruption on the skin in measles, scarlatina, small-pox, &c. Were we to endeavour to check these eruptions at the outset, much constitutional disturbance would probably arise, and considerable mischief might accrue.

We are not without evidence that such has been the result over and over again, nor are we without proof that the sudden arrest of diarrhœa by chalk mixture and opium, has been productive of much evil; many instances have come under my observation, as well as under those medical men with whom I have conversed on the subject, where the patients believing the diarrhœa to be the essence of the disease, they supposed it but necessary to check that and the recovery would be immediate. To their cost, and to our sad experience, it is found that though anodynes and absorbents arrest diarrhœa they have no power over Cholera in an advanced stage; indeed, severe vomiting and spasms

have often succeeded a sudden arrest of diarrhœa, during the prevalence of this disease in my district, and I have invariably found that the return of the diarrhœa (moderated by treatment) is a most favourable symptom. Looking at the disease in this light then, as one bearing certain analogies to other epidemic diseases, is it not a fair question to ask how far it is possible for epidemic diarrhœa to be associated with Epidemic or Asiatic Cholera? We have before observed that scarlet fever, small-pox, and measles, occasionally shew themselves in a most malignant, occasionally in a mild and tractable form; it is not supposed that the poison differs in its characters or elementary nature, whether the disease be severe or mild,\* we equally apply the term scarlatina, rubeola or variola, as the case may be, placing some adjective after each name expressive of the particular form in which the disease exhibits

\* Dr. Copland describes three varieties of Cholera, the Biliou, the Flatulent, and the Spasmodic.

While speaking of the third variety, he says, "There can be no doubt that the first and third varieties of Cholera chiefly differ in degree and in the circumstance of the latter arising, in most cases, from the operation of causes of a *more intense grade* than those which induced the former."

Dr. Bird says: "The two diseases, 'Biliou Cholera' and 'Algide Cholera,' are the same morbid states, differing only in degree:—

"During the months of April and May, cases of Cholera of a bilious, spasmodic, and collapsed form were received into hospital; the chief peculiarities of which were the long continuance of the vomiting and purging, accompanied by gradually decreasing

itself. Why then should we seek for other causes of a mysterious nature to explain Epidemic Cholera than such as may be supposed to attach to the appearance of malignant scarlatina. I grant that the remarkable manner in which the disease appears to travel from place to place, offers material for investigation, but is it quite certain that the malignant forms of epidemic diseases have not a similar peculiarity? In 1845, if I mistake not, the small-pox was exceedingly virulent in most parts of this country, and I believe on the continent also, but particular attention has not been directed to the travelling of this disease, it being considered, and properly, highly contagious. Every professional man must be well aware that malignant forms of disease almost invariably visit the various quarters of the globe in a successive manner, but those diseases being familiar to us, and attacking more especially the junior members of society, and again being more slow in their progress, they do not excite that general alarm which is caused by the appearance of the present epidemic.

I say, how far is it justifiable to associate epidemic diarrhœa with Cholera? If we believe the energy in the circulating system and vital powers, before the complete development of the collapsed stage, *which always terminated fatally.*"

Again, he says: "There is no real difference between the two forms, the action of causes producing them may differ in intensity; but the morbid changes effected in the constitution by their agency are the same."

same germs of disease are in operation in scarlatina simplex as in scarlatina maligna, modified by circumstances with which we are unacquainted, it is not so very monstrous to conjecture that the same germs which induce epidemic diarrhœa under modified circumstances shall induce epidemic cholera; at any rate this doctrine gains remarkable feasibility, from the fact that the sulphur treatment applies equally to diarrhœa as to decided attacks of cholera, indeed, many of the patients under diarrhœa have exclaimed that the medicine acted almost like a charm. Now from what we know of the therapeutic effects of sulphur, we might rather expect that the action of the bowels would increase, but usually the contrary obtains; this would again shew that it must in some way act on the cause of the disease, but in what manner we do not pretend at present to explain: nevertheless the above statement favours the supposition of a similar cause being in operation, as no known therapeutic properties of sulphur combined with a few grains of soda will account for their action in bringing about a cure in cases of diarrhœa and Cholera.

#### SULPHUR AS A REMEDY IN CHOLERA.\*

That sulphur is a valuable medicine is "as old as the hills." It has long been popularly considered as

\* The following occurs in the "London Practice of Physic," published in 1692. A digest of Dr. Willis's writings.

"In the year 1670, about the autumnal equinox, a world of people here were seized with a most dangerous flux (though with-

a purifier of the blood, indeed most of us must have a distinct recollection of the morning dose of brimstone and treacle. Mr. Dickens however has immortalized the compound in Nicholas Nickleby. It is seldom that any thing obtains popularity unless there be a substantial reason, whether the public understand the matter or not is of little consequence, they obtain an advantage in some way or other, and this is sufficient for them. We have instances in medicine parallel to this: burnt sponge was used as a valuable remedy in scrofulous diseases, but why it was useful could not be understood until the discovery of iodine, when it was found that the properties of the burnt sponge were due to that elementary principle. Sulphur is an important constituent of the human body. It is found in the brain, in the nervous system, in its pure state dissolved, or in combination with fatty or oily matter, for oil is a solvent of sulphur. It is also found as a constituent of protein, and in the blood in combination with albumen and fibrin. Salts of sulphuric acid also exist in notable quantity in most of the secretions and excretions of the human body, in fact, in some form or other there is no part of the body which does not contain it either in its simple or compound state. This to

out blood), and joined with a cruel vomiting which presently caused great faintings and a total decay of strength. For the cure of this disease no evacuation did good, nay, bleeding, vomiting and purging did hurt, only cordials, and those of the hottest nature, to wit, such as abounded with spirit and *sulphur*."

my mind is a strong point in favour of the exhibition of sulphur as a medicine, and I would argue thus: we are aware that disease depends occasionally upon a deficiency of iron in the blood, we restore to the system that which it has lost, and health returns: we are yet in the dark as to the cause of this tendency to a loss of the ferruginous salt from the blood in young females, we only know it to be a common occurrence; it may arise from their sedentary habits, which allows an insufficient exposure to light, and thus engendering imperfect assimilation; it may be from various other causes, but knowing the fact, may we not also assume that sulphur occasionally may be deficient, though at present we are not able to detect the symptoms which indicate such a state. It is moreover quite certain that in some states of the body other constituents of the organism have a tendency to pass away. The experiments instituted by Dr. Bence Jones on the amount of phosphates in the urine during the existence of diseases connected with the nervous system, confirm this opinion. I am told, upon undoubted authority, that the only remedy which has been effectual in the cure of those diseases which have appeared as a murrain among cattle during the last few years, is sulphur; it is usually combined with the sulphate of magnesia, and I strongly suspect were it combined with an alkali, as the carbonate soda, a larger success would attend the remedy. Here again we appear to have evi-

dence of the requirement of sulphur, and were it more frequently given in the diet, it is possible the disease might be much diminished. I am also told, from whatever cause it matters not, that these diseases are contagious, that healthy animals brought to Smithfield among those diseased, are liable to be attacked.

Another curious circumstance I have learnt from a neighbour, a very intelligent and observant man. He says he has frequently exhibited sulphur to his pigs, when they have been scoured and cramped; and that an animal might appear in considerable danger in the morning, when a dose or two of sulphur would restore it to perfect health by the evening, the scouring and cramps having entirely ceased.

He has further observed, that pigs killed when suffering under the disease, have the blood dark and pitchy, and that it flows with difficulty; but should sulphur have been given, the blood will have entirely lost its abnormal character.

The effect of sulphur upon man is very rapid. In the great number of cases I have had, ample opportunity has been afforded for observing its influence. Soon after taking a dose of the mixture, a feeling of warmth pervades the abdomen and chest; in about half an hour, if the body be not exposed to the air, a general perspiration breaks out all over the skin, and the characteristic smell of sulphur is unmistakably detected. Should the

bowels have been relaxed previously to taking the dose, they in most instances become quiet, and any uneasiness and flatulence are entirely dissipated. The next evacuation which passes has been generally found to have a healthy appearance, both as to consistence and colour. Indeed, in all the bad cases of Cholera which I have seen, the evacuations have always resumed their healthy characters without the aid of any other medicine.\*

Should it be proved as I anticipate, that sulphur is an antidote to the Cholera poison, it is not unlikely that the same remedy may be available for other epidemic diseases. That such a desideratum is attainable, as a general specific for epidemic diseases, has been the belief of many of our most able physicians of past times, and is the opinion of some of the present day. It is said that the hydrated proto sulphuret of iron is an antidote to almost, if not all, the mineral poisons, and with some force of reason; I cannot see, therefore, why one agent should not be efficient in neutralizing all poisons which are capable of generating epidemic disease; for we may infer, that if the poisons be not identical, yet in all probability they have a similar type; and whether they are composed of animal matter in a state of decomposition, having the power of inducing catalytic action in organic liquids, or whether they consist of minute vegetable germs,

\* The gall bladder is found charged with bile after death from Cholera, so that secretion is not suspended.

there is but little reason to apprehend that more than a modification of one type performs the extraordinary work.\*

Looking at the human body preparatory to an attack of disease as in a condition of organization predisposed to disturbance in the equilibrium of its functions, it may be regarded as in a state having a tendency to decomposition.† Organic liquids, it is well known, are liable to decomposition, unless some agent be used to arrest the process. Alum arrests the process of decomposition in paste. Bichloride of mercury has a similar effect, as well as preventing the process of germination; many other mineral salts have the same property. This arrest of decomposition is accompanied by an arrest of germination, so that even should it not be effected in the blood, as supposed by Dr. Cowdell, the first steps in the proceeding are commenced in an attack of Cholera. Now, supposing this decomposition to be commencing, what agent have we, simple

\* Some writers on Cholera would establish a difference between cases of endemic and epidemic origin; distinguishing varieties of serous diarrhœa, attended by depression of nervous energy, feebleness of the circulation, and low animal heat, as forms of pseudo-cholera:—

“The action of the causes producing them may differ in intensity; but the morbid changes effected in the constitution by their agency are the same.”—*Contributions to the Pathology of Cholera*, by James Bird, A.M., M.D.

By organic liquids is meant liquids containing organic matter.

† It is here supposed that a distinction will be understood between real and apparent health.

in itself, harmless as regards the vital actions, natural as a constituent of the body, and useful as a stimulant and alterative ?

I unhesitatingly affirm that sulphur is that agent; after a dose or two doses of this medicine have been taken, the whole body soon becomes under its influence, every portion of the skin exhales the peculiar odour of that substance, and a genial warmth and moisture, pervade the whole surface. When I have discovered this effect to be produced on my patients under the influence of the Cholera poison, I have always been able to pronounce them safe, and hitherto I can honestly say without one disappointment. Whether we understand the cause of the power of sulphur over this disease or not, should it interfere with our reliance on it as a remedy? I apprehend there is no one bold enough to assert that they know the *modus operandi* of mercury in syphilis\* —it has been stated that as two poisons cannot exist in the same body at the same time (query) the mercurial poison obtains the mastery and ousts the syphilitic. Very philosophical! I would rather incline to the belief that the cure is effected on the principle before-mentioned, that the bichloride of mercury retards decomposition, and moreover, that it is to the bichloride alone, as a soluble salt, we must attribute the advantage, whatever may have been the form in which the mercury had been originally exhibited.

\* In the uncertainty of the matter, however, does any man hesitate to use mercury as a remedy for Hunterian Chancre.

Mialhe has most clearly shewn, that no medicine can have an effect upon the system generally, unless it first be absorbed, and to be absorbed, it must first be rendered soluble. Calomel and blue pill (always associated in my mind with carious teeth and fœtid breath) we may therefore consider inert, until the chemicals existing in the stomach or bowels shall render them soluble; and to make them so, chlorine must, in some way or other, be obtained for the purpose: how this can be brought about is yet a mystery; though we know this much, that there is an abundance of the chlorides in the fluids of the body to supply the necessary amount of chlorine for the purpose.

The use of sulphur has been objected to by many because they could not understand the principle upon which it is supposed to act;\* the results, however, of its application, as recorded further on, bear ample testimony to its efficacy, and they who use it must, for the present, be satisfied without knowing its *modus operandi*.

#### TREATMENT OF CHOLERA.

The Editor of the *Lancet* very justly says, “the point now is the treatment—*the treatment*; and not

\* I am informed that the disease which has been so injurious to grapes during the last two or three years, and is now infesting them, is due to a minute fungus. The only means capable of removing it is dusting sulphur over the bunches as soon as the disease makes its appearance. Can the *modus operandi* be explained in this instance?

the determination of the remote cause of Cholera, or the question of its contagion or non-contagiousness."—Assuming the cause of Cholera to be a poison pervading the atmosphere, it is quite evident that the most direct method of ascertaining a remedy is to search for an antidote. Feeling dissatisfied with every mode of treatment, and regarding them all as purely empirical, I was delighted in finding that a Dr. Bird of the United States had investigated the matter in the rational method,—whether his views be correct or not, it is impossible to say;—the result, however, is the most important thing, and after stating his views, I will record the result of an extensive trial of his remedy.

It is the opinion of Dr. Bird that the cause of Cholera is a prevalence of ozone in the atmosphere; he asserts that sulphur is a neutralizer of ozone. He moreover asserts that in the neighbourhood of sulphur springs, or where sulphur abounds in the water, Cholera does not prevail. Again, he says he has tried sulphur in Cholera, and found it a valuable remedy.

Without placing implicit reliance on Dr. Bird's theory, there was a reasonableness in the mode of treating the subject which struck me as being highly feasible and rational, and I determined on giving the remedy a fair trial.

*Case 1.*—The first case which occurred to me after my determination was on the 3rd July last. The patient, a female aged 40. She

had been suffering from diarrhœa for some days, and was seized in the middle of the day mentioned with severe cramps in the abdomen and extremities, the diarrhœa incessant, and the sickness most distressing; the fluid purged and vomited was pale in colour, the skin cold and clammy, the pulse feeble. I administered at once a draught of ether and opium which was retained, and in half an hour a dose of sulphur mixture which was to be repeated every three or four hours. Two hours after the sulphur dose had been taken I visited my patient and found her skin warm and perspiring freely, her pulse much improved; there had been no sickness or diarrhœa, and the spasms of abdomen and extremities had almost entirely subsided. She continued her sulphur mixture up to the 5th, and an aperient of rhubarb completed the cure on the 6th. In this case much cramp and pain remained until the sulphur had been taken, but under its use they entirely disappeared.

Encouraged by the speedy recovery of this case, and the marked relief which the patient experienced and expressed after each dose of the medicine, it only remained to practise its use on a large scale to give a fair test of its efficacy. This was soon afforded by the outbreak of Cholera in a very severe and fatal form in my neighbourhood. It would be tedious and useless to mention every case in detail, I will therefore only narrate a few cases and give the others in a tabular form.

*Case 2.*—11th August. A female aged 55 had

a diarrhœa of some days standing, and was seized in the middle of the day with the characteristic diarrhœa, vomiting and spasms, pulse feeble, skin cold. I gave in this case, as in the other, ether and opium, it was instantly rejected ; the dose was repeated and again rejected ; having by this time had some experience of the sulphur, I used it, and repeated the dose every quarter of an hour until it was retained. The third dose remained on the stomach, and the symptoms which had remained as urgent as on my first visiting her, now began to yield to the influence of the remedy. She continued taking the medicine every three or four hours until the evacuations recovered their healthy character ; and quinine for a few days restored her to health and strength.

In this case the evacuations were passed in the bed to a considerable extent, and the patient had lost all control over the sphincter of the bowel. The only external application to the body in this, as in all the other cases, was hot water in bottles to the feet and about the body.

*Case 3.*—August 12th. A lad aged ten years was attacked with vomiting, rice-water evacuations, and spasm of the bowels. In this case the evacuations had that peculiar flaky appearance so characteristic of the disease. As the pains were severe and the vomiting distressing, a few minims of tincture of opium were added to the sulphur mixture. He took no other medicine, the evacuations re-

sumed a healthy character, and he recovered in a few days.

In a house where one person had died of Cholera, on whom I did not attend, six other persons were attacked with all the symptoms of approaching Cholera; they all took the sulphur mixture, and were cured. In two cases the diarrhœa was most severe: a small addition of opium to each dose aided the retention of the mixture in the bowel, and no other medicine was administered, except a tonic on the conclusion of the cases.

*Case 4.*—August 26. I was called at 5 A. M. to see a patient who had retired to bed the night before, apparently in perfect health. He awoke at two A. M. with a sudden attack of diarrhœa, which was soon succeeded by vomiting, and cramps in the legs. At half-past four he became so exhausted by the disease, as to be quite unable to get into bed without aid, and I was sent for. The messenger who came for me took with him four doses of sulphur mixture, one dose of which I ordered to be taken immediately, and to be repeated in a quarter of an hour, if returned from the stomach. I found the patient with a livid countenance, pulse feeble, skin evidently becoming warm, under the cold perspiration there was a feeling as if considerable warmth would be soon established. In this I was not disappointed—the patient made a rapid recovery without other medicine.

*Case 5.*—August 27. I was called at six P. M.

to attend upon a girl nineteen years of age. She had slight diarrhoea for a few days, which was considered by her parents of no moment. When I saw her, she was suffering from a severe attack of the spasmodic form of the disease. The muscles of the abdomen were flattened, and spasmodically drawn towards the spine, the legs, arms, and hands were in intense agony, and occasionally violently contorted by uncontrollable contractions; vomiting was preceded, accompanied, and followed by these distressing symptoms. The countenance was cadaverous, and expressive of great suffering and terror, the skin, though warm, was not the natural temperature, the feet were cold, and the pulse feeble. Two doses of ether and opium were taken without any mitigation of the suffering, save that of relieving the vomiting and diarrhoea, as the spasm and pain continued the same; at seven o'clock, immediately after the second dose of ether and opium, the sulphur was commenced. At eleven o'clock there was much improvement: at seven the following morning I learnt that the spasms did not entirely leave the patient till a little before five; but on my visit I found her lying quite tranquilly, and though she had taken one drachm of tincture of opium in the space of an hour, its anodyne effects were not at all evinced until twelve o'clock, when she appeared in a perfectly easy and passive state, inclined to dose, with a moist skin, soft steady pulse,

and with no other appearance than that of great exhaustion.

I have taken cases from the beginning and successive periods of the attack in our village, which contains a population of 8,000 persons, for slight sketches to illustrate the mode of administering the remedy ; it now only remains to specify such particulars as are adapted to the generality of cases, and the method of preparing the medicine. The cases mentioned in the Table, were all treated with either ether and opium at the commencement, followed by the sulphur mixture, by the sulphur mixture combined with opium, or by the sulphur mixture alone. The dose of ether and opium for an adult was of æther Sulph. co. ʒj or ʒiiss, Tr. Opii ʒss in a glass of water to be repeated, should it be vomited, in a few minutes, and if the second dose be rejected, the sulphur mixture to be commenced and repeated every quarter of an hour until retained, then every three or four hours. The sulphur mixture I have used, is as follows :

\* R. Sulph. Præcip : Pur : ʒj  
 Sodæ Sesqui Carbonatis ʒj  
 Sp. Lavand. co ʒij  
 Aq. ʒvss— $\frac{1}{4}$  for a dose.

\* That which is commonly sold for precipitated sulphur is very impure. Messrs. Herring Brothers, of Aldersgate Street, have, however, supplied me with an excellent preparation ; unlike the ordinary precipitated sulphur, it does not effervesce with carbonate of soda, and is in every way adapted for medicinal purposes.

In cases of diarrhœa, should they be recent, I exhibit the sulphur mixture alone; the first dose almost invariably relieves, and I order it to be taken every few hours for a day or two, though this is seldom done; for I have known several instances, during the epidemic, in which one bottle of medicine has been the means of relieving a whole family. Should the diarrhœa have been some days on the patient, I usually add 10 minims tincturæ opii to each dose of the mixture, as it affords to the sulphur a better chance of being absorbed, and at the same time allays that irritability of the bowel, which, after a continuance of diarrhœa for some days, is engendered even under ordinary circumstances.

The three fatal cases I have to record are:

1st. A child worn down by mesenteric disease, who was in a state of irretrievable collapse when I first saw him. He died in about five hours.

2nd. A man, aged 50, whom I found lying by the road side while driving to see an urgent case at a distance. This man was perfectly cold, shrunken, and pulseless, his skin livid; he complained of no pain. I ordered him home, to be covered in blankets, hot water to be applied by means of bottles to his body and extremities, and a mixture containing ether and water only. An hour and a half after this I saw the man, and having no hope of him I tried the packing plan, but it was of no avail, he died in a few hours.

3rd. A female, 50 years of age, who had suffered from diarrhœa during the previous ten days. She had a large umbilical hernia, and had been the subject of tropical fever. She applied at my Surgery on the morning of the 15th of August, she had a sulphur mixture, without opium, as she did not state the length of time she had been suffering. I requested her to let me know, should she not receive speedy relief, this was at 8½ A.M.; at 2 P.M. I was summoned in haste, but it was evident nothing could save her, she was rapidly sinking; I tried sulphuretted oil internally and by friction, and though the sickness and diarrhœa almost ceased, and the body became perfectly warm as well as the extremities, she sank without a struggle.

This poor woman, though suffering from diarrhœa, had eaten very largely of carrots the day before I saw her, and rejected them 26 hours after, in a perfectly undigested state. This I learnt afterwards from the husband.

It will be seen I do not consider the sulphur as a remedy when the collapse is fairly set in. From that state but a small proportion of patients, I believe, recover, when they do, I cannot think that medicine has much influence on the result.\*

\* Mr. Chas. Beckett, of Hull, says: "A lady under the full influence of mercury, as evidenced by the mouth—given by another medical man for some other complaint—was seized with vomiting, purging, and sudden collapse, and sank in a very few hours. This shews the non-protective power of the mercurial

It has been said that Dr. Ayres' treatment, the exhibition of calomel in two or three grain doses at short intervals, has been highly successful, but I can scarcely think that so insoluble a substance as the protochloride of mercury can exercise any power on the system when the stomach and intestines are incessantly exuding a serous fluid, and the process of absorption is at a complete stand still. Again, the infrequency of salivation after recovery convinces me that the mercury cannot have entered the blood, and without entering the blood what possible effect can it have?† Then again, I cannot see how, unless it be rendered soluble, such a circumstance as absorption can occur. I am fully borne out in this by Mialhe, who says, "metals should never be administered in their uncombined state, for their action is dependent on the influence of a limited and unknown quantity of some special solvent." That absorption does not go on during the stage of collapse is abundantly proved by a host of testimony. Almost every person who has tried the opium treatment in the collapse has found that though perfectly useless and ineffectual at the time, should reaction come on, the full force of the medicine is

influence, as was observed by Dr. Horner, who met me in the case."

† Dr. H. M. Hughes says, "When collapse occurs indeed calomel may be given, for then it can do no harm, though I verily believe it can effect no good."—*Letter in the "Lancet," Sept. 22, 1849.*

exerted when the means used to benefit the patient are turned to his disadvantage, by inducing a comatose condition, from which he has little or no chance of recovery. The undue use of stimulants also is open to the same charge of being highly objectionable in the collapse, for as re-action comes on their influence is felt by the system in a most injurious manner. Nature's method is always slow, she does not tax an enfeebled organ beyond its power, nor are we justified in endeavouring to remove the cold stage of Cholera by a large use of stimulants. As the warmth of the body and the action of the heart gradually return, we are rather called upon to moderate reaction than increase it, we must still consider that the poison is in the system, that the first shock has been borne, and that the constitutional powers are affording us further time to combat the disease. It appears but rational that the treatment which is right in the first must be also right in the subsequent stages, perhaps with some slight modifications, for if the disease depend upon a poison, as almost all admit, our main object must be, under all circumstances, to rid the system of that poison, and any medicine which shall be applicable at all periods of the disease offers, to my mind, the fairest chance of being, as far as human means can be, an effectual remedy. With this view I cannot help thinking that the calomel treatment approaches, if it does not accord with the advice of Mr. Kennedy,

“the treatment of the second stage of acute Cholera should be nearly altogether of a negative character.” I will continue the quotation from Mr. Kennedy’s work on Cholera, as it seems to convey most forcibly the great fact connected with collapse in the epidemic Cholera, that it is quite intractable as far as medicine is concerned. He says: “Overwhelmed by the extreme violence of the symptoms, the resources of the almost exhausted constitution cannot be recruited through the medium of artificial aid, administered by the stomach. The hope of a favourable change must chiefly be entrusted to time and the efforts of Nature; and scarcely any thing should be done by the physician in the way of lending assistance beyond the application of dry heat to the body of the patient. By applying heat steadily to maintain the temperature of the solids and fluids of the system, at a height sufficient to preserve them from becoming decomposed or inert, the patient will have extended to him the only remaining chance of recovery—the chance which a state of collapse like sleep sometimes affords.”—“Under the negative treatment every hope of recovery will be strengthened, and death, where it does occur, will always be a consequence of the disease, and not of the improper use of medicines.”

“Should the resources of the constitution, however, rally, and succeed in bringing about reaction, the strong medicines which were poured into the

stomach while its functions were paralyzed, and retained within it, as in a lifeless vessel, will then be enabled to act, and the violent stimulus thus given to the returning vitality, will either check its progress, and destroy the patient before reaction is completely established, or aggravate the consecutive fever to the destruction or imminent danger of life."

These opinions are formed upon a considerable experience of the disease both in India and in England, and though the mode of treatment which Mr. Kennedy adopted is not that which would be approved by the profession generally, his book contains so much valuable information concerning the disease, that I cannot help thinking had this work been attentively read and carefully studied, there would not be so much cause for lamentation as regards the difference of opinion among medical men on the subject of Epidemic Cholera.

That much mischief has arisen for the want of a proper understanding as to the nature of the disease, cannot be questioned. I do not allude to the causes, but to the symptoms of the Epidemic Cholera. I have before stated my opinion that the disease may exhibit itself, in various forms, and it is to a careful study of all disease which presents itself to our notice, at the time of the visitation of Cholera, that we must look for more definite and scientific information on the much mooted subject,

what are symptoms premonitory, and what those consecutive of a developed attack.\*

The following cases are recorded by Mr. Thomas Johnson, who had charge of my practice during an unavoidable absence. The whole of the cases occurred in the space of fourteen days, with others, which are given in a separate table.

Mr. Johnson,† who practised the use of the medicine under my directions during the fortnight of my absence, wrote me thus on the 12th day of September, having had just twelve days' experience of the remedy: "I am certain the sulphur is almost infallible, and what has most particularly struck me is that you have no consecutive fever after its administration, let the case be ever so severe: not one case has proved fatal."

Male, æt. 35. Attacked Sept. 3, 6 p. m., with severe cramps of bowels and extremities, vomiting, and purging. First seen 8 p. m. The tongue and breath cold, surface of body cold, pulseless; rice-water evacuations, and incessant vomiting; lips and nails blue, features pinched, choleraic voice. Gave the sulphur mixture, with 10 drops of Tr. Opii. 12 p. m. After the fourth dose, the sulphur was retained; the vomiting then ceased, and the purging became less frequent. 4th. Continued mist. sulph.

\* It is stated, in Dr. Bird's pamphlet, that albuminous urine is a test for Choleraic Diarrhœa, but I am informed, on undoubted authority, that this is not really borne out by experience.

† Mr. Thos. Johnson, of Weymouth.

without the opium, under which the patient gradually improved. 7th. Recovered.

Male, æt. 17. Sept. 7, 8 p. m. Cramps, purging and vomiting for twenty-four hours before seen. Gave sulphur mixture every half hour, until the vomiting ceased. 8th. Purging was diminished; occasional pains in abdomen; continued the sulphur. 9th. Removed to his father's, in London, when he continued to use the sulphur, and ultimately recovered.

Sept. 8, I was called to see a woman who had an attack of violent pains in the bowels, purging and vomiting. I gave her the sulphur mixture every ten minutes, until the vomiting was checked. Sept. 9, the vomiting and purging had ceased, and she made a rapid recovery. In the same house with this woman two persons were lying dead of Cholera, and a child seven months old in a state of collapse. I was urgently requested by the father to render assistance in his distressing condition. I gave the sulphur mixture, and was surprised to find, the next day, the child much improved. The father, a very intelligent man, said, "the medicine acted in a very remarkable manner, for after the third dose, the vomiting and purging were less frequent, the mouth and surface of the body became warm;" this patient gradually improved, and on the fourth day of my attendance, was removed by the friends to Uxbridge.

Male, æt. 30. First seen, Sept. 3, 10 A.M. Suffer-

ing from severe cramps of the bowels and extremities, incessant vomiting, with rice-water evacuations, tongue cold, pulse scarcely perceptible—gave sulphur every half hour, until the vomiting and purging had abated, and the cramps ceased. 4th, continued mixture every third hour—on the 7th, able to get up. Recovered.

Female, æt. 28. Attacked suddenly, Sept. 3, 8 A.M. with cramps of the bowels, and vomiting, pulse very weak, countenance pale and anxious, surface of body, tongue, and breath cold. 10 A.M. Much better, cramps removed, vomiting mitigated, but diarrhœa had come on; continued the sulphur. 10 P.M. Both vomiting and purging ceased, pulse full and quick, tongue hard and furred, countenance flushed; continued mixture until the 6th. Recovered.

Female, æt. 19. Attacked Sept. 5th, 11 A.M. Surface of body cold, tongue cold, incessant vomiting, rice-water evacuations, cramps of bowels—gave the sulphur mixture, with laudanum. 6th, Little better, continued the mixture. 7th, Reaction, with fever. 8th, Skin moist, pulse quick, vomiting and purging ceased, tongue clean; ordered beef tea and ammonia.

Male, æt. 40. Attacked Sept. 8th, 9 P.M. Surface of body and tongue cold, rice-water evacuations, incessant vomiting, cramps of bowels and extremities severe. Sulphur every half hour. 12 o'clock, A little better; continued sulphur

during the night. 9th, Much improved; vomiting stopped; evacuations changed, and not so frequent. 11th, Ordered beef tea and ammonia. 16th, Recovered.

Female, æt. 36. Attacked Sept. 5th, 9 P.M. Vomiting and purging, with little pain in the epigastrium; ordered sulphur mixture. 6th, Next day was much better. 7th, The purging and vomiting returned, with cramps of the bowels and extremities; continued the sulphur every two hours. 8th, Somewhat improved, evacuations watery, but black; continued sulphur. 10th day, Fever set in, ordered ammonia. *This person was within a fortnight, as she believed, of her confinement.* The fever continued during a few days, when it subsided, leaving her in a very exhausted condition. Amendment on the 17th—confined on the 18th—child still-born; supposed to have been dead from the time of her attack. 19th, Progressing favourably. 24th, Making a rapid recovery.

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## CONCLUSION.

ON looking over what has been said in the preceding pages, I have felt how imperfectly the task imposed upon me has been accomplished. The active employment of a general practitioner's life, leaves him little time for severe study; and, under the present system of medical affairs, much less than might be afforded under better arrangements.

The time occupied in dispensing medicines and keeping day-books and ledgers, should be applied to making a systematic arrangement and record of cases, in studying works on medicine, and reading those on general literature, (for refinement of mind is by no means an element to be despised in the character of the medical practitioner,) and in the practice of chemical manipulations, materials for which he will find ample means supplied to him even in a very moderate practice. Indeed in the advanced and rapidly advancing state of science it requires no inconsiderable portion of time to keep pace with the progress of any branch of scientific knowledge; how much more difficult then must it be to the medical man who has to grapple with chemistry, physiology, pharmacology, pathology, and many other ologies which come within the range of medical inquiry, to accomplish a duty great in itself, without the drudgery of ordinary business.

Until our profession, *as a whole*, shall have cast off the trammels of trade, it will neither obtain the

merit, nor secure the esteem of which it is capable, because the people, generally speaking, look to the physic, not to the physician's talent, as that which is to be paid for. The medical practitioner is therefore associated in their minds with tradesmen, and if his account is asked for in detail, a rigid attention must be paid to the items of draught, mixtures, pills, powders, and lotions, or he will perhaps hear of it again, and not in the most pleasant manner. His accounts at present must be based on that principle, or the law affords him no security in case of disputes. Much more might be said on this subject, but let me apply the observations to our present position as regards Epidemic Cholera.

The result of the peculiar method of obtaining remuneration for services rendered by our profession, clearly shewn to be at the expense of additional professional acquirements, and in a commercial country like this, that such a state of things *should have* existed is not to be wondered at; but in our enlightened times, as the present are considered, what system can be worse than one which causes a professional man to occupy his time in the business of a pharmacist and a book-keeper, instead of storing his mind with useful information. The public are clearly the losers by this system, and nothing can be more certain than this, that at the termination of the present epidemic, when statistical information might have afforded materials for an able digest of all that had occurred during the prevalence of Cholera, connected with

medicine or otherwise, it will be found, as after 1832, that statistical records will not avail in furthering the advancement of medical science, from the simple fact, that no well concerted method has been applied to meet this desideratum.\*

The professional men, as they are at present engaged, have neither the opportunity nor the inclination to devote themselves *as a body* to professional attainments, their mode of conducting business almost precludes the possibility of success, even under the most strenuous exertions. The great bulk of the practices of this country average from £300 to about £800 per annum; they are generally conducted by single individuals. What an amount of toil and labour has to be borne to obtain these incomes, small as they are; the mental anxiety suffered when much sickness and mortality prevail, or during attendance upon any dangerous cases, can scarcely be conceived by those who are unconnected with the profession. Let any man ask his professional adviser what leisure he finds during the year, he will then discover the cause of differences of opinion, want of unanimity, uncertain results of inquiries upon important subjects connected with public health, and all the attendant train of evils inseparable from the present state of medical affairs.

\* I suggested a form for obtaining accurate information on this subject in the *Lancet*, accompanied by a letter. It met with the approbation of many of the profession, but has never been adopted.

# CHOLERA AND CHOLERAIC DIARRHŒA

## TREATED BY SULPHUR.

*Diarrhœa and Vomiting.*—X signifies the primary affection. Y signifies the subsequent affection. S superadded signifies severe. Y n signifies Nausea.

*Spasms.*—B, Bowels. B B, Severe. E, Extremities. E E, Severe.

*Evacuations.*—W signifies that in all the cases thus marked there were the characteristic signs of the disease.

*Pulse.*—F, Feeble, Fluttering. S, Sinking with general depression.

*Fever as the Sequelas.*—F, under that head.

*Treatment.*—E. O. & S, Ether, Opium, and Sulphur.

Case.	Age.	Male.	Female.	Diarrhœa.	Vomiting.	Evacuation.	Spasms and Cramps.	State of Pulse.	Collapse.	Sequelæ.	Treatment.
1	45	..	1	X	Y	W	B E	F	....	..	E & O. & S
2	33	..	1	X	Y n	..	B	....	....	..	S
3	45	..	1	X	Y n	..	B	....	....	..	S
4	30	..	1	X	Y	..	B B	....	....	..	E & O. S
5	40	..	1	X	Y	..	B & E	....	....	..	E & O. S
6	65	..	1	X s	Y n	..	B	....	....	..	E & O. S
7	20	1	..	X	Y	..	B	....	....	..	S
8	10 m.	..	1	X	Y	W	....	....	....	..	S
9	50	..	1	X	Y s	W	B & E	S	....	..	E & O. S
10	22	1	..	X	Y n	..	B	....	....	..	S
11	20	..	1	X	Y	..	B B E	....	....	..	E & O. S
12	18	1	..	X	Y	..	B	....	....	..	S
13	35	1	..	X	Y n	W	B E	....	....	..	S
14	40	1	..	X	Y n	..	....	....	....	..	S
15	36	..	1	X s	Y n	W	B B	S	....	..	S
16	34	1	..	X	Y	W	B & E	....	....	..	S
17	50	..	1	X	Y	W	B E	....	....	..	S
18	34	..	1	X	Y	W	B	....	....	..	S
19	42	..	1	X s	Y s	W	B	....	....	..	S
20	25	..	1	X	Y	W	B B	....	....	..	S & O. & S
21	22	..	1	X	Y	W	B	....	....	..	S
22	65	1	..	X	Y n	W	B	F	....	..	S
23	31	..	1	X s	..	..	B	....	....	..	S
24	41	..	1	X s	Y n	W	B	F	....	..	S
25	30	1	..	X s	Y s	W	B & E	F	....	..	S & O
26	2	1	..	X s	Y s	W	B	F	....	..	S & O
27	18	..	1	X s	Y n	W	B	F	....	..	S [died.
28	6	1	..	..	..	..	....	none	Collapse	..	S & Packing
29	20	..	1	X s	Y n	W	B	....	....	..	S
30	58	..	1	X s	Y n	W	....	....	....	..	S
31	40	1	..	..	X s	..	B B E E	F	....	..	E O S
32	52	1	..	X s	Y s	W	B B	F	....	..	E & O. S
33	49	..	1	X s	Y n	W	B B	F	....	..	S
34	34	1	..	X s	Y n	W	B	....	....	..	S
35	64	1	..	X s	Y s	W	B E	F	....	..	S & O
36	55	1	..	X s	Y	W	B E	F	....	..	S & O
37	69	1	..	X s	Y n	W	B	F	....	..	S & O
38	42	1	..	X s	Y s	W	B E	....	....	..	S & O
39	45	..	1	X s	Y	W	B & E	....	....	..	E & O. S
40	16	1	..	X s	Y n	W	B	....	....	..	S
41	18	1	..	X s	Y s	W	B & E	....	....	..	S & O
42	35	1	..	X	Y s	..	B B E E	....	....	..	E & O. S
43	18	1	..	..	X	..	B B E E	....	....	..	E & O. S
44	15	1	..	X	Y n	..	B	....	....	..	S & O
45	19	..	1	X	Y n	..	B	....	....	..	S
46	40	1	..	X	Y s	..	B E	....	....	..	S & O
47	54	..	1	X	Y	..	B	....	....	..	S

Case.	Age.	Male.	Female.	Diarrhoea.	Vomiting.	Evacuation.	Spasms and Cramps.	State of Pulse.	Collapse.	Sequelae.	Treatment.
48	52	1	..	Xs	Ys	W	B	....	....	..	S & O
49	23	..	1	Xs	Ys	W	B & E	F	....	..	S & O
50	48	1	..	Xs	Yn	W	B	....	....	..	S
51	36	1	..	Xs	Yn	W	B	....	....	..	S
52	34	..	1	Xs	Y	W	B	....	....	..	S
53	24	..	1	X	Y	..	B & E	....	....	..	S & O
54	35	1	..	X	Ys	W	B B	....	....	..	E & O. S
55	2	1	..	X	Y	..	B	....	....	..	S
56	33	..	1	Xs	Ys	W	BBEE	....	....	..	E & O. S
57	35	..	1	Xs	Ys	W	BB & E	Sinking	....	..	E & O. S
58	21	1	..	Xs	Y	W	BBE	F	....	..	E & O. E
59	22	1	..	Xs	Yn	W	B	F	....	..	S
60	50	1	..	X	Yn	W	B	....	....	..	S
61	54	..	1	Xs	Ys	W	BBEE	Scarce p.	....	..	E & O. S
62	10	1	..	X	Y	W	BB	F	....	..	S
63	9	1	..	Xs	Ys	W	B & E	F	....	..	S & O
64	32	1	..	Xs	Yn	W	B	F	....	..	S & O
65	4 m.	1	..	Xs	Ys	W	B	S	....	..	S
66	22	..	1	Xs	..	W	B	S	....	..	S
67	8	1	..	Xs	Ys	W	B	....	....	..	S
68	26	1	..	X	Y	W	B	....	....	..	S
69	47	..	1	Xs	Ys	W	BBEE	S	....	..	S & O
70	50	..	1	Xs	Ys	W	B & E	S	....	..	S
71	60	1	..	X	Y	W	B	....	....	..	S
72	56	..	1	Xs	Ys	W	BBEE	F	....	..	S & O
73	52	..	1	Xs	Ys	W	B & E	S	....	..	S
74	63	..	1	Xs	Ys	W	....	F	....	..	S
75	14	1	..	Xs	Ys	W	....	F	....	..	S
76	41	..	1	Xs	..	W	....	....	....	..	S & O
77	50	..	1	Xs	Ys	W	BBEE	noe	Collapse	Death	S & O. E S
78	3	..	1	X	Y	W	....	....	....	..	S
79	2	1	..	X	Y	W	B	....	....	..	S
80	28	..	1	Xs	Ys	W	BB	F	....	..	E & O. & S
81	10 m.	..	1	Xs	Ys	W	....	....	....	..	S
82	36	1	..	Xs	Ys	W	BBEE	....	....	..	S & O
83	79	1	..	X	Y	W	B	....	....	..	S & O
84	24	1	..	Xs	Ys	W	BBEE	....	....	..	E & O. S
85	37	1	..	..	Xs	..	B	S	....	..	S
86	35	..	1	Xs	Ys	W	BB	....	....	..	S
87	23	1	..	..	Xs	..	BBEE	S	....	..	E & O. S
88	38	..	1	Xs	Y	W	B	F	....	..	S
89	56	..	1	Xs	Y	W	BB	F	....	..	S O
90	37	..	1	Xs	Ys	W	B & E	F	....	..	S
91	52	..	1	X	..	W	B	F	....	..	S
92	55	1	..	X	Y	W	B	....	....	..	S
93	49	1	..	Xs	Ys	..	BBE	F	....	..	S
94	33	1	..	Xs	Ys	W	BBE	F	....	..	S
95	52	..	1	Xs	Ys	W	B	S	....	..	S & O
96	25	1	..	Xs	Y	W	B	....	....	..	S
97	49	..	1	Xs	Y	W	B	F	....	..	S
98	61	..	1	Xs	Y	W	B	F	....	..	S & O
99	21	..	1	X	Ys	W	BBEE	S	....	..	E & O. S
100	18	1	..	Xs	..	W	B	F	....	..	S [ing
101	50	1	..	..	..	..	....	none	Collapse	Death	E & S Pack-

## MR. JOHNSON'S CASES.

Case.	Age.	Male.	Female.	Diarrhoea.	Vomiting.	Evacuation.	Spasms and Cramps.	State of Pulse.	Collapse.	Sequelæ.	Treatment.
1	24	1	..	X s	Y s	W	B	....	....	....	S
2	23	1	..	X s	..	W	B	....	....	F	S
3	14	1	..	X s	Y s	W	B & E	Pulseless	....	....	S & O
4	19	..	1	X	Y s	W	B	F	....	F	S
5	32	1	..	X s	X	W	B & E	F	....	F	S & O
6	42	1	..	X	Y	W	....	....	....	....	S
7	30	..	1	X s	Y s	W	B & E	Pulseless	....	....	S & O. E
8	39	1	..	X s	Y	..	B	....	....	....	S
9	40	1	..	X	..	W	B	F	....	....	S
10	7 m.	1	..	X s	Y	W	....	F	....	....	S
11	60	1	..	X s	Y s	..	B & E	F	....	....	S
12	34	..	1	X s	..	W	B	....	....	....	S
13	30	..	1	X s	Y	W	B & E	F	....	F	S
14	18	..	1	..	Y s	..	B & E	Sinking	....	....	S & O. E
15	38	1	..	X	Y	W	....	....	....	....	S
16	29	1	..	X s	..	W	B	....	....	....	S
17	40	1	..	X	Y	W	B	F	....	....	S & O
18	39	..	1	X s	Y s	W	B	F	....	....	S
19	49	1	..	X s	..	W	....	....	....	....	S
20	31	..	1	X s	..	W	B	....	....	....	S
21	40	..	1	X s	..	W	....	....	....	....	S & O
22	30	..	1	X s	Y s	..	B	....	....	....	S
23	39	..	1	..	Y s	..	B	....	....	....	S
24	30	..	1	X	Y	W	B	....	....	....	S
25	20	1	..	X s	Y s	W	....	....	....	....	S & O
26	49	..	1	X s	Y s	W	B & E	Sinking	....	....	S & O
27	54	..	1	X s	Y s	W	B & E	Sinking	....	....	S & O
28	18	..	1	X s	Y	..	B	....	....	....	S
29	37	..	1	X s	Y s	..	B	....	....	....	S
30	18	1	..	X s	Y s	W	B	F	....	....	S
31	34	..	1	X s	..	W	B & E	....	....	....	S & O
32	15	1	..	X s	Y	W	B	F	....	....	S
33	15 m.	..	1	X s	Y s	W	....	F	....	....	S
34	39	1	..	X s	Y	W	B & E	F	....	....	S
35	40	1	..	X s	Y s	W	B B	Sinking	....	....	S & O
36	50	1	..	X s	Y s	W	B & E	F	....	....	S
37	39	..	1	X s	Y	W	B	....	....	....	S
38	19	..	1	X	Y	W	B	F	....	....	S

None of the cases recorded in these Tables were of a simple nature : in each there was some peculiarity which gave cause for alarm and anxiety.

It was much desired to furnish a more complete Table, which should have supplied an extended account of symptoms ; but the extreme exertion necessary to meet the demands made on my time precluded the possibility of keeping an accurate record of each individual case.

As a general rule, I may say, the evacuations were colourless and serous, or serous and flaky. The skin cold, and the pulse much below the natural standard. The urine was in most instances suppressed.

It will be observed, that sickness does not always attend upon an attack, though nausea more or less does so invariably. The case of the man who was found collapsed in the road had neither pain nor sickness until the collapse came on, though I heard he had suffered from diarrhoea which he neglected.

I have not recorded any cases as collapsed unless the pulse had quite left the wrist, though many of the patients, from the coldness, as well as lividity of their surface, and extreme depression of the circulating system, might be considered in that condition, and doubtless would be recorded so by many practitioners.

It will, of course, be understood, that tonics and stimulants were sometimes required to restore patients from the depression and debility frequently attendant on the disease.