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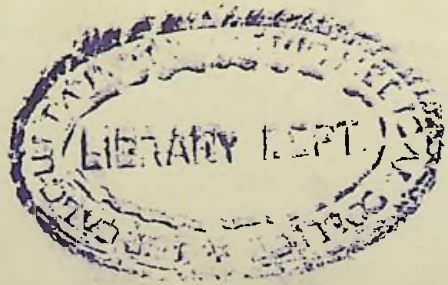
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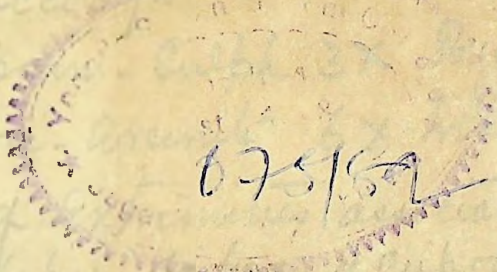
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Symptoms
Opium - Cuprous salt
Success
Cuprous salt
Cuprous salt
Collapse - symptoms of Cuprous
Scale 1 to 3. may half hour
Collapse - symptoms in Arteries
Cuprous in Concentration page 25
Typhoid symptoms - Tympanic
in absence of Urine - distribute
Success - Red spot - Sulphur
oxalic acid - Page 263

LECTURES

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ON

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CHOLERA

AND ITS

HOMŒOPATHIC TREATMENT

BY

L. SALZER M.D.



Handwritten red scribbles and the word 'Ranchi' written vertically in red ink.

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INTRODUCTION.

The name of the late Doctor L. Salzer is too widely known and revered in the medical world to need any introduction at our hands. In bringing out this second edition of his "Lectures on Cholera and its Homœopathic Treatment," we greatly lament that the most eminent Doctor could not have been spared by Providence to supervise the work himself. We have, however, spared no pains to collate and put in order all his own copious notes, being the results of his later and more extensive experience in the treatment of this dread disease. We now commend the results of our labour to the favourable reception of the public.

Though the present edition is almost double the size of its predecessor and is printed in greatly superior style on fine paper, we have decided to offer it at the same price as before, the utility and benefit of the work to the public being of greater consideration than mere monetary gain.

In conclusion we must offer our heartfelt thanks to Mrs. Salzer and the Messrs. Knight for kind permission and help without which we could hardly have ventured to undertake the work.

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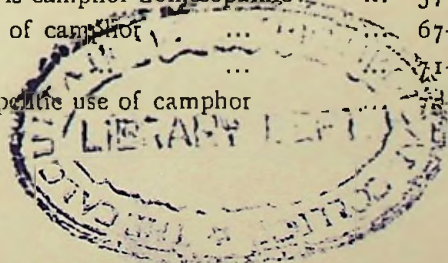
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PANCHI * CHOLERA

Its Homoeopathic Treatment.

GENTLEMEN,

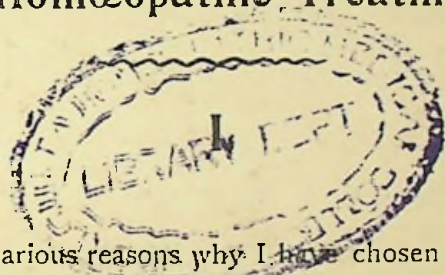
There are various opinions as to the efficacy of its homoeopathic treatment at the present time. The disease is still a well known epidemic and has been usually serious during the last season. It has generally felt—although having been somewhat less so. I cannot speak from personal experience, but have generally felt that, owing to its unusual violence, the last epidemic has more or less baffled the practitioners of Homoeopathy, less than the practitioners of the old school of medicine. The virulence of type is indeed a potent factor in the result of the treatment of diseases. All other circumstances being equal, it gives rise to a larger proportion of failures. We have not yet arrived at a mode of treatment which shall succeed altogether without leaving behind a residuum of death, so long as the disease, so long shall our homoeopathic treatment be relative—proportionate to an average epidemic of the disease. It would therefore seem that the homoeopathic system, and on our part, should be revised by the homoeopaths. A very large failure in certain epidemics has led to the abandonment of the system of our treatment altogether. It is the test of experience for those who



CHOLERA

AND

Its Homœopathic Treatment.



GENTLEMEN,

There are various reasons why I have chosen cholera and its homœopathic treatment as the subject of my present lectures. The disease, as you are well aware, is endemic in India, and has been unusually severe during the last season. It has been generally felt—although having been absent from India, I cannot speak from personal experience—it has been generally felt that, owing to its unusual virulence, the last outbreak has more or less baffled the practitioners of Homœopathy no less than the practitioners of the old school of medicine. Now, virulence of type is indeed a potent factor in the result of the treatment of diseases. All other circumstances being equal, it gives rise to a larger proportion of failures. We have not yet arrived at a mode of treatment which shall wipe off Disease altogether without leaving behind a residuum of death. And so long as this is the case, so long shall our therapeutic success be relative—proportionate, in an inverse manner, to the severity of the disease. It would therefore betray a lamentable state of mind on our part, should we, moved by the sight of a comparatively large failure in certain epidemics, lose confidence in the system of our treatment altogether, a system which has stood the test of experience for more than three quarters of a century.

On the other hand it would be no less fatal to our cause, should we, in the presence of overwhelming failures, insist on grinding at the same therapeutic mill as we have done for the last half a century, regardless of what comes out of it. Such a proceeding would bring upon us the very same reproach as we are ever so ready to heap upon our friends of the old school of medicine—the reproach of routine practice. It will therefore be our task to inquire, whether we have not altogether run into a groove with regard to our treatment of cholera; whether we have not held fast to our traditional mode of procedure, while the type of the disease may have gradually changed.

There are other weighty reasons why I have chosen cholera as a subject of these lectures. It has been said, and truly said, that the Homœopathic treatment of cholera has been the pioneer of Homœopathy all over the world. He therefore who has to make some useful suggestions concerning the treatment of cholera, will not only have benefited a certain branch of therapeutics, but will at the same time have helped on the spread of Homœopathy in general. It behoves us therefore to consider, in how far our mode of treatment of cholera, as laid down by Hahnemann, is amenable to improvement, if not to perfection.

Indigenous as the disease is to India, its waves often spread from the shores of the Ganges over the seas, devastating large tracts of human habitation in Europe and America. What better could we then do for those countries, who suffer so severely through us, though through no fault of ours, than to give them the best of our experience in the treatment of this dire disease.

That our homœopathic treatment of cholera, as usually carried on now a days, is far from being perfect, our statistics will show, even if there were no outbreaks of unusual virulence. The mortality of cholera patients when left to

D. MACKENZIE
MARCH 1865

themselves amounts in the average to 50 per cent while under homœopathic treatment the mortality is said to be reduced to about 26 per cent in the average. (See Appendix II.) I shall not enquire for the present in how far statistics derived from one or two hospitals during an outbreak of cholera are entitled to be set up as the average standard for all times to come. Anyhow, Homœopathy at her best, could claim to have saved 24 out of every hundred patients who would naturally have succumbed. This is a great deal, if generally true, but it nevertheless shows at the same time how large a margin there is anyhow yet left for improvement.

So much is sure that cholera has paved the way to Homœopathy all over the world, India not excepted. There is one particular circumstance connected with the homœopathic treatment of cholera, which has, no doubt, to a large extent contributed to the spreading of a blessing,—a blessing which the world at large has hardly yet begun to realize to its full merits. It is this, namely that the treatment of cholera as laid down by Hahnemann is so simple, that any layman of average intelligence can easily carry it out. Here are Hahnemann's instructions :

“When cholera first appears, it usually manifests itself somewhat in the following manner. The strength of the patient suddenly sinks, he cannot stand upright, his expression is altered, the eyes sunk in, the face bluish and icy cold, as also the hands, with coldness of the rest of the body ; hopeless discouragement and anxiety, with dread of suffocation, is visible in his look ; half stupified and insensible, he moans or cries in a hollow, hoarse tone of voice* ; without making

* Bambery noticed that in cholera there is impaired sensibility of the larynx, on the other hand Dr. Mackenzie (Reynolds Vol. II. P. 36) states that some morbid phenomena of a functional character such as a vocalist's inability to produce certain notes which previously could be easily formed

any distinct complaints, except when asked : burning in the stomach and gullet, and cramp-pain in the calves and other muscles ; on touching the precordial region, he cries out ; he has no thirst, no sickness, no vomiting or purging.

“ In the first stage *camphor* gives rapid relief, but the patient's friends must themselves employ it, as this stage soon ends either in death or in the second stage, which is more difficult to be cured, and not with *camphor*. In the first stage,

are probably in some cases where the larynx appears healthy, due to impaired muscular sensibility. The hoarseness of a cholera patient in whom the nerves of the vocal cord have been dessicated by a profuse loss of water appears then to be purely nervous in its origin. There is some loss of laryngeal sensibility or muscular power from the very beginning which must no doubt contribute to intensify the Dyspnœa (See P. 211.) As a matter of curiosity in connexion with the above it may be worth mentioning that according to Dr. Vincent Richards in his land marks of snake poison literature P. 132 states the Ptomaines generated in the bowels of choleric patients when injected in animals produce results similar to those produced by cobra bites. Our school has up to date not yet tried any of the ptomaines clinically ; so the above must for the time being stand as a mere curiosity. It is however worth noticing that ptomaines are not as generally believed mere post-mortem products of putrefaction, but that such products are generated during the life time of patients and that they often suffer from the effects of a kind of self-poisoning (See Pharmacology therapeutics and Materia Medica by Lauder Brunton London 1885, P. 350) even the mere absorption of retained fecal matter causes a state of pathological disorder, known by the name of coproœmia. It would then appear that the cholera ptomaines are the products of the cholera bacilli ; so that the cholera bacilli produce cholera, while their product produces some poison like that of cobra poison. And as microzymes are best killed by their own product, an injection of these ptomaines would no doubt kill the bacilli, but would unfortunately kill the patient first. Whether we would under the circumstances fare better by injecting cobra poison remains to be seen. So much is sure that cholera poison is certainly not similar in its action to cobra poison, and could not be applied on the principle of *similia similibus* (See DeBary on Bacteria. Oxford 1867, P. 159).

accordingly the patient must get as often as possible (at least every five minutes), a drop of spirit of camphor (made with one ounce of camphor to twelve of alcohol), on a lump of sugar, or in a spoonful of water. Some spirit of camphor must be taken in the hollow of the hand and rubbed into the skin of the arms, legs and chest of the patient ; he may also get a clyster of half-a-pint of warm water, mingled with two teaspoonfuls of camphor, and from time to time some camphor may be allowed to evaporate on a hot iron, so that if the mouth be closed by trismus, and he can swallow nothing, he may draw in enough of camphor vapour with his breath.

“ The quicker all this is done at the first onset of the first stage of the disease, the more rapidly and certainly will the patient recover ; often in a couple of hours warmth, consciousness, rest and sleep return, and he is saved.

“ If this period of the commencement of the disease, so favourable to recovery and speedy cure, by the above indicated employment of camphor, has been neglected, then things look worse ; then camphor is no longer serviceable. There are moreover cases of cholera, specially in northern regions, where this first stage, with its tonic spasmodic character, is hardly observable, and the disease passes instantly into the second stage of clonic spasmodic character : frequent evacuations of watery fluid, mixed with whitish, yellowish, or reddish flakes, and along with insatiable thirst and loud rumbling in the belly, violent vomiting of large quantities of the same fluid, with increased agitation, groaning and yawning, icy coldness of the whole body, even of the tongue, and marbled blue appearance

After due reflection it appears however that the matter stands thus. The cholera bacilli produce a ptomaine which ptomaine produces cholera in man and in animals when properly injected. On the other hand the ptomaine of the cholera victims (not of the bacilli) has been found to be equal in its action to cobra poison. It would be interesting to know what the toxic action of the ptomaines of cobra victims is like.

of the arms, hands and face, with fixed sunken eyes, diminution of all the senses, slow pulse, excessively painful cramp in the calves, and spasms of the limbs. In such cases the administration of a drop of camphor spirit every five minutes must only be continued so long as *decided* benefit is observable (which with a remedy of such rapid action as camphor manifests itself within a quarter of an hour). If in such cases decided benefit is not soon perceived, then no time must be lost in administering the remedy for the second stage.

“The patient is to get one or two globules of the finest preparation of *copper* (prepared from metallic copper in the mode described in the second part of my work on Chronic Diseases), thus *cuprum* 0, 00 X, moistened with water, and introduced into his mouth every hour, or every half-hour, until the vomiting and purging diminish, and warmth and rest are restored. But nothing else at all must be given beside; no other medicine, no herb tea, no baths, no blisters, no fumigation, no venesection &c., otherwise the remedy will be of no avail. Similar good effects result from the administration of as small a portion of white hellebore (*veratrum album*. 0, 00 X); but the preparation of copper is much to be preferred, and is more serviceable, and sometimes a single dose is sufficient, which is allowed to act without a second being given, as long as the patient's state goes on improving.

“The wishes of the patient of all kinds are only to be indulged in moderation. Sometimes, when aid is delayed many hours, or other and improper remedies have been administered, the patient falls into a sort of typhoid state, with delirium. In this case, *bryonia* 00 X, alternately with *rhus tox.* 00 X, proves of eminent service.”

What strikes us most forcibly in these instructions, is the absence of all individualisation. Camphor is to be used first, and if camphor does not succeed, then *cuprum* is to be

administered, and "similar good effects result from the administration of as small a portion of *Veratrum album*." This want of individualisation is so much the more felt, as cholera is a disease so variable in its manifestation as almost to defy any conclusions drawn from previous observations. In Ziemssen's Cyclopædia of the Practice of Medicine we read that almost every epidemic in Europe has its own peculiar physiognomy, that it varies markedly in intensity and extent in different localities, that it often begins with the lighter forms and then passes into the graver, which may then prevail to the end ; but it may also prevent a high mortality from the start and that in the same epidemic there is such a complexity in the manifestation and course as can scarcely be exhibited in the most faithful description. After this it is not a little surprising that with the small number of Homœopathic remedies hitherto at our disposal we have done what we did. (For particular modes of cholera see a description in Arndt's book, article on cholera.)

This absence of individualisation on the part of Hahnemann and his followers has no doubt greatly helped to facilitate, and, as a consequence, to introduce and spread the homœopathic treatment of cholera. But what has proved thus far our strength, must on the other hand often have proved itself to be one of the greatest shortcomings in the result of our cholera treatment.

When we remember under what circumstances the rule of the cholera treatment had been pronounced by Hahnemann, we shall find moreover that our master could hardly have acted otherwise than he did. Hahnemann, by the time cholera reached Europe, lived in Coethen, secluded from the world, a self-made prisoner, in order to avoid as much as possible any contact with a world that had nothing but ridicule, for a discovery, destined to revolutionise the whole science of medicine,

His disciples, before they even had the opportunity of seeing a case of cholera themselves, and simply on the strength of what they could learn from hearsay of the nature of the disease,—then entirely new to Europe—his disciples had asked him, how they have to behave in the case the spreading epidemic should reach their abodes. Hahnemann, under the circumstances did what he could; he pointed to the drugs most likely to be useful in the cholera type described to him, leaving individualisation and eventual addition of other drugs, to them who may have close opportunity for observation that neither the one nor the other had been attempted by his disciples, who evidently had availed themselves of their master's suggestions, can best be judged from the tenor of the above quotation, in which indications are not wanting to show that the same must have been written after confirmatory clinical experience had been gathered by the writer.

Nevertheless, as it is, Hahnemann has left us a most graphic description of two cholera varieties prevalent at his time. The one was what we would call now-a-days malignant cholera, the other spasmodic variety of cholera. In these varieties and particularly in the latter it is not so much the blood as the nervous system which is primarily impressed by the cholera-poison. The evacuations, at the very onset of the disease, are not necessarily void of all traces of bile; at any rate cholera is fully established before the discharges have assumed the ricewater character. Death may actually take place before the manifestation of any choleraic evacuations, simply in consequence of spasmodic contraction of the arteries, especially of the minute pulmonary arteries, whereby the circulation of the blood is impeded.

As to the action of the heart in the first stages of the spasmodic variety of cholera, that is to say the stages

preceeding collapse, it may best be described in the words of Surgeon-Major A. R. Hall of the Army Medical Department, who happened to have an attack of cholera himself. "While my skin was blue and cold, he says, and while no pulse could be felt at the wrist, the heart was beating more forcibly than usual." And then he continues "The heart and all the arteries in the body are in a state of spasmodic contraction; the muscular walls of the heart, therefore, work violently and squeeze the cavities, so that the whole organ is smaller than it ought to be; but it cannot dilate as usual, and so cannot receive much blood to pump to the wrist."—Of course this description would not suit the state of collapse; for in that state the heart shows unmistakable signs of exhaustion.

Malignant or spasmodic cholera attacks people in good health; there is as a rule, no premonitory diarrhœa.—In India, where the spasmodic variety is rather the exception than the rule, the premonitory symptoms are vertigo and noise in the ears, the latter sometimes so loud, as to have been compared to the humming of a swarm of bees, to the beating of drums in the camp, or to the roaring of the surf as on the Coromandel Coast (Aitken).

Both the premonitory symptoms—if there are any—and the phenomena manifesting themselves during the first stage of the spasmodic variety of cholera, strongly point then to a neurotic disorder. I do not mean to say that the blood in the first stage of the spasmodic variety remains in a healthy, normal state. For the venous congestion which must necessarily ensue in consequence of the phenomena above described, cannot fail to render the blood charged with an abnormal amount of carbonic acid, and as such, more or less unfit for the maintenance of life at a normal rate. But there are not the slightest reasons to suppose that the blood is primarily affected in the spasmodic variety of cholera. Even the

discharges from mouth and rectum, so peculiar to cholera manifesting themselves at the further stage of the disease, do not directly point to a primary hæmatic disorder ; for it can easily be shown that such disorders are traceable to a disturbance of the vaso-motor nerves. It appears, says Dr. Goodeve, that at least two great sets of capillaries and small arteries are involved in the effects of cholera-poison, those of the lungs and intestines. They seem to be very differently influenced by it. In the lungs very little of the blood passes freely through them. In the intestines an enormous quantity of certain of the blood elements passes through the capillary walls in the exudation period. In both of these sets of action, parts of the nervous system appear to be under the morbid influence. In the lungs the muscular fibres of the small arteries seem thrown into a state of contraction. In the intestines a sort of paralysis of the smaller arteries and capillaries seem to exist, such as occurs in the section of the sympathetic nerve in the neck in Claude Bernard's well-known experiment. That the morbid action in the lungs is of nervous character seems probable from the absence after death of any discoverable mechanical obstacle to the passage of the blood ; from the paroxysmal nature of the dyspnœa at first, and from the ease with which the pulmonary circulation is re-established when recovery begins.

Coming back in the course of his discussion upon the same subject, Dr. Goodeve remarks : " The nervous character of the action in the intestines seems probable from its analogy with the result of Claude Bernhard's experiments on the sympathetic, in some of which a section of that nerve in the neck caused the surface of the skin supplied by the vessels under its influence to manifest a considerable increase of the flow of blood, and to become at the same time bathed with sweat."

I would even go farther than Dr. Goodeve and maintain that there exists a natural, although by no means necessary

connexion between the two states of the blood-vessels above described.—It is the task of the vaso-motor centres to regulate the calibre of the blood vessels all over the body, and it does so by means of the vaso-motor nervous system. And we know how it is done. Stimulation of a vaso-motor nerve causes contraction, while depression causes dilatation of the arterial blood vessels under its control. When, therefore, the flow of blood stagnates in one part of the body, we may be sure to find some other region of the same body where there is a corresponding increase of the flow of blood; and under certain climatic conditions or epidemic influences, this increase, or flux of blood, is likely to take place within the abdominal viscera. In fact, a diarrhœa following a chill is an example—on a small scale, it is true, yet a fair example—of what is going on in spasmodic cholera at the stage of vomiting and purging. Cold, as is well known, has the effect of contracting the arterioles; there arises in consequence a local congestion; and we find often enough that such a congestion is followed by loose stools, as a sign of increased circulation and more or less serous exsudation within the intestinal canal.

We have then only to suppose the morbid agent in the case of cholera to be a specific poison—that is to say, a poison which, within certain limits, invariably observes the same course of action—in order to understand how it comes, that in this disease the venous congestion in the lungs is invariably connected with certain specific phenomena occurring within the alimentary canal.

In advocating the purely neurotic nature of this cholera variety I repeat, that I do not mean to say that the blood is, throughout the whole attack, free from any morbid changes, considering that it must necessarily become deficient in oxygen at the very onset of the disease; and in the measure as the disease advances and profuse watery discharges from

mouth and rectum take place in the shape of vomiting and purging, there is a new source of impoverishment of the blood ; known as it is, that these discharges contain, besides the watery portion of the blood, which in itself is of great importance, various salts in solution.

But while there cannot be the slightest doubt that the cholera poison tends to de-vitalise the blood of its victims it may still be doubted whether the hæmatic poisoning is brought about directly, or by means of the vaso-motor nerves. If we are entitled to judge from the march and nature of a phenomenon upon the way and mode in which it is brought about, then we cannot help coming to the conclusion, that in the spasmodic variety of cholera the spasms are primary, and all the further changes ensuing during the progress of the disease are secondary to those spasms. Of course, in speaking of the spasms peculiar to cholera as the source of all the ensuing disorders, I do not merely mean the spasms of the extremities, but those of the pulmonary arteries, as manifested at the onset of the disease by the intense dyspnœa.

This dyspnœa might be, and actually has been accounted for, by the supposition that the cholera patient labors all along under a state analogous to gaseous asphyxia. In fact some pathologists went actually so far as to call the spasmodic variety of cholera, cholera asphyctica. According to their view it was invariably and in all varieties, the blood which was primarily poisoned in cholera. The incipient dyspnœa, it was contended, is owing to the blood having been rendered unfit to absorb oxygen.

Since Dr. Parkes has however observed that the autopsy of cholera victims shows the pulmonary capillaries to be invariably empty; that the blood is moreover arrested within the arteries of the lungs, before reaching the capillaries, there cannot be any further doubt about the spasmodic nature of the

disease, at least as far as the pulmonary circulation is concerned.

I quote here again from Dr. Goodeve: "When death occurs in collapse, the disease has not lasted long enough to cause organic changes; such changes as there are, are chiefly in the distribution of the blood. The capillaries of the surface are empty and the blood is chiefly found in the large vessels of the lungs and right side of the heart and in the veins and various capillaries of the intestines."—And then Dr. Goodeve mentions that previous to Dr. Parkes's observation, it was commonly thought that the lungs are gorged all over with venous blood; but Dr. Parkes has shown, and his observations have since then been repeatedly confirmed, that the gorged parts in the lungs are the vessels on the right side of the heart and the pulmonary artery in the roots of the lungs, from the right side of the heart to the smaller branches. While the smaller vessels, the pulmonary capillaries, the pulmonary veins and the left side of the heart were nearly empty. In fact *the blood is not arrested in the capillaries of the lungs, as in common asphyxia, but in the arteries short of them.*

There can hardly be any doubt concerning the reason, why in cholera unlike asphyxia, the blood is prevented from entering the pulmonary capillaries; it is the contracted state of the small arteries which does not allow the blood to pass through them into the capillaries. And this contracted state again is owing to the spasm of the muscular coat of the arteries or, in first instance, to a morbid excitement of the vaso-motor nerves governing them.

Let us now compare the spasms occurring during a state bordering on asphyxia—spasms known as asphyctic convulsions—with what is going on in the spasmodic variety of cholera as described by Hahnemann.

When an animal is placed in a chamber, in which the air is rarified, the following occurs. With the impoverishment of oxygen which the blood undergoes under such circumstances, there is generally an increase in the carbonic acid of that fluid, and these changes in the gases of the blood as they make themselves felt in the medulla oblongata, the seat of the respiratory centres, at once cause the respiratory movement to become slower and deeper, under the influence of the accessory muscles of respiration; this change in the respiratory movements constitutes *dyspnœa*. *Dyspnœa* is a regulating act, for in the majority of cases it leads to an increase in the quantity of oxygen contained in the blood, and then itself ceases.—If the impoverishment in oxygen proceeds further, general spasms of all the muscles of the body set in (clonic convulsions); the centre which presides over these convulsions is situated in the medulla oblongata, so that we must suppose that the stimulus which leads to normal respiration, if it be increased beyond a certain degree, exerts its action not only on the respiratory, but on neighbouring centres which were normally less irritable. Later on a contraction of the muscular coats of blood vessels occurs which exerts an action upon the heart. (Hermann.)

The succession of abnormal phenomena in the case of threatened asphyxia is then as follows:—1. *Dyspnœa*. 2. Clonic convulsions, following more or less the rhythm of inspiration and expiration; then 3. Contraction of the blood vessels.

In the spasmodic variety of cholera we find however, turning to Hahnemann's description, the following succession of symptoms: 1. *Dyspnœa*, accompanied by *tonic* spasms and coldness all over, which means as much as contraction of the blood vessels. 2. Increased *dyspnœa* with *clonic* spasms.—Now the tonic spasms preceding the clonic ones, cannot be owing to the respiratory struggle; they must then be idiopathic.

While there can then hardly be any reasonable ground for dispute, as to the mode of action of the cholera poison in the spasmodic variety, there seems to be room enough left for difference of opinion, with respect to the non-spasmodic variety of the disease. In this variety which represents by far the majority of cases, at least in India there is always a premonitory stage, characterised by malaise, disordered digestion, diarrhœa. Cholera here is then ushered in by a state of mal-nutrition, which points to a vitiated state of the blood. The temperature of the body is besides not disturbed during the premonitory diarrhœa, so that there is hardly ground to accuse the vasomotor nervous system of the mischief going on in the visceral region. Here is what Professor Niemeyer has to say about this variety of cholera:

“Out of the villi, which are denuded of their natural protection, takes place a constant, copious transudation of serum into the gut; therefore the rice-water discharges upward and downward, by which cholera is characterised. These villi, being deprived of their epithelium, lose their capability of absorbing the fluid which the patient takes as drink; consequently the patient constantly loses fluid but gains none.—The next natural consequence of this must be, that the blood becomes dark and thick in later stages even black, tarry, ropy semi-coagulated. During the transudation into the intestinal canal, it appears that the diffusion currents from the blood into various structures are diminished, while on account of the density of the blood, the inverse currents from these structures to the blood are augmented in rapidity; in this way fluids are drawn from muscles, the viscera, and in fact from most of the tissues. Thus all the tissues become dry and reduced in volume; and nose becomes pointed, the cheeks fall in, the eyeballs sink back into their orbits, the skin wrinkles on the fingers like washer women’s and remains as a fold, wherever pinched, and even pathological

exudations, which had resisted all medication—for example serous exudations of the pleural cavities or within the synovial membranes of the joints—are completely absorbed, and morbid eruptions and ulcers become dry like parchment. And further it explains the cessation of all natural secretions, such as saliva, tears, sweat, urine and bile, simply because there is nothing more contained in the blood to be secreted.”

“Another consequence of the blood constantly losing its watery constituents is this: The circulation of the capillaries becomes impaired, if not entirely prevented. As soon as however, as this takes place in the capillaries of the heart-muscle, it causes, according to physiological and pathological experience, a paresis of the heart, and thus that characteristic feebleness and faintness of the heart's impulses and sounds, and the small, feeble, faint pulse of the radial and carotid arteries, in cholera; thus, also the cyanotic symptoms, the blueness of the skin everywhere, the blue tongue, by which severe cases of cholera are characterised.”

“On the same condition of the blood, also depends, that anguish for breath, and hunger for air—that deep inspiration and short moaning expiration—which is always present in severe cases of cholera; for, in order that free expiration be possible, it is necessary, not only that there should be a free admission of air into the air-cells, but, also that a corresponding change of blood in the capillaries of the lungs should constantly be going on. A retardation of the flow, causes an imperfect purification of the blood from its carbon, which fact can be demonstrated by an analysis of the exhaled air, which contains less carbonic acid gas than it does normally. The air passes out nearly unchanged, causing thus the characteristic cold breath of cholera patients, and as the vocal organs partake of the general drying process, they become rigid, and naturally causes the voice of the patient to become changed into the

peculiar cholera-voice, which is rough and coarse, with imperfect articulation.

“The very distressing and painful spasms or cramps, which contract the muscles into hard, round knobs, are doubtless caused by central irritation, and it is quite probable that this irritation originates in the same drying-out process which pervades the whole system. During the algid stage the temperature sinks to 93.5° , in rare cases to 88° F.; the pulse is from the beginning feeble, and little, or not at all quickened; exceptionally it attains a quickness of 96 to 100 per minute. Often it becomes thready and hardly perceptible; even the heart's diastole may, in bad cases, be no longer recognisable, while its systole continues.”—Dr. Niemeyer has found an able supporter in the person of Dr. B. C. Loveland about the utility of water in diet and therapeutics. Dr. Loveland mentions some instances where apparently serious disease was cured by the administration of a tonic and increasing the water consumed by the patient, as he notes that, besides relieving thirst, water is a *simple* fluid that, acting as a solvent for aliment, aids in the absorption of the food material which it takes with it on its way to the blood, where it forms a medium for the solution and suspension of the various compounds needful for the nourishment of the tissues and helps the effete materials on their way to the excretory organs, and here again water re-exerts its solvent power in the removal of urea, kreatine, chlorides, phosphates, sulphates and some other materials that the blood has no use for and needs *constant* cleansing from. If the water becomes deficient, osmosis is impeded to a greater or less degree, the bowels suffer, the digestive fluids become too thick to do their work properly, and according to the natural laws of crystallisation, too great concentration (i.e., insufficient dilution) leads to the precipitation of soluble ingredients to form calculi of various

sorts and deposits of a harmful nature in the tissues. Lack of water in the blood predisposes to arterial degeneration, uric acid diathesis and congestions, with their attendant evils, while the retention by concentration by the blood of excrementitious material, converts the life-stream into a slow poison producing mental depression and other reflex symptoms of a grave nature, and as the great majority of diseases are really due to insufficiency of fluid in the body, the *judicious* use of water will change the character of the blood and restore the body to a healthy tone.

From what you have however heard about Dr. Parkes's observations—which observations apply to both varieties of cholera—you will easily understand that modern pathology inclines rather to the view, that the disturbance in the lungs cannot be entirely accounted for by a paresis of the heart in fact; cardiac paresis is only secondary, primarily, we know from Dr. Hall's statement, and from a vast clinical experience besides, primarily the action of the heart is rather in excess; that the balance of evidence in the case of diarrhœic cholera is moreover, in favour of a double action of the cholera poison—an action on the blood on the one hand, and an action on the pulmonary vaso-motor nerves, on the other.

In my next lecture I shall endeavour to show, that there exists a causal connexion between the hæmatic and the secondary neurotic action of the specific poison under consideration.

Before attempting to do so, I consider it however worthwhile to say a few words about this supposed twofold toxic action as manifested in the disease under discussion. At first sight it might appear strange that one and the same toxic agent should be endowed with two different modes of action. Some vague consideration of this kind might, indeed, have prompted many pathologists to explain, as

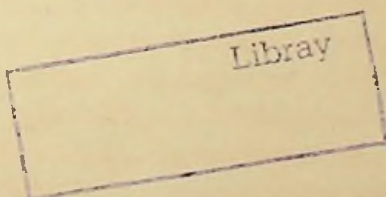
well as they could, all the choleraic phenomena on the exclusive principle of a primary, hæmatic disorder. A glance at the long list of pharmacodynamic agents of the mineral and vegetable kingdom, as to their effects upon man and animals suffices however to show, that such a double toxicological action, as the cholera poison is supposed to be endowed with, is by no means rare. Dr. Fayrer in his "Climate and fever of India" says (P. 78) where a party of men have been exposed to the emanation of some malarial locality different types of fever may result; one may have ague, another remittent, a third may only feel rather ill; another may have Dysentery and even choleraic symptoms. Again amongst the inhabitants of notoriously malarial districts a considerable portion do not suffer from either ague or remittent fever but present a sallow anaemic appearance with blanched lips and eyelids, pearly eyes, tumid abdomen, weak and irritable heart, hæmic murmurs, and a general appearance of cachexia, dullness and hebetude or there may be neuralgia, asthma, albuminuria or it may be anasarca or ascites. We have only to think of such a well-known drug as *arsenic*. This drug is known to possess a distinct and peculiar action upon the nerves, and as distinct and peculiar an action upon the blood. It would nevertheless, be a vain attempt, to fix, say in each case of arsenic-poisoning, upon an invariable and uniform mode of action. No toxicologist could venture to tell beforehand with any thing approaching certainty, how a given quantity of arsenic would act on a given individual; and yet there is hardly a drug whose pharmacodynamic qualities have been studied with more accuracy than those of arsenic. Its grand and peculiar characteristics in the way how it assails and ultimately destroys life, are well known; but the details of execution vary in different individuals. In the one the neurotic, in the other the hæmatic element may prevail; in extreme cases, that is to say, when the dose has been

excessively large, or the receptivity of the victim has been exceptionally great, either in the neurotic or in the hæmatic sphere, we may actually find the one element totally overshadowing the other, and this is especially the case at the beginning of the attack. In the measure as toxic action advances we find, as a rule, that nervous and hæmatic symptoms act and re-act upon, and ultimately blend into each other, so as to establish an unmistakable state of *arsenic* poisoning.

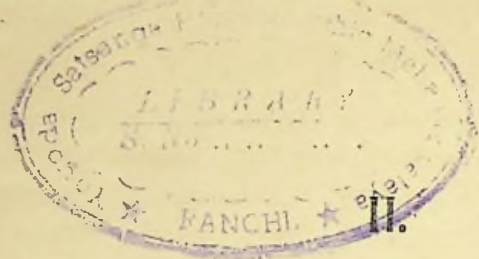
Now something similar to what takes place with regard to the drug just mentioned, and many other potent drugs, does take place with regard to the action of cholera poison. Venosity of blood is the characteristic speciality of its action; it is the common pathological platform of both varieties of cholera, the spasmodic as well as the non-spasmodic. But in the former it is the contraction of the small pulmonary arteries which is the chief, and often the only factor—the subsequent flux of blood towards the alimentary canal and the watery transudation which follows, manifesting themselves by purging and vomiting, being simply as many adjuvants. While in the non-spasmodic variety the role is reversed. Vomiting and purging has been shown to be sufficient by themselves, to effect a complete state of venosity; the spasms, including the contraction of the pulmonary arteries, play here the part of the adjuvants, and might, as far as deleterious effect is concerned, even be absent altogether—just as in the spasmodic variety, death may actually take place in the absence of any vomiting and purging.

A comparison between the spasmodic and non-spasmodic variety of cholera at the stage when vomiting and purging is fully developed, would hardly lead to any pathological or even symptomatic differentiation. The spasms at that stage, are as severe in the one variety as in the other; and whatever slight difference there may still exist, it is sure to disappear altogether, in the measure as our hypothetical

patients respectively approach the stage of collapse. Pathologically and symptomatically they then present the same phenomena ; they only differ with regard to the etiology of their respective sufferings. The one began with a sudden seizure of spasm; the other began with a slight malaise, with a disturbed digestion and uneasiness, which may have gone on for days. The one might have been able, as far as the state and the predisposition of his alimentary organs are concerned, to withstand any epidemic influence; his seizure is simply owing to a deficient innervation of his vascular system. Vomiting and purging have been forced upon stomach and intestines by no fault or deficiency of their own. While the cholera patient of the non-spasmodic variety might just reverse the tale. As far as his vascular, or nervous system in general is concerned, he might have withstood any epidemic influence; it was the relaxed state of the intestinal canal which prepared the way to choleraic evacuations and the consequent spasms. For I hope to show you when we next meet, that there exists an intimate and natural, although by no means necessary connexion between choleraic evacuations and the subsequent spasms.



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The loss of water, in cholera patients, has hitherto solely been considered with respect to the injury the blood thereby sustains ; it can however be shown that this loss constitutes a source of nervous irritation, and consequent muscular contraction.—“Withdrawal of water from the nerves, if performed either gradually or with extreme rapidity, produces no effect, but if performed with moderate rapidity causes tetanus. The longer the portion of nerve exposed to desiccation, the more violent the tetanus. The contractions of the muscles being when the nerve has lost about 4 per cent. of its weight, and its excitability is lost when about 20 per cent. has evaporated. The sudden deprivation of water from the nerves may perhaps account, in part at least, for the spasms of cholera.”*

There is then a connecting link between choleraic discharges and the contractibility of the muscular coat of the organism. The spasmodic contraction of the muscular coat of the arteries with its subsequent venous congestion, the cramps of the extremities, the colic—all may be traced to the constant loss of water. Besides the effect the withdrawal of water has, upon the nerve tissue, there is another effect produced on the nervous function. Excess of pressure is known to arrest nerve action. When on the other hand the normal pressure upon the nerve substance is diminished, we may infer, that nerve action will be immoderately intensified. This explains why cerebral anæmia which means comparative emptiness of the cerebral bloodvessels, and consequently comparatively

* *Carpenter's Human Physiology 9th Edition, P. 550.*

diminished pressure of those vessels upon the adjacent cerebral mass, produces cerebral irritation manifested by convulsion. We are all more or less acquainted with that peculiar nervous state known as irritable weakness. This irritability is caused not directly by insufficient nutrition but by insufficient pressure upon the nerve fibres due to the comparatively empty blood vessels. Something similar takes place in consequence of depletion going on during cholera and explains that strange phenomenon of exhaustion coupled with extreme restlessness.

In simple diarrhœa, even in the diarrhœa preceding cholera, however liquid and frequent the stools may be, the molecular constitution of the nerves could hardly be affected in the way described above, for the patient is sure to replace the loss of water by drink. In cholera things are otherwise. One of the peculiarities of that disease consists in this, that the epithelial cells lining the mucous membrane of the alimentary canal are disorganised, if not actually shed altogether, so that assimilation, even by means of absorption is almost completely brought to a stand still. The desire for water may by no means be wanting; in fact the patient is often enough tormented by an unquenchable thirst; but the water drunk is either immediately ejected or it remains unabsorbed in the stomach till it is brought up during one of those fits of vomiting, which may repeat themselves from five to ten or thirty minutes, according to the virulence of the attack.

The pernicious influence, the deprivation of water has upon the state of irritability of nerve tissue, makes itself felt, as we have seen, in two different and diametrically opposite ways. The loss of a small portion of water (4 per cent.) causes nervous irritability; while a loss of 20 per cent of the same fluid destroys its excitability altogether. This gives us a deep insight into what is going on within the patient during the

algid stage of cholera, also called the asphyctic stage, or the stage of collapse. That this state is generally associated with a stage of deep depression of the most essential vital functions—that vital energy is altogether at its lowest ebb, has already been stated before. It is however commonly understood, that the exhaustion is due to the preceding nervous and muscular exaltation during the spasmodic stage; or to the loss of the nutrient materials contained in the serum; while there are no doubt cases and constitutions, where the whole nervous prostration and the subsequent collapse of the machinery of life is in the first instance due to the extreme desiccation of the nerve substance and the consequent inaptitude for action—far less for re-action. An ounce of water may be all, patients thus affected may require, in order to come out of the desperate state they are in; and he, who will be able to make them retain it, may fairly be said to have saved their lives.

It remains now only to be shown, why of all the nerves of the body, the vaso-motor nerves of the pulmonary arteries are invariably affected in the way described, by the loss of water. In answer to this question we need only remember that we deal here with a specific poison, and that every such poison has its own particular toxicological affinities—affinities which are as unalterable as they are inexplicable.

I have gone a great length in order to show, however uniform cholera may be with regard to its final issue, it has at least two distinct points of attack, and that it is only at the stage of development that we see those two points moving toward one and the same centre of destruction. I have further endeavoured to trace the connexion which exists between the one mode of attack and the other and how the one rouses into action the other. Now from an absolute pathological stand-point all such considerations may be of secondary importance, since the pathological issue of the disease remains, in all cases, and under any mode of initial attack, the same;

venosity of blood being, as I said before, the common characteristic speciality of all varieties of cholera. When we shall come however to the question of treatment then we shall see the full importance of what has hitherto been said with regard to the two chief varieties of the disease under consideration. For what does it mean, that one and the same toxic agent attacks, during one epidemic, one man in the one way and the other in quite another way?—Are we then to suppose that there are actually as many varieties of cholera-poison as there are varieties of the cholera disease?—But then we know that even such uniform, inorganic poisons, as *arsenic* for instance, assail different individuals in different ways. Toxicology teaches us then the grand lesson, that two persons may be in all physiological respects pretty much the same, and that they may nevertheless behave differently when exposed to the same toxic agent. We may then reasonably infer, when we see two patients differently affected by cholera, that the difference is to be sought in the respective individuality of the patients, and not in the cholera poison. And since the patient's constitution, his individuality, and especially the peculiar relation which exists between him and the prevailing epidemic influence is to be taken into consideration in our therapeutic proceeding; it would be unwise indeed—if not even worse—to shut our eyes to all such pathological differentiations, and to attempt to treat all cases according to a favourite term of a certain class of unprincipled physicians—on the same principle. Cholera may be the same in each case, but the patients are not the same with regard to the way how they are impressed by the noxious epidemic influence.

It is however not my intention to anticipate the treatment of cholera, which must be reserved for a future occasion; I shall therefore return for the present to such considerations as refer to the pathology and symptomatology of the disease under discussion.

You have heard, gentlemen, how the withdrawal of a certain proportion of water affects the nerves. There are, as far as I am aware, no records in existence of a similar experiment having been made with regard to muscular substance; we must therefore content ourselves with a vague conjecture about the subject. But although we may not be able to express in numbers the proportions of water which must be lost, in order to affect a muscle, it is evident that there must be a limit beyond which water could not be withdrawn, without interfering with the muscular function. Possibly there are two limits, as is the case with regard to nervous substance—a limit beyond which contraction takes place, and another limit beyond which all irritability is lost. Anyhow it is useful to bear in mind that, in the state of collapse, certain muscles may be thrown out of gear in consequence of want of irritability, while their respective motor nerves may still be in a normal state, or even in a state of abnormal excitement. This may explain certain states of a cholera patient made up, as it were of two opposite conditions. Take for instance the muscular unrest of the patient along with its nervous exhaustion.

Then there is the elasticity of tissues, a most important element in the machinery of life, which must severely suffer whenever the organism is deprived of its normal proportion of fluids. Expiration is to a large extent carried on by the aid of the elasticity of the lungs. Donders estimates the expiratory force derived from the elasticity and muscular tension of the lungs, and coming into play in ordinary respiration, as equal to a pressure of about 5 ozs. to the square inch. It is evident that with the partial desiccation of the lung-tissue, a considerable amount of expiratory force must be lost. And last, though not least, it is worth while to remember in some cases, the shock the system experiences in consequence of a sudden withdrawal of large quantities of so vital a

fluid as the serum of the blood. I have seen cases where enormous masses have been brought up at the first onset of vomiting; the patient would then recline on his pillow in a state of syncope—half dead. Some of them would in an astonishingly short time regain the necessary strength for the struggle to come. Others however seem to have received a death-blow from the very onset; they appear to be overpowered by the shock beyond recovery; at any rate there can be noticed considerable failure of the heart's action immediately after the first choleraic evacuations have taken place, without any tendency towards a gradual recovery of what has been suddenly lost in strength. Such patients may be considered as being in a state of collapse from the very onset of the attack.

I have nothing to add to what is generally known as to the cessation of all natural secretions, especially urine and bile beyond the remark that over and above all the physiological disorders previously enumerated, to which a cholera patient is subject, he must be considered as being more or less uræmic considering that the secretion of urine is completely wanting. In fact the spasm may partly be due to this precarious condition of the cholera patient. Niemeyer seems to think otherwise for he tells us that urine and bile are not secreted because there is nothing more contained in the blood to be secreted.—When reaction begins, matter changes and as we shall see hereafter, death by uræmia is often met with. His statement to the fact that the intestinal mucous membrane is deprived of its epithelium during the cholera process, calls however for some correction.—There may be no epithelial cells. We know however that uræmic symptoms often gradually makes their appearance even when the patient steadily declines without signs of reaction, we are then compelled to suppose, that there is throughout the whole course of the disease a small secretion of urea (small in proportion to

the whole process of metamorphosis which is necessarily small) retained in the system, owing to arrest of renal action. It is worth studying in connexion with the above whether the cholera ejections contain urea or not, (see physiological and pathological chemistry by Charles page 432,) found in the choleraic stools ; they are however invariably found within the intestinal canal a few hours after death ; so that, strictly speaking, the shedding of those cells is more a post mortem, than a pathological effect. Inasmuch however as post mortem changes may be taken as an indication of the direction in which disorganisation during life takes place, we may still say, with a fair amount of plausibility, that the epithelial cells of the intestinal mucous membrane during the life of a cholera patient are in a state of disorganisation, whereby they are rendered unfit for the physiological task assigned to them. The villi may not be actually denuded during the life time of the cholera patient of their epithelial covering, but as far as the capacity of absorbing food is concerned, they are no better off, than villi actually denuded of their epithelium. This is no gratuitous assumption, for the total absence of the assimilative and even of the absorbing faculty is conspicuous in cholera patients. For further details on the subject under discussion you may consult Dr. Machnamarra's Treatise on Asiatic Cholera.

Cholera has often been compared to malarial fever of the malignant type. During the time of the Burdwan fever I have myself seen some few cases of this class. "The cold stage" says Dr. Fayrer in his *Climate and Fevers of India*, "is not always free from danger ; when the action of the poison has been very intense, the nervous force seems to be overwhelmed by it ; an algid state supervenes, the heart fails, the skin becomes cold and clammy and the patient may die in a state of collapse ; or, after remaining for hours—it may be forty-

eight hours—in this condition, reaction takes place and the hot stage sets in ; in other cases after partial reaction, the symptoms of collapse supervene. Happily this is rare. It so closely resembles the collapse of cholera that if the patient be seen for the first time when in that condition, there might be some doubt as to the diagnosis. Instances are recorded by Macculloch and others, of persons having died in a few hours in the Maremma of Tuscany, from the intensity of the poison.”

Examples of epidemics, manifesting at a large scale a still closer resemblance between malarial fever and cholera we find recorded by the same writer. “Fever in the city (of Amritsar) did not appear in an epidemic form until September ; it was preceded by cholera about the beginning of August, of an extremely fatal type, and later on, when marked by fever, there was some difficulty in recognising it in time.—The fever which prevailed with its utmost force in September and the early part of October appeared to be of the relapsing fever species but with some affinity to cholera. There were the rigors, fearfully severe headache, insomnia, disordered bowels (often constipated), fever, suppression of urine, with death from coma frequently within a few hours after seizure ; but then the ricewater evacuations and vomit of cholera appeared in very many instances during the course of an attack of the fever.”

“The two diseases, cholera and fever, supposing them to be distinct, certainly masked one another so effectually that diagnosis was extremely difficult at times. The people, by the end of October, began to show the exhausting effects of the epidemic fever, enlarged spleen, anæmia, debility, jaundice, and the usual sequelæ told fatally on their enfeebled constitutions.—This specific fever was strictly confined to the city, and to those only who had to go inside on duty.”

“I observed in Kohat, in 1869, an outbreak of fever very similar to the Amritsar epidemic, followed by cholera. It was

then observed also that it was an impossibility to tell when the cholera commenced, the symptoms of many cases of the fever being so similar."

It is to be regretted that Dr. Fayrer does not mention anything about the temperature of the choleraic fever-patients of the epidemic at Amritsar, which happened as late as 1881.—Surely the thermometer should be able to tell us if we have to do with a case of malarial fever supervenient to cholera, or *vice versa*. In malarial fever there is a rise of temperature at the very beginning of, and actually previous to the cold stage; while in cholera there is a fall, and often a very marked fall of temperature from the onset of the attack.

The choleraic fever type is by no means a new pathological evolution; it has been known to the ancient Hindoos, according to Dr. Annada Churn Kastogiri, by the name of *Jwar-atishar*, literally: fever with excessive diarrhoea (Indian Annals, January 1877). Dr. Kastogiri, a learned Bengali-physician and a graduate of Calcutta, further remarks:—It has been observed that both may break out simultaneously, or one follows in the track of the other. In practice mixed attacks of cholera and fever are frequently seen, an attack beginning with symptoms of fever may end with cholera, or *vice versa*."

Of the importance of the temperature as a diagnostic sign in cases of cholera mention has been made just before; the thermometer is however of no less value to us as an instrument of prognosis. It is not by the frequency of vomiting and purging, nor by the severity of the spasms that the degree of virulence of a cholera attack is to be judged, but by the depth of the fall of the temperature. Again when reaction has once set in, we shall best know how the patient goes on, by attending to the thermometer. Fluctuations of temperature augurate badly, however favourable the rest of the symptoms may be. A general brightening up of the patient, unaccompanied by any change

of temperature often precedes final death. According to the observations of surgeons A. Leith Adams and F. H. Welch during the epidemic at Malta, "the thermometer indicated that in the aged and delicate the vital powers gave in to the cholera poison step by step, commensurable with the severity of the attack. Collapse reached, a comparative quietness ensued, followed by the system asserting its superiority or succumbing rapidly. The course from the onset to the termination was gradual with no marked deviations. Not so with the young and healthy. Although the system was impelled to give way to the attack, it was not without a struggle; the collapse was marked by constant attempts at reaction, and this having once set in, the vital powers seemed to overreach themselves in their eagerness to resume their normal condition."

In speaking of the temperature in cholera we must guard ourselves against confounding the external temperature in the axilla, with the inner temperature of the rectum or vagina. In no disease is the difference so great as in cholera, where the cutaneous temperature may be far below, while the inner temperature may at the same time be far above the normal state. This difference of temperature is so much the more remarkable at the stage of collapse. In this stage there is almost a total absence of peripheral circulation, owing to a contraction of the cutaneous vessels, so that what remains of the blood-circulation is concentrated towards the inner parts.

There is another peculiarity connected with the variation of temperature in cholera; the rapid rise namely of body heat soon after death, and often even a short time before death takes place. It might be suggested in explanation of this apparently strange phenomenon, that the vaso-motor centres, from having been for the most part during the cholera attack in a state of undue excitement, become paralyzed at the time of, and sometimes even soon before death. We have

seen that it is the spasmodic occlusion of the cutaneous vessels which is the cause of the vast difference between the internal (high), and external (low) temperature. We further know from Claude Bernard's experiments, that the spasmodic contraction of those arterial blood-vessels is owing to stimulation of the respective vaso-motor nerves, or of the vaso-motor centres governing them. This state of stimulation, kept up by the toxic action of the cholera poison, ceases with the approach of death, and the consequence would be, that the cutaneous vessels dilate to their natural calibre or even beyond their natural calibre and the difference between the blood contents of the internal and external blood vessels, and consequently between the internal and external temperature would cease to exist ; thus the corps would naturally become warmer than the living body was.—But then the rise of temperature in cholera is not only external and relative ; there is a real increase of heat production shortly before, or soon after death—an increase which might amount to about 3 or 4 degrees, and sometimes even to more than that. The question arises then : whence comes this increase of caloric production in a dead or a dying body?—This is a question which interests the Pathologist, the Physiologist and the medical Jurisprudent in a like manner and I shall try to lay before you their respective opinions on the subject.

“It is not a little remarkable” says Dr. Carpenter,* “that the temperature of the body should frequently *rise* considerably *after death* ; and this not merely in such cases as cholera, in which it has undergone an extreme depression during the latter part of life ; but even in the case of febrile disorders, in which the temperature during life has been above the usual standard. This has been ascertained by Dr. Bennet Dowler of New Orleans, on the bodies of those yellow fever subjects which

* *Human Physiology* p. 505.

may be especially referred to as exhibiting a remarkable degree of *molecular* life after somatic death. In one case for example, the highest temperature during life was in the axilla 104° ; ten minutes after death, it had arisen to 109° in the axilla ; 15 minutes afterwards, it was 113° in an incision in the thigh ; in twenty minutes the liver gave 112° ; in an hour and forty minutes the heart gave 109° and the thigh in the former incision 109° ; and in three hours after the removal of all the viscera, a new incision in thigh gave 110° . It is curious that the maximum heat after death should have been in the thigh, and the minimum in the brain. The post-mortem rise in temperature appears to be essentially due to the passage of the muscles of the body into the state of rigor mortis, a change that is associated with chemical action analogous to that occurring during contraction, and accompanied by a corresponding elevation of temperature. Ackermann has pointed out that the post-mortem rise may in part be due to the persistence of the heat-producing chemical changes in the deeper parts of the body, whilst the radiation and loss of heat from the surface by evaporation is reduced by the contraction of the cutaneous vessels and the cessation of the circulation ; and Wunderlich suggests that it may be also in some measure owing to the paralysis of that part of the nervous system which inhibits or regulates the generation of heat, supposing such centre to exist."

The above quotation contains a fair resumé of what physiologists have to say in explanation of the post-mortem rise in temperature. You will have observed how vague and unsatisfactory each and all of those explanations are. If the rise in temperature be due to "the passage of the muscles of the body into a state of rigor mortis"—then how are we to account for the post-mortem rise in temperature of cholera and tetanus subjects?—In both of these subjects there have been excessive muscular spasms during life; in tetanus they are accompanied by a rise in temperature of 3° to 4° , while in cholera the

temperature is ordinarily so much lower, and often lower still. How is it then that the spasmodic muscular contractions during life could not raise the temperature, while the mere passage of the muscles of the body into a state of rigor mortis is sufficient, shortly before death, or soon after death, and before rigor mortis could actually have set in, to raise the temperature to a considerable height? Why should, moreover, such a rise particularly take place after death from certain disease, seeing that the passage of the muscles of the body into the state of rigor mortis is common to all cases? A similar remark attaches to Ackermann's suggestion mentioned in the above quotation.—In cholera, we are given to understand, the temperature "has undergone an extreme depression during the latter part of life"; and this is true enough, there having been, owing to causes mentioned before, a reduction in the process of tissue oxidation, and, consequently a steady decrease in the production of heat. But this is no reason why such a depression of heat during life must result into an elevation of temperature after death unless it could be shown that one of the immediate effects of death by cholera be an increase of tissue metamorphosis, as a sort of post-mortem vital reaction.

Professor Wunderlich's suggestion, I am afraid, does not make matters clearer. It is true, there is good reason to believe that a caloric centre does exist in all warm-blooded animals which regulates either the production of heat, or its expenditure by means of radiation, conduction and evaporation, or, what is more likely, the balance of caloric production and expenditure. Independently of certain physiological experiments and clinical experiences, which point to the existence of such a heat centre, we have the fact before us, that warm-blooded animals maintain the same body-temperature under extreme varieties of their atmospheric surroundings—a phenomenon which can only be explained by some such regulating agency as suggested although it must be admitted that

by virtue of the faculty of adaptation, common to all living beings, even lower animals, void of a nervous system eye, even plants may be made gradually to endure extremes of temperature. How little Professor Wunderlich's suggestion helps us to unravel the mystery of post mortem rise of temperature will however be seen from the following considerations. Let us examine the phenomenon under discussion in cases of death from febrile diseases. In all such cases the chief cause of the excessive heat during life is, no doubt, excessive tissue metamorphosis. Now to explain in such cases the additional rise of temperature after death, in the way Professor Wunderlich attempts to do, appears to me to be a sort of explanation which assumes to take for granted the very object of explanation. What we want to know is this: Where does the increase of heat come from after death, since both circulation and respiration have ceased; since, consequently, the very hearth of combustion has been extinguished for want of oxygen?—In answer to this we are told, that with the cessation of life there is no more any inhibition in the production of heat—an answer which, in order to be satisfactory, must necessarily suppose that neither the impulse towards heat production, nor the materials of combustion have experienced the slightest diminution for some time after the cessation of life. I need not tell you that this is just what we wish to have explained.

As to non-febrile diseases, the inhibitory theory is out of place altogether, for the simple reason, that there is nothing to inhibit the tendency being towards deficient heat production even during life; we had then again to fall back upon some such hypothesis as a post-mortem vital reaction to account for increased heat production.

As far as I know, I hardly think that pathologists have thrown any more light upon the subject. Dr. Radcliff says: "the body has been found to become very hot before death and

to remain very hot after death in cholera, in yellow fever and in several other cases in which instances are given by Dr. Erb and by several other writers in Germany, and by Drs. Ringer, Weber, Murchison, Sanderson and many others. The cause of death in the majority of these cases being some sudden affection of the brain, coma in others. And this has been again taken as a clinical proof of the existence of a caloric centre. Paralysis of the brain would then, in certain cases, include the hypothetical centre, which is supposed to be inhibitory in its function. The temperature rises as the time of death approaches, when the state of the circulation must be every moment becoming more and more the reverse of increased activity; the temperature continues to rise even after actual death, when the blood has come to a stand still It is not easy to connect the increased heat of tetanus with the spasms. A part of the increased heat may be accounted for in this manner, but only a small part. Indeed the simple fact that in one of the cases which has been instanced a marked abatement in the severity of the spasms was accompanied by an actual rise in the column of mercury, and that the column continued to rise after death, when all spasm is at an end, is in itself a sufficient proof that it is not in muscular action that the explanation of the increased temperature of tetanus is to be found. Moreover the fact that the temperature rises in the same way before and after death in cases where neither convulsion nor spasm was amongst the symptoms during life, must lead to the same conclusion It seems as if one condition of this change in temperature was the paralyzing of a regulating cerebral influence; and beyond this it is difficult to see further, except it be that this paralysis reaching to the vaso-motor nerves, allows the minute vessels to dilate and receive more blood, and that the increased quantity of blood, even though this blood may be stagnant, may lead to increased molecular changes, of which increased heat is an effect."

No wonder after this, that Professor Taylor* sums up his considerations on the subject with the following words of half despair: The facts connected with the production of heat in the dead body have not received much attention from physiologists.

A little more attention to the subject, it appears to me, could have spared the authors quoted above a great deal of perplexity in explaining, or rather in attempting to explain the phenomenon so often mentioned, regarding the rise of the body temperature before and soon after death. They have, it appears to me, entirely left out of consideration the fact, that there must be stored up in the living tissues of an animal a considerable amount of potential energy in the shape of irritability. Let us study for a moment the life and death of a muscle. When a living muscle is made to contract, oxygen is absorbed and carbonic acid and water is set free; muscular contraction, as a consequence is invariably accompanied by heat production; and there can hardly be any doubt that the heat thus set free is the product of chemical changes within the muscle. In fact a muscle may be likened to a steam-engine in which combustion of a certain amount of material gives rise to the development of energy in two forms: in the form of heat and in the form of motion. A similar process of combustion is however slowly and continuously carried on in every living muscle, even when at rest. For even when the muscles are at rest the blood which leaves them by the veins contains more carbonic acid than the blood even of the right ventricle so that a living muscle may be looked upon, as a constant heat-producer, the heat-production being only less in degree when at rest, than when at work. This silent activity of a living muscle is known by the name of tonicity a condition met with in every healthy muscular tissue, and what becomes of a muscle in the

* *Principle and Practice of Medical Jurisprudence* 1883.

case its supply of oxygen be withdrawn, the blood circulating within its tissue being rendered venous?—In that case, experience teaches, that the venous blood acts in a measure as a foreign body, stimulating, for a time, the muscle to contraction; and when that contraction has ceased, then the irritability of the muscle is lost; it ceases to respond to stimulation of any kind.—Irritability and tonicity are then two essential qualities of living muscular tissue; both of them may be considered as the expression of a certain molecular work going on within the tissue. In the same way are we entitled to look upon two other known qualities of living muscular tissue—elasticity and extensibility. The maintenance of all these vital properties depends no doubt upon the continuance of that mode of molecular work peculiar to life.

For all these properties gradually cease with the approach of, and shortly after, death. Muscular irritability diminishes with the setting in of rigor mortis, and when the same is complete, irritability has ceased to exist. Something similar occurs with regard to tonicity, elasticity and extensibility. The dead muscle, for instance, when extended does not return to its previous length. There is then a certain amount of energy latent during life, in the shape of molecular work, which is gradually set free by death, and, in obedience to the law of Conservation of Energy makes its appearance in another form of energy—in the form of heat.

What has been said with regard to muscles, might, by a somewhat analogous reasoning, be applied to all the other tissues and organs of the body; for irritability is common to all living matter although the mode of its manifestation differs with every organ. Then there are the centres of automatic activity seated within the spinal column; there is further a constant activity of unconscious cerebration going on during life; all this represents a certain amount of potential energy, which is liberated in consequence of death in the form of heat.

The post-mortem rise of temperature is as little perplexing a phenomenon to me, as the phenomenon of a liquid body giving out heat during the process of solidification would be to any one acquainted with the laws of physics.

Of course what I have said in explanation of the post-mortem rise in temperature, refers to the period preceding the setting in of rigor mortis; for with the same, there is ample ground for increase of heat, as the muscular contraction, or, as Carpenter correctly states it, the passage of a muscle into the state of contraction, is under all circumstances connected with heat-production.

All this may yet be far from explaining the extraordinary post-mortem rise of temperature in victims of cholera, yellow fever and tetanus. But unless we learn first to understand the nature of the ordinary phenomenon, it would be a hopeless task to speculate upon some of its exceptional phases.

As to the extraordinary amount of heat evolved in the case of cholera victims, I must say, the difficulty with me is not so much to understand, why there is a post-mortem rise in temperature, but why there should be a considerable fall of temperature during the whole course of the disease, seeing that the same is generally accompanied by spasmodic muscular contraction, and knowing as we do that such contractions are always attended by evolution of heat, in fact are looked upon as the chief caloric source of the living body.

Tetanus is associated with a temperature as high as 3° to 4° above the normal standard, owing to this very state of muscular contraction; why should then cholera be characterised by a temperature below the normal standard?—The only explanation I am able to suggest consists in the following considerations.

True as it is that a muscle may be likened to a steam engine, in which the combustion of a certain amount of material gives rise to the development of energy in two forms: heat

and motion ; the relation between the amount of energy set free as heat and that set free as mechanical work is, in the case of a muscle, not under all circumstances the same. The proportion between heat and work varies moreover to such an extent that the work amounts in some cases to one fourth and in other cases to one twenty-fourth of the total energy set free by the chemical process of oxydation within the muscle.* Muscular contraction can then under certain circumstances be carried on more or less economically, that is to say, a comparatively small quantity of liberated energy, may be made to effect a considerable amount of muscular contraction, provided the energy liberated be mostly utilised in the form of motion (contraction), and that as little as possible be allowed to run waste in the form of heat.

Now it appears to me that in this fact lies an unthought of explanation, of the phenomenon known as the Maintenance of the mean Temperature in worm-blooded Animals. As you are aware, gentlemen, warm-blooded animals maintain, under all varieties of atmospheric temperature the same degree of body heat ; and there are various contrivances within the organism which contribute to the keeping up of an equable temperature within certain limits.

Foremost of them are such arrangements as regulate the *elimination* of heat. Increased temperature causes dilatation of the small arteries of the skin, whereby more blood is made to circulate at the surface of the body, which leads to an increased loss of heat by conduction and radiation. The secretion of sweat is, moreover, either occasioned or increased in quantity by an increased fulness of the vessels of the skin and the rapidly evaporated sweat consumes an extraordinary amount of heat. Then there are such arrangements as exert their

* See M. Foster's Text Book of Physiology, London, Macmillan & Co. 1883. P. 67.

action in regulating the *production* of heat. Living in a cold atmosphere increases the feeling of hunger and increased consumption of food augments the production of heat. Then again when the body is exposed to cold the need for muscular exertion is felt, and this raises the temperature.—

Now the very fact that increased muscular action—voluntary or involuntary—augments the body temperature, necessarily implies that during the act of muscular contraction more heat is produced than is consumed by its being converted into mechanical work. The proportion between the two, between the energy liberated as heat and the energy liberated as work, depends, as we have seen before, on various circumstances. Is it then not natural to expect that the maintenance of the mean temperature in warm-blooded animals should, at least partly, be owing to a certain adjustment of the before-mentioned proportions? There evidently exists some regulating agency within the living body of warm-blooded animals, by which production and elimination of heat is constantly balanced ; and although the exact seat of that agency may not have been as yet clearly pointed out, there is perfect unanimity between physiologists that such a regulating centre does exist. Such being the case, it would be strange, should the proportions between muscular energy liberated in form of heat, and muscular energy liberated in form of work, not fall under the regulating administration of the caloric centre.

We may then fairly assume that one of the contrivances of the organism for maintaining its temperature within certain limits under considerable variations of temperature of the surrounding atmosphere, consists in this, that in a hot atmosphere muscular work both mechanical and molecular is carried on in a proportionately economic way ; that is to say, there is comparatively much work done with comparatively little waste of energy in the form of heat ; while the reverse is the case in

a cold atmosphere. And it is the function of the caloric centre to regulate the respective portions of work (mechanical or molecular) and heat originated within the muscular tissue.

That some such economy is carried on within the organism in certain abnormal states, is to my mind out of question. On the one hand we find that in all cases of dyspnœa in consequence of deficient oxygen, the body temperature lowered and when dyspnœa increases to such an extent as to cause clonic convulsions, the mercury column of the thermometer falls lower still, although under ordinary circumstances muscular contractions are invariably accompanied by increase of temperature. On the other hand in tetanus caused by strychnine where respiration is often impeded, in consequence of a tetanic state of the respiratory muscles and where the blood is made at the same time unfit to absorb the usual amount of oxygen in consequence of the direct toxic action of the poison—even in such a case we find a rise of temperature of 3° to 4° F. We find asphyctic convulsions have then a lowering effect upon body temperature while tetanic convulsions have the opposite effect. There must then be some particular arrangement which in a case of threatened asphyxia keeps the body temperature low inspite of the spasms. And the only way to explain appears to me to be this: The heat evolved in the course of tissue metamorphosis is all converted into mechanical muscular work—into muscular contraction. But once granted that there is such a heat-moderating agency in some abnormal state of the organism, we are driven to admit that a similar agency must necessarily exist in the healthy body, as a physiologic institution, so to say; for Virchow has proved long ago that pathological and physiological processes are the same in kind varying only in degree and relativeness according to varying conditions of life.

The difference between tetanus and asphyctic convulsions as far as caloric evolution is concerned, would then, accord-

as I understand it, consist in this, that in the former the proportion of energy liberated by muscular combustion is largely in favour of heat production, while in the latter, almost the whole of the energy developed by muscular and tissue combustion in general is employed in favour of the work of contraction giving rise to an actual caloric deficit.

I need not tell you that what has just been said with regard to asphyctic convulsions may be made applicable to the spasms—tonic or clonic—of cholera. This is especially the case in the spasmodic variety of cholera, where part of the spasms are really, as we have seen before, of asphyctic nature. In the non-spasmodic variety the origin of the spasms is different. They do not start from the *medulla oblongata*, but set in gradually in the measure as vomiting and purging are proceeding, partly in consequence of the increasing venosity of the blood, known as it is that the flow of venous blood through a muscle causes it to contract; and partly in consequence of irritation of the motor nerves brought on by their being deprived of water. Thus the spasms in the extremities are, to all appearance, primarily due to the venosity of the blood. They manifest themselves first in the parts most remote from the heart—in the fingers and toes—where the stagnation in the flow of blood is first felt. Later on there is the additional element of nervous irritation as already mentioned. The spasms on the other hand of the blood vessels on the right side of the heart and of the vaso-motor nerves in general, appear to be of nervous origin from the very onset; they are due to the specific action of the cholera poison, and originate most likely within the vaso-motor centres. Of whatever nature and origin the spasms of the non-spasmodic variety of cholera may however be, they have this in common with the asphyctic convulsions, that they are carried on, at the cost of the scanty heat yet produced in the system so long as there is life—heat being actually

converted into mechanical muscular work—into muscular contraction. As to the agency which presides over this economic process, I have already mentioned it to be, according to my opinion, a part of the function of the heat-regulating provision existing within our organism, and known by the name of caloric centre. The general idea with respect to the function of the caloric centre is this, that it regulates tissue metamorphosis and the combustion connected therewith ; irritation of the centre being supposed to inhibit metamorphosis. The caloric centre would accordingly stand in close connexion with the process of nutrition, or with the trophic nerves. According to my view on the subject, however, the caloric regulation stands in close connexion, not with the hearth of combustion, but with those tissues that are chiefly concerned with the expenditure of heat—the muscular system. Let us now inquire what facts have to say on the subject ; let us go back to the experiments of Ferrier. He defined on the surface of the brain of cats, dogs, rabbits and monkeys, the different centres from which various movements of the limbs, face, mouth and tongue, eyes and ears, &c. could be definitely and distinctly excited. This gives us an idea in how far spasms may be cerebral in their origin. Since Ferrier's discovery it has been found by Hitzig, Eulenberg and Landois that the ablation or destruction of regions in close proximity to Ferrier's motor centres is followed by exaltation of temperature in the opposite hind legs ; on the other hand electrical stimulation of the same region lowered the temperature of the limbs of the opposite side. It would then appear that the cerebral heat regulating apparatus, is, in fact, closely connected with the organs of locomotion, and not with the organs of nutrition. It is further evident, that the seat of that heat-regulating apparatus is not one caloric centre as was all along suspected but could none the less never be localised ; but that its seat is moreover to be looked for in the vicinity of the various

motor centres, in other words that there is no caloric centre but many caloric centres, as many as these motor centres. It would further appear that in tetanus the motor centres are directly or reflexly excited, while the neighbouring parts are not ; consequently there is unusual muscular contraction uninfluenced by any extraordinary inhibition on the part of the corresponding caloric centres ; and we have muscular contraction along with high temperature. In the case of asphyctic convulsions where the cause is hæmatic and therefore general in its operation, the irritation sets up in the motor centres of the brain in consequence of the venosity of the blood, naturally spreads to their vicinity, so that the very agencies that generate convulsions, stimulate the caloric centres, thereby causing them to exert their full inhibitory power and prevent a wasteful evolution of heat.

The regulation of heat is effected by nerve centres. Both the production and elimination of heat have, each of them, their own regulating process. The thermotoxic control is however one that governs them both and connects their respective processes so as to result in a constant temperature. Trambe ascribed fever to retention of heat in consequence of irritation of the vaso-motor centres and consequent contraction and therefore diminution of blood circulation of the cutaneous capillary vessels. Experiments have however shown that pyrexia is accompanied by increased discharge of heat.—It is even not true that the cutaneous vessels of fever patients are constantly contracted, they vary, while heat is constantly discharged. Nor is the heat of fever patient constant, it varies. In fact febrile temperature is both inconstant and unstable—thermotaxis is impaired.—Liebermaster thinks in pyrexia the index of the heat regulating machine is altogether changed, from being 98.4° in health, it becomes 102° , 103° , &c. and this irrespective of all other changes as to the amount of heat production or loss.

According to Dr. Burdon Sanderson excessive combustion cannot fully account for the excessive fever heat. There are, it is true, increased *exhalation of carbonic acid and excretion of urica, but after calculation they do not represent a source of heat sufficient to cause the increased temperature of the body.* We must however compare heat production in health with heat production in fever, under like circumstances—that is to say under like diet. Increase of food in health increases heat production; the fever patient on a low diet, according to Dr. Sanderson, produces 50% more heat than a man on full diet.

In the year 1885 Drs. Aronson and Sachs of Berlin exhibited on the occasion of the Berlin Medical Congress the following series of experiments. When a puncture with a fine needle is made through the brain of a rabbit in such wise as to pass vertically through the medial side of the corpus striatum near the *nodus cursorius* of Nothnagel the temperature in the muscles and in the rectum promptly rises from $\frac{1}{2}$ to $2\frac{1}{2}$ C, or say $2\frac{1}{2}$ to $4\frac{1}{2}$ F and remains high for many hours, returning ultimately to the normal again. The animal appears to be but little affected by the operation, and eats and moves about gaily....The sensitive region is of no great extent and can be defined with considerable precision....By a highly ingenious method they succeeded in passing a weak electric current through the sensitive region, without exciting any of the neighbouring parts, so as to make sure that it was stimulation of the nervous element and not destruction that causes the rise of temperature.

The oxygen consumed with carbonic acid, the nitrogen consumed given off were all found increased as would be the case in a fever of the same temperature. We see then that by the stimulation of a particular region to the inner side of the corpus striatum the thermogenic function of the muscles is abnormally increased simultaneously with the oxidative metabolism, and this without encroaching on the motor tract

without exciting the motor function and without any action that could fairly be called vaso-motor coming into play. Here we have then an example of excess of thermogenesis solely owing to excess of metamorphosis, without any excess of muscular action coming into play. On the other hand the experiments of Landois &c. as mentioned before show that stimulation of certain portions of the brain is followed by cooling, and this attributed by Dr. Ferrier to contraction of the blood vessels and the heat following lesion of those regions to dilatation.*

Curare abolishes the function of the peripheral nerve-endings and thus blocks the way for the transmission of impulses from the nerve trunk to the muscle. The vaso-motor is intact, but the animal can no longer maintain its temperature, it loses its regulating capacity and gets cold in a cold surrounding, warm in a warm surrounding.

Dr. Macalister (Lancet March 19. 1887 p. 558) has shown by experiments that the thermo-dynamic theory is not so simple as it appears. That moreover the function of thermogenesis and muscular contraction are co-ordinate as a rule, but are by no means one and the same phenomenon, that contraction may be continued on stimulation after the heat production capacity had been exhausted. There would then be contraction without rise of temperature.

Having then shown you, gentlemen, that there are caloric centres, and that they do exert their inhibitory capacities in the case of a cholera patient, we are now in a position to understand far better Wunderlich's suggestion to the effect, that the extraordinary rise in temperature of cholera patients immediately before, or soon after death is due to a paralysis of those centres. We have come to learn that the economy with which choleraic spasms are carried on is altogether exceptional ; that a considerable amount of extraordinary energy has to be spent on the part of the caloric centres in order to

* Functions of the Brain 1896 pp. 37 and 253.

effect the inhibitory regulation spoken of ; and this energy must, according to the law of Conservation of Energy, become converted, in the measure as the centres become paralyzed into heat.

In how far the state of the nerve centres is concerned in the post-mortem rise of temperature, may best be seen from the following observations of Professor Taylor. Cases, he says, where the post-mortem temperature has particularly risen are : injuries to nerve centres, especially the brain or the spinal column ; in cerebro spinal meningitis the temperature has arisen after death from 104° to 111° F., and in fatal case of small pox attended with much delirium, Simon observed that the temperature rose at death from 104° to 113° F.

It appears then that these observations confirm in the main the views I have tried to establish. As explained before the post-mortem rise of temperature in general is supposed to be due to a gradual transformation of potential energy in the form of molecular work, into energy in the form of heat. Suppose then that this transformation, instead of being gradual, as is ordinarily the case, would, under some extraordinary circumstances, be sudden ; what effect would this have upon the evolution of heat ?—Why, there would be a sudden and considerable rise of temperature. Now this is just what happens when death occurs in consequence of injuries inflicted upon the nerve trunks or upon the brain. The molecular work by which the nervous and cerebral irritability had been sustained, has suddenly been suspended ; the potential energy dwelling in those organs, can no more give rise to constructive molecular work, to automatic action or to unconscious cerebration ; and so it comes that this very potential energy is suddenly set free and explodes in the form of an extraordinary amount of heat. There is a sudden rise of high temperature.

Again, when there is during life-time an extraordinary amount of nervous or cerebral irritation, even gradual

extinction of those latent activities must necessarily give rise to an evolution of an amount of heat far higher in degree, than would have been the case, had there been a normal state of irritability at the approach of death. In cerebro spinal meningitis, and most likely in yellow fever too, there is an extraordinary amount of nervous and cerebral irritability manifested during the course of the disease, and the consequence is, as we have seen, an extraordinary post-mortem rise in temperature.

Ordinarily post-mortem heat, that is to say the continuance of a certain amount of heat evolution after death, without being marked by any extraordinary rise, has been explained on the supposition that *molecular* life continues to a certain extent after *somatic* death has taken place. There is certainly a good deal of truth in this, known as it is, that tissue irritability subsists for some time after death. What I believe however to be just as true, and what I wish therefore to impress on your mind is this, that the post-mortem heat is not only owing to a temporary subsistence of molecular life, but in no less a measure, and perhaps to a far greater measure to the setting in of molecular death.

I wish further to draw your attention to the fact that the spasms of the extremities, occurring in cholera, far from being an additional evil, causing pain, exhaustion &c. are in reality accessory to the chief evil of the disease, which is, as we have already heard before, venosity of the blood. For however economically the muscular work of morbid contraction may be carried on within the organism, the fact remains that there is an unnecessary—not to say a mischievous—piece of work thrust upon the voluntary muscles, to entertain which a certain amount of additional combustion and consequent disengagement of carbonic acid is required. Thus a cholera patient might be said to move in a vicious circle: Owing to a state of venosity of the blood, the muscles of his extremities gradually begin

spasmodically to contract; and owing to the spasmodic contraction of the muscles, additional carbonic acid gas is generated which renders the blood so much the more venous, as respiration is difficult and the exhalation of the noxious gas by the lungs is consequently retarded. Remember at the same time that the very dyspncea spoken of, is again due to spasmodic contraction of the pulmonary arteries—and the vicious circle mentioned before, will be found to be, if possible more than complete.

Again, if it be true, as I believe I have satisfactorily shown that the spasmodic contraction of the pulmonary arteries gives rise, under the specific influence of the cholera poison, to a serous transudation in the alimentary canal, and that serous transudation, on the other hand, by depriving the blood of its watery parts, gives rise to motor nerve irritation and consequent spasmodic action of muscular tissue in general, and of the muscular tissue of the pulmonary arteries in particular—then we have here before us another vicious circle within which a cholera patient unavoidably moves. Then we have further the fact before us, mentioned at the end of the previous lecture, that the sudden withdrawal of fluids from the body, disturbs the pressure under which both the nerves and muscles are, and secondarily disturbs the equilibrium of action. Finally deficiency of nutrition as is invariably the case in cholera is in itself a source of irritation and gives rise to that restlessness so consuming just at a time when husbanding of strength is of utmost importance. No wonder therefore that the disease of which you have heard so much in the course of these two lectures often makes such rapid progress.

In a country like India, where the people at large have yet to learn the value of time, the above considerations cannot be too emphatically impressed upon the mind of those who it may concern. Cholera in some epidemics, and in some individuals in every epidemic has the peculiarity of making

first appearance¹ between midnight and three to five o'clock in the morning. Patient would suddenly be roused by an urgency to go to stool; the first evacuation may be more or less natural, or partake of the nature of the diarrhœic stool he was accustomed to, since a few days; but soon matters change, and the disease assumes its true character. Now in such cases there should be no waiting for medical aid till day break. Time is Life! and this is no where more true than in all matters concerning cholera.

I have had much to say in the course of this lecture about the state of the nervous system—vaso-motor and motor—and the nerve-centres. There is hardly anything to be said about the state of the brain. There are no characteristic organic changes to be found in the cerebral substance after the death of cholera subjects; and if there is anything remarkable with regard to the state of their mind during life-time, it is the frequent retention of full consciousness to the last, accompanied in many cases by a calmness which strangely contrasts with the real danger of the situation, of which the patient can hardly be unaware.

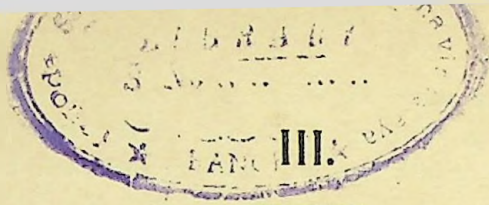
It is however by no means rare to meet with cases where there is a good deal of cerebral excitement at the last stage; perhaps it would be more correct to say, a good deal of excitement of the motor centres, uncontrolled by a mind, which in all other respects seems to be unaffected.

And a sad sight it is to behold, indeed. I allude here to the closing scene of cholera. The patient, cold and clammy, with a pinched and ghastly countenance, gasping, now and then groaning, becomes unreasonable—delirious. It is the delirium of the cold stage, or the stage of cold delirium which is rarely followed by any other, for it is, as a rule, the last. Now what is most striking, and therefore most distressing to the bystanders in this sad state of things, is the persistent muscular unrest patient insists in exhibiting, in spite of the extreme exhaustion under which he labours. If ever a man

required rest, it is a cholera patient after he had gone through the ordeal peculiar to the disease. Yet this man is bent upon consuming his last strength in moving about, or rather in trying to move about, for he is by far too weak to leave his bed ; and if it were not for the support he receives from the bystanders, he might sink back upon his first attempt to raise his head.—Is it anxiety which makes him so restless ? By no means. With the beginning of the stage of collapse it may be said that whatever there may have been of anxiety gradually gives way to a stage of indifference. The patient looks and behaves as if he had come to the conclusion that it is useless continuing the struggle, or as if he had willingly resigned himself ; and the same tenure of mind prevails during the stage of the so-called cold delirium. In fact the whole delirium solely consists in most cases in an unreasonable muscular restlessness, bordering almost on a sort of unintentional suicide by self-deprivation of necessary rest.

This muscular unrest at the close of the stage of collapse owing to congestion of the motor centres in the measure as the blood retreats from the surface, is so much the more remarkable, as the stage of collapse itself is, as a rule, marked by a cessation of cramps. Muscular activity in that stage is indeed at its lowest ebb ; exhaustion prevails everywhere, bordering on dissolution. And in many cases the scene closes in fact by a calm and gradual extinction of the vital functions. In the class of cases under consideration it would however appear, as if after a stage of extreme depression, inaugurated by what we call the stage of collapse, a return to the previous state of abnormal muscular excitement takes place. The respiration from having been slow, indifferent and superficial, gradually, often visibly, becomes deep and gasping. The struggle for breath leaves no doubt that spasmodic oppression of the chest has supervened afresh. It is a reactionary attempt on the part of the *medulla oblongata*

to re-establish a more vigorous respiration. In a healthy man overcome by dyspnœa such respiratory efforts would extend from the respiratory muscles over the whole muscular system, setting up asphyctic convulsions. Not so in the case of our patient; be it, that the muscles are too little irritable for violent contraction, or that the respiratory excitement is not strong enough to impart the proper stimulus to the muscles of the body—the result is, that instead of asphyctic convulsions, there is an irresistible tendency towards being on the move, which is just as involuntary as the usual asphyctic convulsions in a man otherwise constituted. Sometimes the excitement spreads from the motor centres over the whole cerebral organ and then there is more or less of mental derangement, although muscular unrest is still the prominent feature of the delirium. At last the patient falls into a sort of comatous (?uræmic) sleep from which he seldom or never awakes.



Having surveyed in my previous lectures the pathology of cholera under its various aspects, we are now in a state to examine the treatment—the strictly homœopathic treatment of the disease under discussion.

That Hahnemann did by no means over-state the virulence of the cholera attacks as prevalent at his time, we shall best be able to judge from the following case, related by Dr. Quin, the first medical man, who subsequently introduced Homœopathy in England. Hahnemann's instructions as to the case of camphor at the onset of a cholera attack had been issued on the 10th of September, 1831. Two months afterwards, Dr. Quin was at Tischnowitz, in Moravia, whither he had gone to assist in treating cholera patients. He had soon an opportunity of testing in his own person both the effects of cholera and the effects of Hahnemann's recommended remedies. Here are the words in which he describes his own attack. "I fell to the ground insensible ; [no premonitory diarrhœa !] carried at once to bed, I had recourse to the spirit of camphor as soon as I had recovered my senses ; and after six doses, the cramps, the retchings, the sensation of burning at the stomach, the feeling of sinking and prostration, the vertigo, and the feeble and slow pulse sensibly diminished. The borborygmi, the great coldness of the face and extremities, and their blue, mottled color, continued for sometime longer, and gradually disappeared. The action of the bladder did not return until twenty-two hours after the attack. Slowly the other characteristic symptoms abated too ; but for some days, though rescued from instant death there remained a livid circle round the eyes, there was occasional headache, giddiness and constriction of the chest."—

Interesting and instructive as this case no doubt is in itself, it becomes the more so, from the fact, that it was the first of many more similar cases, which were soon afterwards taken up by Dr. Quin, and treated by him according to Hahnemann's instructions, with a result shown in the following table sent to him by the chief magistrate of Tischnowitz :—

	Cases of cholera	Cured.	Died
Allopathically treated ...	331	229	102
Homœopathically treated ...	278	251	27
With camphor alone ...	71	60	11

Inhabitants 6,671 ... 680 540 140

Dr. Quin's case may be taken as a specimen of a virulent invasion of the spasmodic variety of cholera.

Let me quote to you now a few cases of camphor poisoning, as recorded in the 10th volume of *Allen's Encyclopedia of Pure Materia Medica*. There is one case extracted from the *British Medical Journal* 1875 N. 1. page 272. of a boy 14 years of age, who took about 15 drops of the so-called homœopathic camphor for a cold. The medical man who attended him says. "He immediately became insensible ; was soon found pulseless, with his extremities cold, and his face and lips pallid."—

The second case I shall lay before you is an extract from the *Lancet* 1857. (1) p. 384. A young lady, 18 years of age, swallowed a piece of camphor of the size of a marble : A most vacant expression of countenance ; eyes wandering about the room, speechless and powerless. Soon had a violent epileptic fit which lasted for about two minutes. She went into a state

of stupor and in half an hour vomited freely, the matter ejected smelling most strongly of camphor.

Here is a third case of camphor poisoning, taken from the *Lancet*. A man aged 39 years, ate about 35 grains of powdered camphor. Had a fit of epilepsy, which lasted about 10 minutes followed by an extraordinary state of exhaustion. The extremities were cold, the surface was covered with clammy sweat ; the pulse frequent and scarcely perceptible, and the pupils dilated. When roused he had scarcely power to articulate. Occasional suppression of the urine for three months afterwards.

And yet another case from the *Lancet*. (1875-p. 852.) This time it is Dr. Thursfield who reports the case of a child just recovering from a fever, who was given half an ounce of camphor liniment. Burning of the mouth, throat and stomach (immediately) ; convulsions (in fifteen minutes) ; black in the face, body arched backwards ; the teeth so firmly clenched that nothing could separate them ; the eyes wide open, pupils quite insensible to strong light, but neither contracted nor dilated ; the eyeballs were rapidly rolling from side to side ; the pulse was at times hardly to be felt ; at others it was full and bounding ; the breathing was gasping ; long intervals between each gasp, (in three hours.)

One case more and I am done. The case is taken from the *New Remedies* 1876. P. 85. A lad 13 years of age ate two pieces of camphor about 120 grains . . . His eyes became fixed, and he stood motionless and unconscious. His brother took him up to carry him to an adjoining room, when he immediately became convulsed and perfectly rigid, with his head and legs bent back, so that he could only be placed on his side upon the floor. The convulsions increased until the flesh from the head to the shoulders became purple, and the pulse decreased rapidly until it could not be felt. The body then lost its rigidity, and was apparently lifeless ; but in about

ten seconds the pulse could again be felt, the convulsions returned and the boy foamed at the mouth. Applications of cold water brought him round in about four minutes; violent vomiting then ensued; he was hysterical for a time and recovered within an hour.

You will have observed that all the cases cited, date from a time long after Hahnemann had pointed to camphor as a cholera remedy. In fact it is hardly possible to develop by the usual method of drug-proving on the healthy, as recommended and practised in the homœopathic school of medicine, the full and decisive toxicological action of camphor. Exceedingly large doses are required for that purpose, and unless such large doses are taken, the action of the drug is vague, uncertain, to all appearance perpetually changing between stimulation and depression. Even so experienced a drug-prover as Hahnemann felt bound to say that, "the action of this substance (camphor) on the healthy body is extremely problematic and difficult of definition, for this reason, that the primary action of camphor alternates so suddenly, and is so easily confounded with the reaction of the vital principle";—and although he inclines to the opinion that chill and depression is the primary, while stimulation is the secondary, reactionary effect of the drug, yet we cannot forget that to state an opinion is one thing, to state a fact is another thing again. As far as we can learn from his *Materia Medica Pura* there seems to have been before Hahnemann only one single case of genuine camphor-poisoning; it runs as follows: He rubs his forehead, head, chest and other parts; does not know who he is; he leans against something; his senses leave him, he slides and falls to the ground, stretched out stiff; the shoulders bent backwards, the arms at first somewhat bent, the hands bent outwards, somewhat clenched, the fingers spread apart;

afterwards all parts are stretched out stiff, with the head bent to one side, the lower jaw open, stiff, the lips drawn inward, the teeth clenched, the eyes closed, incessant twitching of the facial muscles, cold all over without breathing, for a quarter of an hour.—However, as Hahnemann had only that single case of true camphor poisoning before him, he appears to have looked upon it as a toxicological exception, due to some idiosyncrasy of the subject concerned. Anyhow we know now from a concurrent characteristic of various cases of genuine poisonings that whatever the subjective feelings of a man under the influence of a so-called physiological or medicinal dose of camphor may be; and however much divided opinions and impressions may be, whether the drug behaves as a stimulant or as a sedative; the toxic action of a full poisonous dose is decidedly that of morbid excitement of the motor and vasomotor nerves, causing tonic and clonic spasms of the voluntary muscles, and spasmodic contraction of the muscular tissue of the small arteries; in other words, it is an action strikingly similar to what we have in previous lectures learnt to recognise as the first stage of the spasmodic variety of cholera.

Gentlemen, it may sound strange, and it may be hard to believe, yet is a fact that the similarity between the pharmacodynamic action of camphor and cholera, has been, during the last fifty years, more a matter of blind faith in our school, supported by therapeutic evidence, than a subject capable of demonstration.

As to Hahnemann himself he never asserted that camphor is homœopathic to cholera. I have read to you in my first lecture his instruction regarding the use of camphor; not a word is said there about its *modus operandi*; nor is there anything said about it in the few sentences prefacing those instructions. They are as follows:—

A receipt has been given to the world, which proved so efficacious in Danaburg in the Asiatic Cholera, that of ten patients but one died. The chief ingredient is *camphor*, which is in ten times the proportion of other ingredients. But not a tenth—nay, not one in a hundred of the patients would have died, had the other ingredients, which were but injurious and obstructing, and the venesection been left out, and the camphor been given alone, and always *at the very commencement of the disease*, for it is only when given alone, and at the chief invasion of the disease, that it is so marvelously useful."

It would then appear that Hahnemann was chiefly guided in his choice of camphor by the fact that he knew it has proved itself curative, in other words he was guided by clinical experience, though it was no experience of his own. He had drug-knowledge enough to understand, that of all the ingredients of the Dunaburg receipt, camphor was the only one which had a physiological relation to cholera; but it would appear, he could not venture to say, whether it was homœopathic or allopathic to cholera, since he considered the action of the drug to be extremely problematic and difficult of definition, for the reason that its primary and secondary action alternate suddenly. Nor did it matter much, in the eyes of Hahnemann, by which mode of action it arrested the disease known as it was to him that it did arrest it. Had he not recommended only a few years before the very same camphor in cases of coryza on strictly palliative principles? He never expected much, in the shape of *cure* from so unstable a drug as camphor; but as a palliative, as a means to stave off a threatening attack, he had so much the more confidence in it, as it is prompt in its action. From what he wrote about the prevention of cholera, it is besides clear that Hahnemann had a vague idea, that camphor is an antidote to the choleraic miasm itself, that it kills, as we would express

it to-day, the cholera germs. He had so often pointed out that camphor is an antidote to most vegetable poisons, and there was no doubt in his mind, that the cholera miasm is of organic nature.

When we now, after all what has been said on the subject, remember that Hahnemann inclined to the belief, that of the two alternate actions of the drug, its depressent action is primary, genuine ; while the stimulation which runs almost along with the depressing is secondary, partaking of the nature of a reaction—then we cannot help coming to the conclusion, that whatever good camphor had done in the spasmodic variety of cholera—and this was the only variety it was known to Hahnemann to do good—must have been done in virtue of the sedative action of the drug, that is to say, in virtue of its antipathic action. And the comparatively large, massive dose in which the use of the drug was recommended, while he does not hesitate to recommend the 30 attenuation of *cuprum* or *veratrum* in the case of the failure of camphor, apparently points again in the same direction. Anyhow, so much is sure, that Hahnemann did no where state that the action of camphor is homœopathic to cholera, and that, as far as we know about the views he held years before, concerning the toxicological action of the drug under discussion, the least we can say on the subject is, that it was left an open question by him, whether its useful application in the first stage of the spasmodic variety of cholera is homœopathic, or allopathic.

If we turn now to some of the authorities in our school of medicine who have studied the subject theoretically and practically, and tried to give an account of their doings, we shall find that they have all of them missed the point, in their attempt to establish the homœopathicity of camphor to cholera. I shall quote to you to that purpose, Dr. Rutherford Russell, who derived a large experience in cholera treatment

during the epidemic of 1848/9, both from his private practice and his practice in connexion with the Edinburgh Homœopathic Dispensary ; and who has left his mark amongst us as a scholar and a physician.—I shall then quote to you, what Dr. Hempel has to say on the subject in his "*Materia Medica and Therapeutics arranged upon a Physiological and Pathological Basis*" ; and last, though not least, I shall lay before you the rationale of the beneficent action of camphor in cholera, as given to us in the words of Dr. Richard Hughes, a man whom we all love and honor for the light he has shed upon many obscure points in the Theory and Practice of homœopathic Medicine.

To begin then with Dr. Russell. In his book on *Epidemic Cholera* p. 207. he says :—" Admitting the great law of healing to be, that like cures like, now that we know camphor to be the remedy for cholera, we are only surprised that it should have required Hahnemann to discover the fact. For nothing can be more similar than the effects of camphor and the premonitory symptoms of cholera. Professor Jœrg of Leipzig undertook a series of experiments to disprove Homœopathy. The following are the effects he describes as resulting from camphor. We translate them from the condensed notice by Wibmer.—Jœrg, after taking half a grain of camphor, felt a sense of heat in the stomach ; during the night severe pain in the region of the solar plexus. The next day he had a dull headache ; a whole grain caused heat of stomach ; after two hours, perspiration, a quick pulse, thirst ; rush of blood to the head. In the afternoon shaking of the hands for half an hour. In the evening, pressing pain about the solar plexus. A grain and a half caused warmth, perspiration. In the evening, again severe pressive pain in the solar plexus, which extended upwards to the lungs, and caused cough. The pulse was accelerated ten beats, and the night was uncomfortable. In the morning there was a dull

sensation in the abdominal region, and torpidity of the colon. Two grains caused warmth, perspiration, eructation, griping, enuresis, inclination to stool. In the evening, again pain in the plexus, slight thirst and a restless night.—The observation of Jœrg are fully confirmed by various experimentists. Among the morbid phenomena observed in the bodies of animals poisoned by camphor, is one of special interest to us, which is, that the heart was no longer contractile, although examined immediately after death.* The operation of camphor seems even to throw light upon the pathology of cholera. It seems to act through medium of the pneumogastric nerves upon the solar plexus, the lungs, hearts and intestines, exactly as we have suggested, as the probable action of the proximate causes of cholera.—All that remains now to be done is to give the symptoms of camphor, as observed by Hahnemann which vindicate his selection of it for the cure of cholera.”—Then follows a compilation of symptoms from Hahnemann's *Materia Medica Pura* purporting to establish the similarity between the effects of camphor and cholera.

Now as to Jœrg's provings, no unbiassed man would take Jœrg's symptoms as resembling those of a cholera patient. As to the loss of cardiac contractility in animals poisoned by camphor, the fact in itself may be interesting enough : but it hardly helps to establish a similarity between the cardiac effects of camphor and the state of the heart at the first stage of the spasmodic variety of cholera ; for in that stage, as we have seen in previous lectures, the heart contracts more forcibly than usual. It is in the stage of collapse that the heart is weakened and loses its irritability ; but then it is not for the stage of collapse, but for the first stage of the disease that Hahnemann did recommend camphor.—The suggestion that camphor like cholera seems to act through the medium of the

* *Christison on poisons 4th Edition. p. 910.*

pneumogastric nerve upon the solar plexus, the lungs, heart &c. is no doubt valuable. But then, organopathy is not homœopathy. Two poisons are not considered from a homœopathic standpoint to be similarly acting, merely because their respective toxicological actions are shown to take the same anatomical route. In order to be considered as such, they must be shown besides to be capable of manifesting a similar *mode of action* ; and, I can only repeat here, that no unbiassed man would ever maintain that the mode how Professor Jœrg was affected by his camphor-provings has any striking similarity with the way how a man attacked by cholera of the spasmodic variety is affected. Professor Jœrg's case looks rather like a case of cardialgia of colicodynia, with which it has really been compared by some authors.

As to Dr. Russell's compilation of symptoms from Hahnemann's *Materia Medica Pura*, purporting to establish the preconceived similarity, it need only be said, that Hahnemann himself, while publishing the full provings of the drug, was all along under the impression, as seen from his perface, that depression of nervous action is the true sphere of camphor, and such being the case, Hahnemann must evidently have drawn conclusions from his provings quite opposite to those Dr. Russell wants us to draw from his compilation of the same provings. Please remember, gentlemen, Dr. Russell wants to establish by the aid of these very provings, the homœopathicity of camphor to *spasmodic* variety of cholera, while Hahnemann with the same provings before him, declares the drug to be a sedative, consequently antipathic to spasmodic cholera. There is, as I mentioned before, one case of genuine camphor poisoning amongst those provings (the case ascribed to Wislicenus) which has no doubt much similarity with a spasmodic attack of cholera at its first stage ; and, it may be, that Dr. Russell, wise after the event, took the symptoms of this case to represent the genuine

physiological action of camphor. Nevertheless the fact remains, that Hahnemann never renounced his views regarding camphor, as pronounced in his preface to the drug's provings.

As to Dr. Hempel, he is silent altogether about the motives which may have prompted Hahnemann to recommend camphor in cholera. Again Dr. Bæhr, in his *Science of Therapeutics* cannot sum up courage to say a good word in recommendation of camphor, either with regard to the theory or the practice of its application in cholera. "Camphor," he says, "has been recommended by Hahnemann himself against the disease in its incipient stage. Experience has not greatly confirmed this recommendation; however one should not neglect it, whenever the mildness of the attack allows such a trial, specially when the disease takes the form of what is called cholera sicca." And then our author proceeds to quote Hahnemann's instructions, without the slightest attempt towards explaining the rationale of the drug's action. I have omitted to state that Dr. Hempel omits to give any cholera cases successfully treated by camphor. In his earlier editions—I have before me the 3rd of 1880—he protests altogether, if my memory serves me aright, against the homœopathicity of camphor to cholera.* And no wonder he does so, since on Hahnemann's own estimation, as expressed in his preface to collective symptomatology to the drug, it is all but homœopathic to the choleraic variety characterized by spasms.

Let us now turn to Dr. Richard Hughes' *Pharmacodynamics*. After he has stated that Hahnemann considers chill and depression to be the first effects of camphor, and the symptoms of stimulation so often observed, to be a secondary action, he continues to say that "this opinion is supported by the weighty authority of Trousseau" and Pidoux. After a

Hempel, we may state, does not think that camphor is ever indicated in cholera; but he is we believe the only one who holds such an opinion. At least, we do not remember to have seen such a statement by any other author. (Heyne's *Clinical Therapeutics*.)

full survey of the evidence, they conclude that the essential action of camphor is 'refrigerant and sedative' and describe its full poisonous effects as those of collapse and chill. Stillé takes the same view *as regards large doses*—from thirty to sixty grains. But he thinks on the other hand, that all the evidence goes to show that 'the direct and primary action of small or medicinal doses—from one to fifteen grains—of camphor is to stimulate and excite the nervous and vascular systems, and through them the whole organism.' It has, it would appear an opposite action on the healthy body in large and small doses respectively. . . . And then Dr. Hughes continues "It was not many years before Hahnemann had an opportunity of giving his views about camphor a practical application, and thereby of making a most important contribution to therapeutics. In 1831 Asiatic cholera for the first time invaded Europe. The few physicians then practising homœopathically sought diligently for its *similimum*, that they might be ready to encounter it. Several medicines were suggested; but when Hahnemann spoke out from his retreat in Cœthen, he pronounced the one great remedy to be camphor. He described the well-known features of the first stage of the invasion,—the sinking of strength, the coldness, the anxieties; all these occurring before the vomiting, purging and cramps have set in. Here, Hahnemann said, camphor is a potent and certain remedy."—And again in his *Therapeutics* we read "In speaking of camphor in my lectures I have argued that its physiological action is that (in the words of Trousseau and Pidoux) of a refrigerant and sedative, producing in its full poisonous effects a state of collapse with chill. It is thus perfectly homœopathic to cholera, in the stage of invasion, and Dr. Russel justly says that there is perfect unanimity among all homœopathic practitioners to its efficacy in curing

cholera in the first stage Whether we should depend upon camphor in late stages of the disease is as yet a moot point. It is not, indeed, directly homœopathic to the cramps, diarrhœa or vomiting. But since the condition of algidity and cyanosis to which it does correspond persists when these have set in, and constitute the real peril of the case, there is nothing in our principle which forbids its use at any stage of the attack."—

It comes then to this : If we wish to connect Hahnemann's views on the physiological action of camphor, with his instructions regarding the use of that drug in cholera, maintaining all along that those instructions have originated in the principle of *similia similibus curantur* ; then we must shut our eyes to some facts, which are by no means of unimportant bearing on the subject under discussion. We must mainly suppose, in order to put matters in an orderly shape, that camphor was intended by Hahnemann to be administered at a stage preceding the occurrence of cramps—and this is what our author actually states ; while we need only glance at Hahnemann's instructions, as given in the first of these lectures, in order to see that the stage of cholera in which camphor is prescribed, is distinctly called by him : The first stage, with its tonic, spasmodic character.—“ Cramp-pain in the calves and other muscles ” forms a distinct part of this stage.

I believe, gentlemen, after what I have said, you will agree with me that the homœopathicity of camphor to such choleraic attacks as described by Hahnemann, has, up to this day, remained undemonstrated and undemonstrable. It is only by the aid of Dr. Allen's collection of cases of true camphor-poisoning, as recorded in the 10th volume of his *Encyclopedia of Pure Materia Medica*, that we, for the first time, get a true insight into the therapeutic relation between the effects of camphor and the first stage of the spasmodic

variety of cholera, "with its tonic, spasmodic character," as Hahnemann described it; for we have seen, that camphor in full and poisonous doses is a powerful excitor of the motor nerves, capable of causing both tonic and clonic spasms, thus being homœopathic to the first stage of the spasmodic variety of cholera.

Looking at the pharmacodynamic action of the drug so often mentioned from a modern physiological point of view, we cannot help smiling at the dispute of our ancestors with regard to its action on the human organism. So long as the Galenic School of Medicine strictly prevailed, with its division of drugs, with respect to their action, into hot and cold, moist and dry—the opinion was divided as to which class camphor is to belong to: the hot or the cold one. And a great dispute it must have been indeed, considering that the drug causes a general cold all over the body, with a simultaneous heat in the stomach, often amounting to an almost unbearable sensation of burning. The dispute did not subside after the abovementioned drug division had been given up. In the course of time, it was found more convenient and more in accordance with the nature of the subject, to divide drugs into stimulants and sedative; but camphor was found to be as renitent as ever: no body could say what it really is—a stimulant or a sedative. Hahnemann was the first who pointed out, what is now generally admitted, that most of the drugs are possessed of a double action—a primary, and a secondary, which is as far as possible, the opposite to the primary action. But camphor seemed to simultaneously manifest a stimulant and sedative effect, so that its action was as problematic to him, as to the rest of his contemporaries. We have seen however by which ingenious way he tried to explain this particular physiological phenomenon. He thought that primary

and secondary camphor-actions alter rapidly, so rapidly that their respective effects merge into each other, and convey to the prover a collective impression which partakes of both. Ingenious as this explanation no doubt is, I hardly think, it is fully borne out by facts.—

Alteration of body temperature is one of the most prominent actions of camphor. Now this is just a sensation, which of all others, is most liable to give rise, under certain circumstances, to a mixed feeling of opposite sensations. Think of a fever and ague patient, how he shivers and trembles, feeling all along hot in some part or the other of the body ; think further of the many *aconite* provers, and their records in this respect : Alternation of heat and cold ;—now hot, now cold ;—hot on one part, cold on another part of the body ;—these are standing phrases amongst them. Not so with the camphor provers, and I may add : Not so with those who have by accident taken comparatively poisonous doses of the drug. I shall not trouble you with the enumeration of their recorded symptoms under the head of fever. You can find them in our *Materia Medica* and it is well worth your while to look at them. You will then learn that whenever cold was produced in one of the provers, it was a permanent feeling, unmixed with any alternate sensation of heat ; the same was the case with the febrile, reactionery heat, mentioned by them, or by other provers. The mixed sensation as spoken of by Hahnemann and by many of his predecessors must then necessarily refer to the general action of the drug, with respect to its stimulating and depressing influence.

Now this mixed sensation of simultaneous depression and excitement, which puzzled Hahnemann so much in the case of camphor, but which is certainly common to many a disease and to many a drug's action, although it appears to be more prominent or more instantaneous in the case of camphor—this mixed sensation of simultaneous depression and excite-

ment finds its full explanation in the laws of Physiology, as understood now-a-days. 'Refrigerant and sedative,' according to Trousseau and Pidoux, 'chill and depression' according to Hahnemann, is the foremost effect of camphor. Now chill in physiological language means, stimulation of a large portion of the vaso-motor nerves, or of the vaso-motor centres, with its consequent contraction of the arteries, diminution of their calibre, and decreased flow of blood through them. This must naturally have a depressing effect upon the organism, although the mischief originates in a nerve-stimulating action. The seat of the vaso-motor centres is in the *medulla oblongata* ; and should the excitement, got up there, spread to neighbouring motor centres, as is really sometimes the case with regard to the action of camphor, then there will simultaneously arise a more or less general muscular excitement, which cannot fail to convey the sensation of a stimulus. Thus it is one and the same drug-action, according as its sphere extends over a small or large region, that may produce along with the chill and depression a feeling of more or less excitement. When the dose is very large, we have seen, that the muscular excitement may amount to tonic or clonic spasms.—Hahnemann was right as far as his estimation of facts are concerned. Chill and depression are the primary effects of camphor, for it is the vasomotor centres which are first and foremost assailed by the poison. But he was wrong in his interpretation with regard to mixed feeling of depression and stimulation experienced under the influence of the drug. For as has been shown, this mixed feeling is by no means the effect of a series of rapid successions of two opposite drug-impressions, but is simply owing to a physiological state in which both impressions are simulataneously produced.

As to the sensation of external cold, and the burning in the throat and stomach, there can be hardly any dispute.

in fact there has never been any, about the fact of their co-existence ; but we are no more perplexed at it, knowing as we do that the very retrocession of the blood from the cutaneous surface and its consequent congestion in the digestive organs, are the causes of that simultaneous feeling of heat and cold in two different parts of the body.

I have dwelt on this subject at some length, because it is my full conviction, that Hahnemann's explanation of the way how camphor operates upon the healthy human body, has lowered the drug in our estimation as a therapeutic agent. For who, in our school, would ever make use of a drug, of whose pharmacodynamic action he is not sure. If camphor, after all the proving of it, is still problematic in its action, and, to use a well known attribute, unstable as water ; then the less we hear of it the better. Had it not been for cholera, the name of camphor would have to all appearance been eradicated from our *Materia Medica*.—While lately in France, I have, however, seen the drug used according to Raspail's system in cases, which have brought home to me the conviction, that we might have derived in our school more benefit from it than we hitherto did. I have seen a case of spasmodic asthma cured by camphor (there having been, to my knowledge, no further attacks for four months) where *Ipecacuanha* did nothing, and where *Arsenic* seemed only to palliate.—In two cases of epilepsy it appeared to me, camphor did just as well as *cuprum*—the one like the other would lengthen the intervals of the attacks, while the drug was used, without arresting the fits altogether. And if you will look at the cases of poisoning quoted at the beginning of this lecture, you will not be surprised at what I say.

Misfortune, says an old proverb, seldom comes alone ; something similar prevails with regard to misrepresentation. For camphor has not only been misrepresented with regard to the *modus operandi* of its physiological action on the

healthy, but no less with regard to the sphere of its therapeutic action in disease. It has been represented as being strictly homœopathic only to such cases or stages of cholera as are marked by absence of cramps ; while its genuine sphere of action embraces the spasmodic variety no less. Need we then wonder at the confusion which reigns in our school with regard to the theory and clinical experience concerning camphor in cholera?—Between Dr. Hempel who could never see what homœopathic relation there is between the drug and the disease so often mentioned, and Dr. Rubini of Naples, who maintains camphor to be the specific for cholera, there lies a whole mass of clinical evidence, tending to show, that the truth is with neither of them. The truth is with Homœopathy when applied in the true spirit of our art. Camphor is eminently homœopathic to all conditions attended with chill and depression, provided the chill and depression be due to an undue excitement of the vaso-motor centres and not to a beginning failure of the heart's action ; provided further, that the organic mischief, apt to result from such a state, has not taken too large a dimension. Camphor is therefore eminently homœopathic to a certain variety of cholera, known as cholera sicca, or dry cholera ; so called because the disease runs its course without serous transudation, in other words without vomiting and purging.

Pathologists deny altogether the existence of such a cholera variety ; they maintain that rice-water evacuations are pathognomic to cholera ; consequently where they are totally absent, it would not be a cholera case we were dealing with at all. It is however a fact, which pathologists cannot and do not deny, that during an epidemic, cases do occur which perfectly correspond to the above description. And although autopsy has in most of these cases shown the existence of a rice-water fluid within the intestines ; so that we may fairly say, that the difference between such cases

and the ordinary cases of cholera is more apparent than real : yet for us, homœopaths, who differentiate, not only between one disease and the other, but between one patient and another, though both may be afflicted, apparently, with the same pathological disorder—for us, two cholera patients, the one with, the other without, manifest purging and vomiting, are not to all therapeutic intents and purposes the same ; and as pathology is after all chiefly cultivated to subserve the art of healing, we shall do well to retain a distinction, which to the pathologists may be apparent, but which is nevertheless real, to the therapist. The rice-water fluid found within the intestinal canal after death may besides be due to a *post-mortem* effect, like the shedding of the epithelial cells spoken of in a previous lecture.

In cholera sicca, then, camphor is eminently useful because eminently homœopathic to the disease. As already mentioned before, this variety of cholera may be solely attended with chill and depression, without even any, or at least, without any prominent cramps, the whole disorder being restricted to a spasmodic contraction of the small arteries.

Take the following case as reported by Dr. Russell : A child being in a room where there were several bad cases of cholera, suddenly presented the strange, unnatural look, which characterizes the disease, and seemed to shrink in size, becoming cold and a livid hue. This having occurred in the presence of Dr. Russel, he immediately gave her five or six drops of the tincture of camphor, and in the course of ten minutes, the anxious, frigid expression of face gave way : it was succeeded by a glow of warmth ; and the pulse, which had become very small, rapid and irregular, resumed its normal volume and rate. She recovered, but for some days suffered from diarrhœa.—Compare now this case with the first case of camphor poisoning mentioned before, concerning a boy

of 14, who took about fifteen drops of the so-called homœopathic camphor; he immediately became insensible, was soon found pulseless, with cold extremities, face and lips pallid.

Dr. Russell's case may perhaps not be a fair specimen of cholera sicca; for it might, for all we know, have run on to the second stage of purging and vomiting, had it been allowed to take its course without medical interference; the diarrhœa of which the child suffered after she had recovered from the attack, would rather point to a case of genuine cholera which has been reduced to a common diarrhœa by the use of camphor. In fact, the above case is rather a fair specimen of a premonitory stage of cholera where there is neither vomiting, nor purging nor cramps. That camphor helped here promptly,—that the drug was homœopathic—there can hardly be any doubt.

But such cases are, as a matter of fact, rare; and if we are to restrict the therapeutic use of camphor to them, and to them alone, then the greatest part of the therapeutic sphere of our drug would be left out in the dark: for camphor is just as entitled to be homœopathically used in cases attended with spasms at the very onset. That the remedy in such cases has moreover more than a mere theoretical pretension, is seen clearly enough from the success it has attained at the time of Hahnemann, where just the spasmodic variety of cholera was prevalent. And this is not all. For a close enquiry into the pharmacodynamic action of the drug on the one hand, and into the cases where it has gained its undoubted therapeutic success on the other, unmistakably shows that with spasms the action of the drug begins and ends. It produces in moderate doses chill and depression, which means, it produces spasmodic contraction of the small arteries;

and it produces in larger poisonous doses, as we have seen before, in addition to the just mentioned contraction of the muscular coat of the arteries, general spasms. Further than that, the action of camphor, however, never goes. It is no blood poison, nor does it injuriously affect any organism in particular—the severest cases of poisoning ending in a comparatively speedy and complete recovery. With the exception of some infants, we have yet to learn that an adult ever died of camphor poisoning, or that he ever was permanently injured after having recovered from the acute symptoms of the poison. Amongst the cases of poisoning cited at the beginning of this lecture,* there is one case of a woman who for weeks afterwards suffered of difficult breathing; which was after all but a spasmodic affection.—If any one desired me to define in a few words the action of camphor, I could not express it better, than by saying: Camphor is nothing if not spasmodic.

Such being the case we are now able to define the therapeutic sphere of the drug in cholera, both positively and negatively; we are able to say, where it may be expected to be of use as a therapeutic agent, and where not. Of the rare cases of cholera sicca, or such others, where sudden chill and depression, without any cramps, usher in the second stage of vomiting and purging—I have already spoken. There remain then the other two great varieties of cholera, the spasmodic, and the non-spasmodic variety as described in previous lectures. And here camphor is homœopathically indicated in the first stage of the first variety, and counter indicated in the second variety, that is to say, in that variety of cholera which takes its beginning from a relaxed state of the bowels.

* See Taylor's Treatise on *Medical Jurisprudence*.

Cholera in its spasmodic variety is of a purely neurotic origin ; it consists in a morbid excitement of the vaso-motor and motor nerves. It is only after the organs of sanguification have been involved, that hæmatic symptoms make their appearance, in the form of a separation from the blood of its serous liquid, giving rise to the well-known choleraic evacuations. Purely hæmatic symptoms may, however, make their appearance from the very beginning in the form of cholera sicca, as was the case during the cholera epidemic of 1855. The patients turn icy cold and feel at the point of death before any symptoms of vomiting or diarrhœa set in. The face and limbs lose all appearance of life, the eyes droop, and the hands close, giving the sufferer the aspect of a corpse. Under such circumstances Lachesis or Cobra would certainly be by far preferable to Camphor. I myself have seen such cases, and Cobra (*Naja Trip.* 3x) had a prompt and permanent effect for the better. These evacuations which mark the second stage of the spasmodic cholera variety, may be owing, as I have shown before, either to the general spasmodic state of the arterial system, which brings on congestions and transudation of serum within the abdominal viscera ; or to a specific hæmatic action of the cholera poison. But whatever may be the case, it is evident that camphor loses ground, as a homœopathically acting remedy, from the moment hæmatic symptoms set in, for the simple reason that the poisonous action of camphor never reaches the blood. It has no doubt an action on the solar plexus, but not an action similar to the cholera poison ; it causes heat of the stomach and pain in the region of the solar plexus—probably due to congestion of those parts—yet, for all that, it does not go farther, it does not cause transudation of serum within the abdominal viscera ; in fact, it does not reach the blood or the seat of sanguification directly, nor does it do so even indirectly *via* the nervous system.

Again in the usual, non-spasmodic variety, where the disorder starts with a relaxed state of the bowels, gradually running on to choleraic stools, camphor is from the very beginning out of place. More than in the second stage of the spasmodic variety of the disease, we want here particularly at the very outset a drug which by its physiological action on the healthy, has shown special destructive affinity to the intestinal mucous membrane; and of all the drugs known in this respect, camphor would be, and is the last. The time occupied in such cases with the administration of camphor is so much precious time lost to the patient; and we have already come to know, how precious time is especially in cholera cases. Counter-indication is here almost as valuable, as positive therapeutic advice. Let me therefore emphatically impress upon your mind, that whenever you have good reason to believe, from the history of the case, that the disorder originated with the digestive organs, you are wasting your time with camphor.

If we remember now, that the spasmodic variety of cholera, prevalent as it was at the time of Hahnemann, has become rather rare since; that the usual type of cholera now-a-days is, as a rule, preceded, as already described before, by malaise, general depression, disordered assimilation and diarrhœa; when we further remember that, while the spasmodic type gradually changed into the non-spasmodic one, the general notion sprung up in our school, that camphor is best indicated in cases marked by absence of cramps—that is to say: Camphor would be best indicated in the non-spasmodic variety—then shall we understand, why the drug has not yielded the same therapeutic results of late, as of yore.

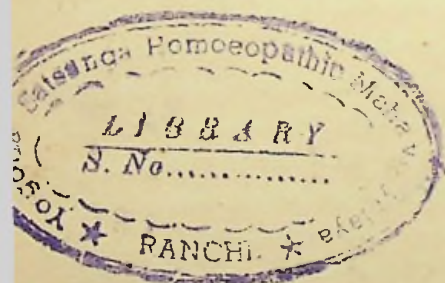
How much confidence Hahnemann had in camphor as a remedy to allay cramps, can best be seen from the fact, that he insisted that the drug should even be tried at the stage of

vomiting and purging for a short time, although he must have known full well, that at that stage of the disease, there is no pharmacodynamic relation—either allopathic or homœopathic—between camphor and the prominent symptoms of the choleraic disorder. It must then have been evident to him, that at the bottom of the whole disorder are the spasms; to remove them was, according to his view, the chief task of the treatment, having been confident, that choleraic evacuations would then abate by themselves, in the measure as the cause of the mischief is removed. Should camphor fail, he would again have recourse to a remedy which has very little to do with choleraic evacuations, but very much with spasmodic attacks—to *cuprum*; and he would almost prefer the last mentioned drug to *veratrum album*, although the direct relation of this drug to watery diarrhœa must have been but too well known to Hahnemann, when he framed his rules concerning the treatment of cholera. All this proves, that Hahnemann's treatment was chiefly directed against the spasms and in this he chiefly, if not exclusively, relied on camphor.

It is satisfactory to us to know, that subsequent clinical experience fully corroborated Hahnemann's views; for not only has camphor arrested the progress of hundreds of cholera cases at the very onset, but it has actually arrested the progress of the disease at the second stage, when vomiting and purging were already fully established. *Tolle causam* is a principle in medicine which helps us often, when we are at a loss to lay hold upon the exact homœopathic remedy. In how far, and for how long, during the course of a disease, you are to rely upon the principle of *tolle-causam* alone, must be left to your judgment in every individual case. A good deal may depend in this respect upon the homœopathic resources there are at your disposal. A remedy which would homœopathically correspond both to the first and second stage

of the disease, woule no doubt be by far preferable to one which corresponds to the one (as camphor does) and not to the other. Are we in possession of such remedies, or at least of one such remedy?—It will be the task of my future lecture, to examine this question. Before doing so, I shall however say something more in my next lecture, concerning the precise homœopathic application of camphor in the disease under consideration.

In connexion with the above and the following it is interesting to study Lauder Burton's Text Book of Pharmacology &c. article on Camphor.





IV.

In drawing a line between the spasmodic and non-spasmodic variety of cholera, with regard to the homœopathic applicability of camphor, I feel I must remind you again of what I understand by the spasmodic variety of cholera. To all appearance it would convey the meaning of a variety of cholera attended with spasms. But then we have seen that the non-spasmodic variety is by no means free from spasms, the same being present, and almost as severe in the latter, as in the first variety. What constitutes then a certain class of cholera cases as pertaining to the spasmodic variety is the fact, that the disease is ushered in by spasms, while in the non-spasmodic variety it is relaxation of the bowels which takes the lead, leading later on to all the disturbances peculiar to the disease, spasms included. Now there are spasms and spasms; arterial spasms and muscular spasms. It is the latter which, to the uninitiated, make themselves most conspicuous; it is the former however—the arterial spasms—which carry most danger with themselves. Do not therefore run away with the idea, that you deal with a non-spasmodic variety of cholera—that consequently to administer camphor would be a mere waste of time—because your patient happens not to have a fit of tonic or clonic spasm at the onset. There may be nothing of the kind, and yet you may have a genuine case of spasmodic cholera before you. The voluntary muscles may not be spasmodically effected, but the muscular coat of the arteries may nevertheless be so, and this alone is quite sufficient to stamp the case as of a spasmodic type. It

would be a case of cholera marked by chill and depression—a case just as homœopathic to camphor, as one marked by chill and depression, plus spasms. The case previously mentioned, of Dr. Russell's little girl, who became suddenly, and under his very eyes, cold, livid and shrivelled, is pathologically speaking just as much a specimen of spasmodic cholera, as Dr. Quin's own case was, and as many others are beginning with tonic muscular spasms ; although symptomatically they widely differ from each other. Symptomatically they are even more than different from each other ; they are opposite to each other ; the one being marked by general depression, the other by a general morbid excitement of the voluntary muscular system. Yet, pathologically, they start from the same basis ; it is only a difference of more or less of the same morbid state.

Whenever, therefore, during a cholera epidemic, a man is suddenly seized with difficulty of breathing, coldness all over with lividity of the face or of other parts of the body, with depression of strength, &c. we may be almost sure we have a case of spasmodic cholera before us ; it is the spasmodic contraction of the pulmonary arteries in particular, and of the arterial system in general which is at the root of all the evil. Should we, moreover, be called to such a case, after vomiting and purging has actually set in, we can still hardly do better than Hahnenmann advised us to do in his typical cases of cholera : We shall still try camphor for a time, in the hope that with the subsidence of arterial spasms, the choleraic evacuations will subside by themselves.

Wherever we find a certain pathological disorder of a definite character manifesting itself in two or more types, there we may be sure to meet with a number of intermediate forms of pathological, or symptomatological varieties, concerning which a strict classification would be no easy task

Something similar occurs with regard to cholera and the various modes of its incipient manifestation. Between such typical cases, well marked by spasms of some sort—muscular or arterial—and such other cases decidedly originating in a disordered and relaxed state of the bowels; in other words between the two well defined types of spasmodic and non-spasmodic cholera, there is a sort of intermediate type, not so easily definable as to its nature and origin.—A man may have had diarrhœa for a few days, and the diarrhœa may have gradually or suddenly assumed the character of choleraic evacuations, and yet he may be, to all intents and purposes, at least to all intents and purposes as far as therapeutics are concerned, looked upon and treated as one affected with spasmodic cholera. The very premonitory diarrhœa of his may be the effect of an exposure, or to some other cause of general vascular derangement. Exposure to cold means, as to its effect on the human body, contraction of the arterioles and consequent stagnation of blood in the parts thus exposed. That such a stagnation of blood in one part of the body often leads to congestion in the portal system, and ultimately to loose bowels, is not merely a theoretical possibility, but an actual reality, repeating itself but too often, even under ordinary conditions of life, and so much the more under the influence of epidemic or endemic cholera. Under ordinary circumstances such diarrhœas might get well by themselves, and do get well by themselves. Under the observation of the usual hygienic rules, reaction takes place, the flow of blood through the capillaries from having been stagnant becomes free and easy, the arterioles dilate and relieve the congestion in the abdominal viscera, and the diarrhœa ceases by itself. Under the influence of epidemic or endemic cholera spontaneous reaction is by far not so frequent; the diarrhœa is, moreover, actually apt to run on

unchecked for days, inspite of all hygienic rules, till it gradually or suddenly assumes the choleraic character. But gradually or suddenly as the case may assume the character of cholera, it is evident that we have here nevertheless to do with a genuine case of spasmodic cholera. What determines the spasmodic character of cholera is not the suddenness of the attack, nor is it the cramps of the extremities ; it is the fact that spasms of some kind have originated, and are, as far as can be judged, still keeping up, the whole train of the choleraic disorder ; and that is just what may take place in the class of cases before us.

I need not tell you moreover, that such cases are by no means rare ; in some seasons or epidemics, they are the rule, while in others the premonitory diarrhœa is as a rule idiopathic, and decidedly of the non-spasmodic variety. To distinguish between one and the other is not always an easy matter ; the history of the case may give us some indication ; the state of the patient may afford us some further clue ; and a certain practical acquaintance with the prevailing type of the disease, with the general state of health of the patient before us, with his habits and predispositions, may and will in most cases supply the rest of the information required on the subject.

As to the history of the case, we shall have to ascertain if the premonitory diarrhœa had set in consequent upon some irregularity in diet, or in connexion with some exposure to cold, with or without some signs of catarrh. In the latter alternative, patients may have felt chilly all along and uncomfortable, he may have been even troubled more by the chillness than by the diarrhœa—all this would be so much the clearer an indication that it is the spasmodic variety of cholera we have to deal with, and that we should not exhibit any other remedy, should we even be called after vomiting and purging had set in, before having given camphor or any

of the analogues of camphor, to be mentioned hereafter, a reasonable trial.

Concerning the state of the patient at the time when we are called upon to decide the special nature of his disorder, we may say : Whenever cyanosis and objective coldness of the body sets in at the commencement of the disease, it may be considered almost a sure sign, that we have before us a case of cholera attended with arterial spasms.—When the choleraic discharges are idiopathic, cyanosis and objective coldness increase with the frequency of the evacuations, and unless the same be very profuse from the very beginning, it takes a few hours, as a rule, before anything like cyanosis and sensation of coldness to the touch are prominently established. Their comparatively early manifestation shows that the venosity of the blood to which they are due, is not a consequence of the vitiated condition of the blood, but of the spasmodic obstruction in the pulmonary arteries. In such cases the dyspnœa will also be found greater at the very beginning than it would be the case, whenever the choleraic evacuations are at the root of the disorder. You will also find the thermometer in keeping with the general state of venosity, and consequently lower than in the non-spasmodic variety of the disease. In short, a state of depression, coldness, dyspnœa and cyanosis, out of proportion to the choleraic evacuations just set in, denotes the origin of arterial spasms. The pulse will be a further indication to you, for with the arterial spasms there is arterial tension ; the heart corresponding with the general state of the vascular system, will be found to be in a state of irritation, its sounds more or less accentuated ; while in the non-spasmodic variety the pulse is soft and more or less compressible from the beginning, and the impulse of the heart is weakened. Corresponding with this state of things we find such patients listless, apathetic, indifferent towards

all their surroundings ; while the choleraic patient of the spasmodic variety is restless, full of anxiety—not so much anxious perhaps about his condition, as about the want of air, he cannot help feeling.

Let us however, not forget that, all the above mentioned symptoms—dyspnœa, algidity and cyanosis—may just as well originate in a state of cardiac paresis, though the sympathetic system in general may not be particularly disordered. In fact, as far as the circulation is concerned, the consequences of a weak action of the heart are just the same, as what follows spasmodic contraction of the muscular coat of the arteries. In the first case there is deficiency of propelling power ; in the second, there is increase of resistance to the flow of blood through the vessels : the effect, it is evident must be in both cases, well-nigh the same—impeded circulation and venous congestion, incomplete æration and oxydation of the blood, hence : dyspnœa, algidity and lividity, and as a secondary consequence, congestion of the portal system, diarrhœa, and—under the influence of epidemic cholera—rice-water discharges. We shall see hereafter that such a combination and sequence of symptoms may occur during a cholera epidemic. Yet camphor, which “is nothing if not spasmodic” would be out of place in such a contingency, where paresis of the heart’s action is, if not at the root of all the evil, at any rate, prominently associated with the danger attending the existing evil. If you want therefore to make it sure that the dyspnœa and cyanosis eventually present at the very onset of cholera is really due to a spasmodic condition of the arteries ; in other words, if you want to make it sure, that camphor, or one of the drugs analogous to it in action, is, beyond any further doubt, the homœopathically indicated remedy in the case before you ; then you will have to take the state of the patient’s heart into consideration, before coming to a definite conclusion on the subject.

After this detailed differentiation, I believe, it should not be difficult to say in a given case of cholera, even when preceded by diarrhœa, if it belongs to the spasmodic or non-spasmodic variety, and consequently if camphor, or one of its analogues, has to be prescribed or not.

It has been maintained by some men of our school—Dr. Rubini is one and foremost amongst them—that camphor should be used at any stage of the attack, and not only, as instructed by Hahnemann, at the beginning when vomiting and purging have not yet set in at all, or, at any rate, have only gone on a short while. They say : Camphor may not be homœopathic to the vomiting and purging ; it certainly is to the state of alidity and cyanosis, which plays so prominent a part in the disease under discussion, and constitutes in fact one of its greatest perils. In other words, they maintain that the motives which prompted Hahnemann to advise the administration of camphor for a time even after the choleraic evacuations had set in—that the same motives may be urged in favour of the application of the drug in any stage, even when vomiting and purging are already far advanced. It is they who assert, as I have already mentioned before, that camphor is the specific remedy for cholera in all phases and stages of the disease. Dr. Rubini has supported his views by facts ; and the best way to lay his claims in favour of the drug before you is, to state them in the words of Dr. Richard Hughes, who, without being prepared to adopt in their entirety Dr. Rubini's general convictions on the subject, advocates his cause in a fair spirit of impartiality.

“ Hahnemann ” he says, “ had the gratification of hearing of the great success which attended all who followed this advice of his, and of numerous instances in which the family use of camphor had checked the earliest symptoms of the prevailing scourge. In the epidemic of 1849, British physicians had an opportunity of testing the value of the remedy : and Dr.

Drysdale of Liverpool and Dr. Russell of Edinburgh vied in their praises of it. The latter who has written a book on the disease, says : ' It is our firm belief that camphor is an almost infallible remedy for cholera, if given from the very outset.' In 1854 the same testimony was given to its value in England, and from Italy still more striking evidence was adduced as to what it can do. Dr. Rubini of Naples—he who has given us a proving of *Cactus grandiflorus*—states that during this epidemic he treated together with his colleagues, 592 cases with camphor alone without a single death. He gave it in the spirit of Hahnemann's instructions—*ad libitum* doses of a saturated tincture, and relied upon it to the exclusion of all other medicines in every stage of the disease. You will find a full account of his observation in the tenth volume of the *Monthly Homœopathic Review*. Much exception has been taken to his statement of results, as exaggerated ; but I think without just cause. Dr. Rubini is a physician of undoubted experience and judgment, not to speak of trustworthiness and his published affirmations have never been contradicted. He does not mean to say that all his cases were in collapse ; on the contrary, of a set of 200 treated in his institution, it is expressly mentioned that collapse occurred in fifteen only. What our colleague wishes us to understand is, that in an epidemic of Asiatic cholera, in which 377 cases came under his own treatment, and 215 more under that of his fellow practitioners, they gave nothing but camphor, and lost no patient. There must have been the usual proportion of severe cases among these, so that the results are most gratifying. We have hitherto been jubilant about reducing the ordinary 50 per cent. mortality from cholera to one half ; but 26 per cent. of deaths is a melancholy rate after all. We are bound to look in directions which promise something better still, and Dr. Rubini's extension of Hahnemann's camphor treatment deserves our most respectful

attention. Mr. Proctor, indeed, reports less favourably of it in the Liverpool epidemic of 1866. But further experiment is required. In the same epidemic Dr. Rubini treated 123 cases, and again his mortality was nil.

“It is natural to inquire whether the report of the anti-choleraic virtues of camphor have spread beyond homœopathic regions, and whether any trial has been made of it. This might well be, as in its case there are no posological prejudices to be overcome. I am only acquainted, however, with one miserable instance of its use in the last epidemic, where it was given to a few patients at the London hospital. The physician did not deign to follow our method of administration, *viz.*, dropping it on sugar, but gave it suspended in water. He thus nauseated his patients and burnt their throats and consequently, instead of exhibiting it in a better form, thought fit to abandon its use altogether. Both Ringer and Wood, however, now recommend it; and the latter states, that it forms the chief ingredient in the popular cholera mixtures sold in America.”

I shall quote to you now what Dr. Hoyne in his “Clinical Therapeutics” has to say on the same subject :

“Camphor is certainly the most frequently employed remedy in the treatment of cholera; but it is by no means a specific, as Rubini would have us believe. Dr. Rubini, some years ago, claimed that it was a specific, not only for the invasion of the disease, but for every stage, if used properly. The proper use in his opinion, consists in giving five drops of his solution of camphor every few minutes, until reaction sets in; his solution was made by distilling a pound of alcohol so much overproof that it would dissolve a pound of camphor. He reported 377 cases cured with this remedy alone, and no deaths. If all persons were affected precisely alike, and the disease always presented exactly the same

symptoms, it is possible that camphor might prove specific. But that cases and symptoms differ in different epidemics is proved by the fact that nearly all cholera specifics contain a large amount of camphor, and they fail in the majority of cases. Dr. P. Proctor (British Journal of Homœopathy, Vol. XXV, P. 92) found Rubini's solution to fail in all but two cases, while *veratrum* alone was sufficient for a cure in twenty-seven cases, and *arsenicum* in thirty-three. More than one physician has concluded that Rubini's cases were not cases of true Asiatic cholera; but examples of choleric or choleraic diarrhœa. Dr. Hirsch states that reports had reached him which were not altogether corroborative of the remedial power of camphor in cholera. He also quotes from Rubini's report, in which he shows that after stating in the paper that he had cured 377 cases in the body of the report, he (Rubini) says, he had but *few fatal cases.*"

To this I may add the evidence of Dr. Quin who lost—the very epidemic for which Hahnemann had prescribed camphor with such a confidence of success, that he predicted that not one amongst hundred would die—11 patients out of 71, treated by camphor alone. And I may further add, that the very argument upon which Dr. Rubini's treatment is based, is, as far as I am able to understand, no less shaky in its foundation, than the facts upon which his assertions seem to be built. For granted that algidity and cyanosis represent the chief peril in all cases of cholera, it should not be forgotten, that cyanosis and algidity may be owing to two different, actually opposite, pathological conditions. They may be owing, as has so often been pointed out before, to a spasmodic state of the arterial system; or to a state of paresis of the heart; and it is not easy to be seen, how one drug, be it camphor or any other drug, could be primarily homœopathic to both the one and the other pathological state.

As to the general experience in this country with regard to the camphor treatment of cholera, it is on the whole, I may say, about the same as it is in Europe and America. It is an excellent remedy in some cases ; in some other cases it fails ; it has been known to fail on a large scale in certain epidemics, and the disappointment thus caused resulted in an entire neglect of the drug in further cases. In short camphor played, and plays up to this day, the same rôle in our school as certain empirical remedies do in the ranks of the old school of medicine. I am not aware if there have ever been made experiments on a somewhat large scale in this country to treat all cases of cholera indiscriminately by camphor, from beginning to end. What I do know from my own experience, and from the experience of others is this, that in the spasmodic variety of the disease, in the sense as I have explained it, the drug acts just as beneficially here, in the first stage as it did in Europe. I can also say from my own experience and that of others, that whenever the type of the variety is homœopathic to camphor, the drug will act well, even after purging and vomiting has set in. Camphor, or one of its analogues, when indicated, strongly deserves a fair trial, and should not be timidly abandoned after an unreasonably short time. And unless the choleraic evacuations are so prominent, that they by far outweigh all other symptoms, I can hardly see how we can benefit our patient better in the spasmodic variety, as I understand it, than by persevering with camphor or with some of its analogues. Camphor in such cases of cholera is just what *aconite* would be in the chill likely to lead to catarrhal inflammation when left alone. So long as the effects of the chill are not localised, there is, according to clinical experience, no drug so apt to cut short the coming mischief as *aconite* ; but when the effects of the chill are once localised at a certain organ, *aconite* is

out of place ; a drug is called for, capable by its physiological affinity to certain definite organs of the human body, to combat with the disorder at its very seat. Analogically speaking we ought then to abandon camphor, at the first sign of some choleraic evacuations. Experience has taught us however, that in the spasmodic variety the therapeutic efficacy of camphor does go somewhat beyond the period of choleraic localisation, and we should so much the more continue the use of this drug or of some of its analogues, within certain limits of time as there is as yet no drug known in our *Materia Medica* which, in its physiological action on the healthy would run so far parallel with spasmodic cholera, as to produce with something like certainty spasms—arterial or muscular—followed by rice-water discharges from mouth and rectum. It is no use getting impatient with your camphor (which is at any rate a reliable antispasmodic on homoeopathic principle) or with any other drug similar in its action to camphor, as long as the leading indications are all on its side and not on the side of the drug in whose favour camphor is intended to be abandoned.

When I shall come to discuss the therapeutical relations of *cuprum* and *veratrum* to cholera, then I hope I shall be able to show you, that pharmacodynamic and therapeutic virtues of these three drugs—*camphor*, *cuprum* and *veratrum*—are by no means convertible quantities. Each of them has, moreover, its peculiar sphere of action, its peculiar sphere of usefulness ; and where the one or the other is indicated we should hold fast to it, and set our hopes for the salvation of the patients on it. When for instance cyanosis and algidity is and remains the chief feature of the choleraic disorder and there is all ground to believe that they proceed from the state of the vasomotor nerves, in other words, that they are, as to their origin, neurotic and not hæmatic, then it is advisable that camphor or one of its analogues should be continued

long even after the characteristic cholera evacuations may have made their appearance. But to say : because cyanosis and algidity form in a more or less pronounced manner one of the standing menaces of cholera, therefore camphor is to be indiscriminately administered, and to the exclusion of all other remedies—is, to say the least of it, not what I would advise you to do.

There was a time when I thought extreme cases of poisoning had actually revealed that camphor is capable of producing in its victims cholera-like purging and vomiting. Taylor in his *Medical Jurisprudence* 1879, states that infants poisoned by camphor die of vomiting and purging and convulsions. Then I had fished up a dubious case of alleged camphor poisoning, in one of the criminal records of Bengal, to the effect, that one out of about ten witnesses had said the man had died with all the symptoms of cholera, vomiting and purging included.—Then a well experienced medical practitioner of this city published some years ago the case of a child who swallowed a lump of camphor and manifested all the signs of cholera : spasms, vomiting and purging of rice-water evacuations. Since however Baboo Brajendra Nath Banerjee L.M.S. of Allahabad told us lately that he had seen rice-water stools in purging from Jalap, Scammony and even Eno's fruit salt—I have come to reconsider the matter, being now of opinion that under the cholera-endemic influence of this country, any diarrhoeaic discharge might, under certain conditions, assume the form of rice-water stools. Since then I have looked into Taylor's Edition of the above mentioned work, published in 1883, and have found nothing there with regard to infants poisoned by camphor dying of purging and vomiting. Out of various cases there is only the case of one infant mentioned that died in the way described, but there is no mention made of rice-water discharges. On the whole it is my opinion, so long as all the cases of camphor poisoning

coming to us from Europe or America are silent about cholera-like evacuations, we must not attach much value to what passes in this respect in this country. Any one poisoned in this country by camphor is sure to suffer of an attack strikingly similar to the spasmodic variety of cholera; what wonder then, if the rest should come, so to say, by itself; especially in certain seasons of the year. Have we not seen here in India whole epidemics of intermittent fevers, where the rigors of the cold stage gradually merged into a choleraic attack "with its rice-water evacuations and vomit" ?*—In a similar way then, may it come to pass in Bengal, that a camphor-rigor merges into a choleraic attack with rice-water discharges.

I have endeavoured, gentlemen, to assign to camphor its proper sphere of action. It remains now for me to give you some practical illustrations of the use of the drug so often mentioned during the course of this lecture. I have selected for that purpose a number of cases as given by Dr. Russell in his Treatise on Epidemic Cholera. There are on the whole 75 cases recorded, out of 365 cases treated by him conjointly with the other medical officers attached to the Homœopathic Dispensary of Edinburgh, during the epidemic of 1848/49. The author states that the object of selecting those 75 cases for publication was rather to illustrate the varieties of the disease, and the corresponding treatment, than to show a brilliancy of result. In fact out of the 75 cases recorded there are 19 which ended fatally.

CASE XXI.

N. G. aged 21, a woman of intemperate habits. When walking in the street to-night at half past eleven, she was suddenly seized with severe cramps in the abdomen and legs. She would have fallen, had she not been supported and led

* See second Lecture.

into the house. We saw her first at 12 P. M. on the 21st of October. Her abdomen was much swelled, she had severe cramps in the legs, shivering and coldness all over the body. Frequent muttering delirium, tossing about in the bed ; complains much of cold. Great desire to vomit, little rejected ; pulse slow and weak.

Tincture Camphor, in water every quarter of an hour.
22nd, 1 A. M.—much better.

This is a good specimen of a camphor case, and camphor did its work well.

CASE XXII.

Mrs. T. aged 23, subject to dyspeptic attacks. She awoke this morning, 4th November about 6 A. M., with vertigo, noise in her ears, nausea and pain in the epigastrium. We first saw her at 7 A. M., same day. She has vomited (three times in an hour) a large quantity of a greenish watery liquid. She complains of pain in the stomach and head. Skin cold ; pulse 120, irregular ; painful dry retchings, no vomiting.

Tinct. Camphor every 10 minutes. 1 P. M. no vomiting ; occasional pains in the stomach and through her head ; taken no food ; rather thirsty.

Continue camphor every half an hour till relieved.

5th November, noon.—Says she is better ; has some weight and pain in epigastrium, and feels a little nausea.

Continue camphor.

6th November, 2 P. M.—She is sitting up and is quite well.

This is strictly speaking not a cholera case considering that the vomit was bilious. *Iris versicolor* would have restored the patient prompter, I dare say ; of course this is

not meant in a critical spirit, the drug having been at that time entirely unknown to our school. The case was a sort of sick-headache, aggravated by epidemic influence, or perhaps set up by it. Anyhow, it was decidedly neurotic in its nature. The vertigo, the noise in the ear, remind one of the premonitory symptoms of the spasmodic variety of cholera as described in a previous lecture ; camphor was the right remedy, and would have been so, had the vomiting even been of a decidedly choleraic nature. Some might have given preference to *arsenic* ; but camphor corresponded at that time to the *genus epidemicus* ; it was therefore fair to decide in its favour.

CASE XXVIII.

C. P. a woman, aged 27.—Her father has been ill of cholera and she has attended him for the last two days ; during this time she has taken scarcely any food, and has had no rest. While sitting at the fire side last night, about 10 o'clock she fainted, and was put to bed. She felt cold and had some brandy and water ; after this she shook and her teeth chattered. Vomiting began about 11 P. M. She had cramps, severe pain in epigastrium, and pains over the whole body, which made her cry out and restless. She was first seen at half-past two A. M., November 21. She was roaring from cramps all over the body which made her wretch. Eyes wide open, expressions restless ; complained of coldness in her bowels ; face, lips and hands cold and pale ; tongue warm, pulse 104, unsteady.

Tincture Camphor every quarter of an hour.

9. A. M.—Fell asleep after taking medicine ; slept till 8 A. M. Pulse 100 ; no vomiting, no purging, great general pain ; no urine passed.

Continue camphor.

22nd November 9. A. M.—Was up, sitting by the fire.

This looks like a *cuprum* case. But the attack was ushered in by a feeling of cold ; and camphor is, so to say, our cholera-*aconite*. Whenever the vaso-motor nervous system is the first or the chief sufferer, there camphor will be found to be the first and chief remedy.

CASE XXXV.

I. R., aged 4.—Was quite well to-day, 11. Dec. While sitting playing, about 3 P. M., she cried out suddenly on account of pain in her bowels, and when relieving them began to vomit white frothy fluid. She became stiff, cold and blue, particularly below the eyes ; complained of pain in her belly and fainted ; no urine since forenoon. Seen at 9 P. M. and ordered

Camphor half-hourly.

12th, 9 A. M. after a few doses of camphor went to sleep ; slept well and perspired ; urinated this morning. Is up playing and seems well.

Cramps, coldness and cyanosis set in early, and were out of proportion to the choleraic discharges ; this was a spasmodic variety of cholera, although it apparently began with bowel complaints.

CASE XXXVII.

J. T. aged eleven.—Has been purging and vomiting occasionally since Sunday last. Became much worse yesterday afternoon, 3rd January. First visited 4th January, 4 A. M. Had watery purging and vomiting ; skin cold, hands blue, tongue icy cold ; quite pulseless ; looks dejected ; great thirst ; says he has no pain.

Camphor every 10 minutes.

11 A. M.—Two stools ; no vomiting, skin and tongue warm ; urinated this morning.

It is easy, strictly to follow a certain plan in the course of a lecture ; but when it comes to clinical demonstration, then it is not to be expected that your patient will be willing to keep, for the sake of your arrangement, within certain limits. The history of the patient before us shows, that we have to deal with the non-spasmodic variety of cholera, in other words with diarrhœic cholera, and that the case has passed the stage of development ; it is a case of cholera collapse, and in so far, not a fair subject for the present lecture, which deals only with the first stage of cholera, endeavouring to teach how to arrest its further progress. Here the mischief has already been done, and the question is, how to minimise its effect, and how to save life if possible. You will remember from what I have said in a previous lecture, that this mischief is partly hæmatic—loss of the watery portion of the blood—and partly neurotic—irritation of the vaso-motor nerves in consequence of desiccation, and spasmodic contraction of the pulmonary and general arteries. We see then how the non-spasmodic variety of cholera ultimately leads to a state of things, similar to the spasmodic variety. Of course the conditions are by far worse in the stage of collapse than they ever can be at the first stage of spasmodic cholera ; owing to the impoverished state of the blood which in itself constitutes a serious danger. But there is hardly anything to be done in the shape of medicine for the improvement of the blood. The blood requires water for its restoration and for the purpose of its free circulation within the blood vessels. It is therefore only the latter, in so far as they are spasmodically contracted, that we can reach by appropriate medicines. And you see here again camphor to have proved itself to be the proper medicine. In fact all the remedies which are homœopathically indicated in the first stage of the spasmodic variety of cholera, are on the same ground called for at the stage of collapse ; knowing^{as}

we do, that cholera invariably closes with spasmodic contraction of the pulmonary arteries.—Here is another case to the point.

XXXIX.

Mr. K. aged twenty-six—Had nausea and vomiting during the night, with cramps in the abdomen and pain in the epigastrium. Seized at 5 A. M. 9th January; seen first 10 A. M. Vomiting of large quantities of whitish watery matter; purged once very profusely; pain in abdomen and epigastrium; shaking and chattering his teeth; great thirst; breath cool; pulse quick and weak; skin cold; no urine since early in the morning.

Camphor every quarter of an hour. 3 P. M.—Still sick; vomited twice, but free from pain; pulse fuller and regular.

Ipecacuanha, hourly, and patient, after taking besides some Nux Vomica, made a good recovery.

CASE XLI.

Mrs. S. aged 43. was suddenly seized at four this afternoon 15th January. First seen at 5 P. M. Watery purging and vomiting; cramps in the epigastrium; great thirst; no pulse perceptible; extremities cold; face haggard; eyes sunk; suppression of urine.

Camphor every ten minutes.

8 P. M.—Better; pulse 100; passed urine; stools fewer and more fæculent. Mercurius and Nux completed the cure.

The pulselessness at so early a stage of vomiting and purging, justified the choice of camphor, although the choleraic

evacuation has been already fully established.—When I took occasion lately to write, saying that the more virulent the choleraic attack, the more exclusively must we look at the beginning of the attack, to camphor for help—I was contradicted ; I was told, that “this does not at least hold good in all epidemics.” Of course not ; not even in all cases of the same epidemic. Nor did I ever mean to establish a general rule, where individualisation should be the main guide of our action. In cases calling by their pathological and symptomatical indications for camphor, I repeat, the more virulent the attack, the more exclusively must we look to camphor (or to *hydrocyanic acid* ?) for help. When arterial spasms are great at the very onset of the disease ; when cyanosis and algidity is so considerable at the very beginning, as almost to threaten life ; then let us not run away from camphor after half an hour’s trial. Neither *cuprum* nor *veratrum* will make things better ; *hydrocyanic acid* might. Of that drug, however, so unreasonably neglected in our school at the onset of a cholera attack of the spasmodic variety, hereafter. But it is certainly not the virulence of the disease, *per se* which should determine our choice of a remedy, or our persevering with it when once selected. It is the nature of the case, the condition of the patient, which must determine our mode of action. I should not advise for one moment to persevere with camphor, if the virulence of the attack consist in profuse choleraic evacuations, rapidly exhausting the patient, by impoverishing his blood and desiccating his tissues. Camphor should not even be tried in such cases, virulent as they may be.

I have said the early pulselessness justified the choice of camphor. You have heard that this symptom may originate in two different conditions ; either in spasmodic contraction of the muscular coat of the pulmonary arteries, and more or less of the arterial system in general—or in failure of the

heart's action. In the latter case, *tartar emetic* or *veratrum album* would be the homœopathic remedy, as we shall see hereafter. The stethoscope could tell us, which is the real state of the case. In the case before us, we are left in the dark about the true nature of the condition.

I wish I could go on giving you only successful cases of camphor treatment ; my aim is however to illustrate its action as well as its inaction in cholera.

The following are a few of the cases that ended fatally.

CASE VIII.

Mrs. M., aged 45, had been in good health till last night, when she was affected with diarrhœa ; at 6 o'clock of the 29th October, she was attacked with watery vomiting and purging and cramps in the limbs. She was first seen at half-past eleven, A. M. of the same day, and we found her face sunken, her hands and nails blue and shrivelled ; the pulse could not be felt ; the voice was barely audible ; the tongue and breath were quite cold.

Camphor every five minutes.

Half-past one—No better. And so on.

This is again a diarrhœic cholera case in the state of collapse ; camphor did not help, and is a doubtful if any other remedy would have done better. If we remember that, according to Dr. Macnamarra's statistical observations, only ten per cent. of patients in the stage of cholera collapse recover by themselves, then we must not lose heart and confidence at the eventual loss of such patients.

CASE XII.

Mrs. G., October 22.—The mother of this patient died of cholera. We found this woman, her brother, a lad of 17

years old, and two children, lying on a miserable shake-down on the floor. She vomited this afternoon, but felt quite well when she went to bed. About half past eleven she was seized with sickness and purging, dejections coming from her in a watery stream. There was much pain in the back, and dry retching. She had made water about half an hour before. Surface of body warm ; hands and face cold and clammy ; tongue cold, breath warm ; pulse indistinct ; great anxiety—often begged us not to leave her ; cramps in the legs. Was seen at 12. P. M.

Camphor a dose every ten minutes.

15th. Half-past twelve A. M.—Pulse more easily felt ; dry retching, much thirst. Quarter to one—cramps returning more severely ; purging more urgent ; great thirst. Temperature of the body as before.

Arsenic and *veratum* in alternation. and so on—

From the etiology of the case we know that it was one of the non-spasmodic variety. The case was seen at the stage of development, and camphor, for reasons stated before, could not and did not arrest the progress of the choleraic evacuations.

CASE XIX.

J. H., aged 38.—Intemperate habit. He was drinking to excess yesterday. Was seized at ten last night ; watery vomiting and bowel complaint. We saw him first at half-past seven A. M. 13th November. Watery purging through the night ; urinated about an hour ago ; severe cramps in the legs, arms, hands and sides ; body warm, feet, hands and face cold and livid ; pulse 106 small, weak and indistinct ; voice hoarse ; great thirst.

Tincture camphor every five minutes.

10 A. M., cramps in legs very severe ; in other respects the same.

Veratrum and cuprum in alternation, and so on.—

For reasons given before, this was not a case calling for camphor. This was a genuine case of diarrhœic cholera, body was warm ; no collapse as yet. Treatment was then intended to arrest the vomiting and purging. Camphor has failed, and we know why ;—it was never indicated.

CASE LXI.

E. B., a woman, aged thirty-three. Her child died of cholera yesterday morning. Was quite well last night when she went to bed. At 3 this morning, 10th December, she was seized with bowel complaint ; fæces ran from her before she could rise, has since purged every fifteen to twenty minutes, stools reported at first natural in appearance, laterly of clear water ; vomiting commenced at the same time ; cramps about an hour afterwards ; vomited during the visit clear water, which ran from her without much retching in a continuous stream ; complains of pain in the side ; much cramped in the calves of the legs ; no urine since last night ; pulseless ; respiration eighteen per minute ; has taken camphor since 4 A. M. every ten minutes without improvement.....

No wonder, after all we know about the case on the one hand, and about camphor on the other.

One remark more before I am going to close the chapter of Camphor. You have heard how Hahnemann wished us to prepare the camphor tincture ; and from the extract of Dr. Hoyne's *Clinical Therapeutics* you have learnt how Dr. Rubini prepared his tincture, known by the name of Rubini's camphor. I believe, however, both of these methods of

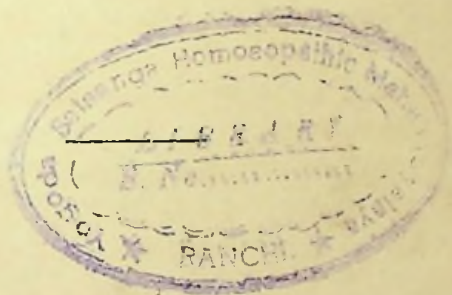
preparation have their faults. Administering as we do the tincture in substantial doses, say five drops every 5 to 10 minutes, it comes to this, that a man after having continued for two or three hours the administration of camphor, has swallowed at the same time two or three drachms of an alcohol only a few degrees less than absolute. Such two or three drachms if reduced to the strength of a drinkable spirit, would give a liquor nearly equal to one ounce of brandy. Now this is a medicinal dose of brandy, for people not accustomed to spirituous drinks. While we talk about administering to them camphor, it is in reality camphor plus alcohol that we are administering to them. Worse than this that the alcohol must necessarily vitiate more or less the pure action of the drug, known as it is that both alcohol and camphor exercise a powerful action on the vaso-motor nervous system; and that these respective actions are in direction opposite to each other. I would therefore propose that we should use a camphor trituration in preference to a tincture. It might be objected that a trituration would soon be dejected by a cholera patient, while a tincture may still find its way within the organism by means of imbibition. This should, however, not deter us from a trial; as far as I have tried it, I may say, it acts satisfactorily though not so rapidly, and although my experience with it is not sufficiently large, it is still large enough as to entitle me to say without hesitation, that it should certainly not be left untried, wherever the drug is undoubtedly indicated. The best way I should say, to begin with the tincture, and as soon as the first signs of improvement show themselves to substitute trituration instead.

In how far the physical properties of Camphor may account for its therapeutic action in cholera, I am not prepared to say. It is, however, worth mentioning, that Prevost according to the statement of Dr. Carpenter has shown, that a thin layer of water, extended on a perfectly

clean glass plate, retracts when such an odorous substance as Camphor is placed upon it.

As to the dose, I may state here, that five drops of Rubini's solution of camphor contain about 2 grains of camphor. If we triturate our camphor in the proportion of 1 to 5 of sugar of milk, then each 5 grains of such a trituration would contain 1 grain of camphor; ten grains should then be the dose required. Experience teaches moreover that by far smaller doses are sufficient when camphor is administered pure, that is to say in form of trituration. Thus two grains of a 1-5 trituration. Every 5-10 minutes will be found a sufficient dose in all cases of emergency. Camphor is but slightly soluble in water, but when mixed with sugar, it becomes almost completely soluble. The trituration can therefore be administered either dry on the tongue, or in a wine glass of water.

Inconvenient results, says Dr. Carrol Dunham, have sometimes been observed from the use of too large and too frequent doses of camphor; and the public should be cautioned against using camphor without a clear indication of its necessity. Where too much has been taken, it produces terrible anguish and burning at the pit of the stomach, so great as to drive the sufferer almost to despair. A few globules of *Phosphorus* will promptly antidote the camphor and relieve the patient.



V.

If I were asked: Which are the drugs that may be expected to act similar to Camphor in the first stage of spasmodic cholera?—My answer would be: *Hydrocyanic acid*, and next to it: *Arsenic*. I shall not trouble you, by reading to you a number of cases of poisoning by the acid named, you will find them recorded in the 4th and 10th volume of Allen's Encyclopædia. Sudden falling down with loss of consciousness owing to excitation of the cerebral sympathetic, with its consequent sudden withdrawal or shutting out of arterial blood from the brain—is, in all cases of poisoning worthy of the name, the first effect of the drug's action; then follow epileptic convulsions; spasmodic breathing, tetanic cramps; on the whole a second edition of what you have learnt now to recognise as camphor poisoning or spasmodic cholera. As the acid is by far more virulent than camphor (one grain being sufficient to kill an adult, while 160 grains of camphor, would set up alarming symptoms for a time, but would allow the patient completely to recover) I shall give you one case of *hydrocyanic acid* poisoning, which ended, as most such cases do, fatally. We shall have then the advantage to study the postmortem changes effected by the drug—changes we can hardly ascertain in the case of camphor poisoning, as there is hardly a fatal case yet known.

A girl, aged 22 years, swallowed by mistake a dose of prussic acid, equivalent to a little less than a grain of pure poison. At the time when this was taken she was sitting in a chair; but she instantly jumped up, ran for a short distance holding up her arms and gasping, as it were, for breath; she then fell, became insensible and was violently convulsed, the

muscles of her face undergoing great distortion, her limbs becoming spasmodically extended and her head drawn down upon her shoulders. In this state she was removed to her bed and was seen directly afterwards by Mr. Watson, who found her lying on her back, with the body drawn a little forwards; the limbs fixed and extended in tetanic spasm: the whole face swollen, turgid and almost purple from congestion; the jaws clenched; the mouth covered with foam; the eyes half closed, but prominent and glistening, with their pupils widely dilated, and quite insensible to the stimulus of light. She was breathing slowly, with deep prolonged inspirations, and uttering a low, moaning noise. The pulse at her wrists could not be felt, although the heart still continued to beat with a feeble fluttering effort . . . The breathing became slower and slower, the limbs at this time remaining fixed and immovable; and she died in from fifteen to twenty minutes after the ingestion of the poison—The post-mortem appearance in this case was as usual in cases of poisoning by hydrocyanic acid. The cerebral vessels, both upon the surface and in the substance of the brain full of black, fluid blood; the lungs highly congested, but free from tubercle or other disease; the cavities of the heart full of black, uncoagulated blood.

Spasmodic respiration is noted by all observers of acute poisoning. Boehm pointing out that it is to expiratory stage that this character especially belongs. According to Dr. Wood, the chronic effects of the vapor are: difficult respiration, constriction of throat, and feeling of suffocation.

If you remember the description of Niemayer, as quoted in the first of these lectures, of the appearance of the blood after death of cholera victims, then you will find in the hæmatic effects of *hydroc. acid* an additional similarity to spasmodic resemblance between the two, need hardly be mentioned.

Dr. Russell I believe was the first who applied it in cholera. "*Hydrocyanic acid*" he says, "we have seen give at least temporary relief in a few cases, where there was great prostration and oppression of the chest. One poor woman, a sober respectable person, who had been ill for twelve hours when we saw her, and complained much of excessive uneasiness at the heart, exclaimed after a few doses of hydrocyanic acid, 'God be thanked, my breast is getting benefit' and for some time there was decided improvement both in her sensations and appearance. On the whole, however, we believe that the number of cases in which it is indicated, will not be found large; perhaps the particular period suited for its administration is very short."

I need not tell you that Hydrocyanic acid has never ceased from the time of Dr. Russell, that is from the year 1848, to be one of our stock remedies in the state of cholera collapse.

Some years ago I took occasion to address a letter on the subject to one of the Calcutta daily papers; and although the letter dates as far back as 1876, I believe it may still be of sufficient interest to you; it runs as follows:

TO THE EDITOR OF THE ENGLISHMAN.

SIR—The last issue of the *Englishman's Saturday Evening Journal* contains an article headed "The Month: Science and Arts," in which it is stated that Surgeon-Major A. R. Hall, of the Army Medical Department, had lately introduced a new method of treating cholera patients in the cold stage, or collapse. Surgeon-Major Hall had himself an attack of cholera, during which he observed, while his skin was blue and cold, and when he could not feel the pulse at his wrist, *that his heart was beating more forcibly than usual.* He, therefore, concluded that the want of pulse at the wrist could not depend upon want of the power in the heart; and

after a reference to the works of the distinguished physiologist Dr. Brown-Sequard, he came to the conclusion that "the heart and all the arteries in the body are in a state of spasmodic contraction. The muscular walls of the heart, therefore, work violently, and squeeze the cavities, so that the whole organ is smaller than it ought to be; but it cannot dilate as usual, and so cannot receive much blood to pump to the wrist." Surgeon-Major Hall believes, consequently, that the nervous system wants soothing, instead of stimulating, and recommends sedatives in the state of collapse, in the place of stimulants, hitherto used, and concerning which "experience has shown that they do more harm than good." This method of treatment was applied "in twenty cases where the patients were either in collapse, or approaching it, and eighteen of these recovered. They were natives of Bengal." Surgeon-Major Hall recommends in severe cases, among Europeans, the employment of prussic acid, Calabar bean, and other true sedatives. The article closes with the following words:—"It is to be hoped that this sedative treatment may have an extended trial, and that before long, we may have further favourable reports concerning it."

Now, is it not strange that writers on medical subjects should ignore the existence of a school of medicine which has, since 1832, the first time cholera made its appearance in Europe, all along protested against the use of stimulants, and insisted, moreover, upon treating cholera patients with medicines which act anti-spasmodically? I need hardly say that it is the homœopathic school of medicine to which allusion is made here. The sedative treatment of cholera has had an extended trial, indeed, and the reports concerning it have been favourable to such an extent that cholera may fairly be considered as the pioneer of homœopathy all over the world. Yet we are now recommended to hope and to try!

Surgeon-Major Hall recommends, amongst other "true sedatives," the employment of Chloral hydrate, Prussic acid, Calabar bean, and Bromide of potassium. Out of these four drugs, prussic acid is the most powerful, and it is this drug which amongst others, homœopaths have now "tried" for the last forty years.

This is not the place to discuss the *modus operandi* of sedatives in cholera. Surgeon-Major Hall, inspite of his large and varied experience of cholera at the sick-bed, during a sojourn of 12 years in Bengal, had not come to learn the true nature of the action of cholera poison till he felt its effects upon himself. It remains now for him, and for his school of medicine, to enlighten themselves in a similar way about the true nature of the action of what they call sedatives! Nothing short of a most careful and minute proving of those so-called sedatives on themselves, when in a state of health, can elicit the true action of these drugs. This is the way in which homœopaths have gone to work; and, when our learned brethern of the allopathic school will have done the same, then, and not before, will it be time to discuss with them the *modus operandi* of drugs as therapeutic agents.

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You see here, gentlemen, the way in which our noble friends of the allopathic school appropriate to themselves our valuable remedies under a false name and a false pretence. To them, *Hydrocyanic acid* is a sedative, because they know it to be capable of checking spasms; as to its toxicological action on the healthy, they do not know, or do not care to know. To them, *Chloral hydrate*, *Prussic acid*, *Calabar bean* and *Bromide of potassium* are, each and all of them, neither more nor less than sedatives. The wonder only is, why Surgeon-Major Hall did not derive as much benefit from

chloral hydrate, a sedative *par-excellence*, and a true and undoubted *physiological* sedative besides.

I hear you ask : But what has all this to do with the first stage of spasmodic cholera ?—Dr. Russell made use of the drug at the stage of collapse, and so has Surgeon-Major Hall.—My answer is : the benefit to be derived from the drug in the far advanced stages of cholera, should not deter us from using it, wherever indicated, in any of the previous stages of the disease ; and I do not hesitate to say, that in what Hahnemann called the first stage of the spasmodic variety of cholera, Hydrocyanic acid is just as eminently homœopathic as camphor. Then there are cases where the spasmodic contraction of the heart causes pain in the præcordial region at the very onset of cholera, or in the measure as the disease progresses. It is a sort of *Angina Pectoris*. Here I have seen Hydrocyanic acid and its alkali Cyanide of Potassium giving speedy relief, while Cuprum met. and Arsenicum failed. The choleraic discharges went on unchecked, and required ulterior medication but the distressing pain was relieved.

As a point of further similarity between the drug's action to cholera, I may quote here, from Dr. Hughes *Pharmacodynamics* the following passage : “ There is good evidence of the action of *Hydrocyanic acid* on the solar plexus. Sir B. Brodie applied one drop of the essential oil of bitter almonds to his tongue. He immediately felt a remarkable and unpleasant sensation at the epigastrium, with such weakness in the limbs and loss of power in the muscles, that he thought he should have fallen.” And Dr. Hughes continues, “ I have frequently removed by it the distressing feeling known as sinking of the stomach, when this has been unconnected with the climacteric age.” And further on : “ The curative power of Hydrocyanic acid in pain at the stomach and vomiting must also, I think, be traced to its homœopathicity thereto. ‘An overdose.’

writes the late Dr. Elliotston, 'will in every person occasion nausea, vomiting, and pain and tightness at the præcordia.'

Even applied externally, it has caused nausea, vomiting, vertigo and syncope.—

When I say that, theoretically speaking, *Hydrocyanic acid* should be eminently useful in the first stage of the spasmodic variety of cholera, it is hardly needful for me to remind you, that I include within the spasmodic variety of cholera, not only cases characterized from the beginning by spasms of the voluntary muscles, but also such as are marked from the outset by arterial spasms. This would greatly enlarge the drug's usefulness, in fact would place it on an equal footing with camphor.

I can offer no clinical experience in support of what I have stated, as far as my own experience is concerned. In fact, it was only while preparing these lectures that it dawned upon my mind that Hydrocyanic acid is a close similar to camphor, and should therefore be as useful at the onset of certain cholera varieties as camphor itself has proved to be. Evidence can however be brought to bear on the subject from other quarters. Pereira looks upon the acid as a sort of specific remedy in *gastrodynia*. He reports a case of a lady who suffered for months and was permanently relieved, as by charm, and adds "It can hardly be imagined that irritation of the stomach can be rapidly removed by a substance which is itself an irritant."—He further relates the case of a gentleman who, after an attack of ague, suffered for several months from excruciating pain in the bowels commencing daily about two o'clock and only ceasing at night; patient was advised to take *Hydrocyanic acid*; the first dose arrested the pain and there was no relapse.

All this goes to show, that in many a case, the drug just mentioned has even a larger sphere of therapeutic action in

the spasmodic variety of cholera than camphor. But Pereira goes even farther ; he actually commends this acid in English cholera and says that he has often seen it cure severe forms of this disease, after opium had failed. Pereira's statement seems to find corroboration in the fact, that Chlorodyne—a secret preparation, known to contain *hydrocyanic acid* and *opium* as its chief ingredients,—has no doubt helped to check the premonitory symptoms of cholera in a large number of cases. The preparation is almost everywhere in India to be found, in plantations, in out-of-the-way-factories &c. and I have heard from reliable men spoken of in the greatest praise. Of course, it is the opium which for the greatest part does what good has been derived from it ; the opium which has a great and prompt effect in checking the progress of the disease, when taken at the very commencement, and which is almost sure to kill where it does not cure ; nevertheless the fact that we see here opium combined with the acid, goes to show that in the experience of the concoctor of the preparation, the addition of the acid must have resulted in a larger number of relief, than where the opium alone has been used. Chlorodyne may then be looked upon as a partial proof of Pereira's ascertainment to the effect, that *hydrocyanic acid* has proved itself to be serviceable in English cholera where opium had failed. Let me here mention in passing that there is a place in the homœopathic treatment of cholera for opium whenever we can with good reason trace the attack of cholera during an epidemic to fear of catching the infection, or to a general panic, or in cases where the patient gets so frightened at the very onset of a diarrhœa or cholera attack, that the fright prostrates him more than the disease. Opium at the beginning or as an intercurrent remedy will be of great service, it might even be indispensable. Aconite should also be thought of under such conditions. The choice between the two remedies should be made according to the

symptoms. Another remedy worth mentioning here is *Asarum Europ.* It is a drug corresponding to a nervous constitution. In such patients the hyporosthesia may be so great that a second impression of the same magnitude as that received first, will have no effect. A homœopathic remedy and indeed any medicinal impression coming back to Hydrocyanic acid we find that Dr. Hempel in his *Materia Medica and Therapeutics* says, "Our provings do not point to *Hydrocyanic acid* as a remedy for cholera. This agent may cause vomiting and cramp pain in the bowels, but, in the case of Jøerg's provers, this pain was not associated with any urging to stool. On the contrary the tendency of the drug seems to be to limit the alvine secretions. If diarrhœa does occur as one of the effects of this agent, it is most probably in consequence of some peculiar idiosyncrasy in the patient's constitution. In Pereira's case the acid was probably used upon the principle of palliative antagonism."

After what you know about the drift of my argument on the subject, it is hardly necessary to tell you why I cannot agree with the late Dr. Hempel. He has evidently had no opportunity of seeing cases belonging to the spasmodic variety of cholera ; he therefore rightly pronounced camphor to be of no use in cholera, even in its first stage ; and with the same reason he extended his judgment over *Hydrocyanic acid*. We have, however, good reason to believe that the drug will prove, *when indicated*, as useful as, and perhaps even more than, camphor. I believe moreover, that it is owing to a certain routine, into which we have allowed ourselves to fall in matters concerning the homœopathic treatment of cholera, that we have not yet tried the acid mentioned, at the premonitory stage of spasmodic cholera. It appears as if Hahnemann's instructions had actually the effect of blocking the way to all useful suggestions concerning the premonitory stage of cholera. He had recommended

camphor, and camphor is to be exclusively administered in that stage. Even if it were true, as Hahnemann asserted, that, provided camphor be timely administered, not one amongst hundred would die; even then there would be room for *Hydrocyanic acid* to save that most unfortunate hundred and first. But subsequent experience has but too clearly shown, that Hahnemann was too sanguine on the subject. We have yet to learn the existence of a drug that would invariably prove useful in all cases of a certain stage of a certain disease, be that stage even the premonitory stage. In most cases a certain degree of similarity between drug action and disease is sufficient for all therapeutic purposes. But there are cases, or let us say patients, where the usual amount of similarity is not sufficient to satisfy the therapeutic rule of *Similia similibus curentur*; another drug may just contain in its pharmacodynamics all that is wanted to complete the analogy. And so I have no doubt that of the cases unaffected by camphor, there will be some that would be beneficially affected by *Hydrocyanic acid*. As already said before, I am unable to give you any clinical indications which could guide you in your choice between the one drug and the other; the similarity in all essentials between them seems to me to be perfect, and it would not be fair on my part to fix on some minor points of symptomatology, just to establish what has been called a distinction without a difference. I have thrown out some hints in this respect, in the course of this lecture; the rest must be left to future clinical observation.

It has been observed, and rightly observed, that the action of *Hydrocyanic acid* is too evanescent and temporary in its character. I have myself often seen a flickering pulse of a cholera patient in the state of collapse gaining strength and apparent stability in a comparatively short time, say two

or three minutes, from the administration of the drug ; but the improvement lasts almost no longer as the time required to set it up. The dose would then be repeated, or even increased ; there would again be some improvement for two or three minutes then the medicine would gradually lose its effect altogether. I am happy to say, since I have substituted the Cyanide of Potassium to the acid, I have met with far better results in this respect. Many a case, that to all appearance gradually slipped out of my reach under the administration of the acid, was brought back to permanent improvement under the more steady influence of the *cyanide of potassium*. I carry with me the second and third decimal, and the third centesimal trituration, and begin as a rule treatment with a grain or two of the third decimal. Should you ever have the opportunity of trying *Hydrocyanic acid* in the premonitory stage of spasmodic cholera, I would strongly advise you not to rest, in the case of failure, till you have substituted the *cyanide* in the place of the acid.

The next remedy I have to speak of in connexion with the spasmodic variety of cholera is, the second analogous to camphor, or what I consider as such : *Arsenicum Album*. The similarity between the toxic effects of this drug and cholera is so well known, that in many places of this country where criminal poisoning frequently occurs, the police authorities have been induced to issue instructions to their subordinates, drawing their attention to the great similarity of arsenic poisoning to cholera, and instructing them at the same time how to differentiate between the two. The character of the evacuations is pointed to as one of the essential points of difference : in cholera they are colourless, odourless, rice-water like ; in arsenical poisoning, there is blood present in the stools, whether they are fecal or liquid ; again the stools are greenish or blackish, and more or less

foetid. In the later stages of arsenical poisoning the characteristic rice-water stools of cholera may be present (*A Text Book of Medical Jurisprudence for India* by I. B. Lyon F. C. S. Calcutta and London 1889 p. 144.), and in the case that they are liquid, they are sure to be colored, greenish or blackish, and, in some cases foetid.—When the subject could only be seen at a stage of collapse, a stage where, even when due to cholera, vomiting and purging are as often absent altogether, then a distinction is almost impossible, and almost nothing else remains, in the case of a fatal issue, than to have recourse to the chemical examiner.—There is yet another distinction between arsenic poisoning and cholera, a distinction referring, like the previous one, to the stage preceeding collapse; it is namely this, that in arsenic poisoning there is often febrile excitement at the beginning, while in cholera it is, as we know, all but the reverse. This distinction however, does not hold good in all cases; for there are cases of arsenic poisoning, which begin with difficult respiration, coldness all over, spasms—in short with all the symptoms peculiar to the first stage of spasmodic cholera. This is not an invariable effect of arsenic; and its homœopathicity to the first stage of spasmodic cholera can therefore not compare with the homœopathicity of *camphor* or *Hydrocyanic acid* to the same stage and variety. I should say, the spasmodic effects of the two drugs just mentioned are absolute; while those of *arsenic* are, what Dr. Drysdale has called, contingent, that is to say drug-effects which, in order to be produced, would require a subject of special susceptibility.

Such contingent drug-effects are just as useful, for therapeutic purposes, as the absolute ones, provided you find a subject specifically susceptible to the drug's action. Suppose an individual to be particularly susceptible to such arsenical effects as I just before called contingent; suppose such an

individual to be effected by spasmodic cholera ; then you could not do better, than to administer to him *arsenic* in homœopathic doses, in the same way as you would proceed in the generality of cases with *camphor*, or with *Hydrocyanic acid*. More than that. In the case of such patients you might often, to your surprise, partially, or even totally fail with your usual remedies, whose therapeutic action is derived from their absolute effects upon the healthy, and from the similarity of those absolute effects to spasmodic cholera. It would appear, as if such patients could be relieved by nothing else, but by that remedy with regard to which they have so prominent a degree of susceptibility. Homœopathy teaches us how to find out, who are the patients particularly impressed by a certain drug, and consequently to whom it is most likely to be helpful. I shall come back in the course of this lecture upon the particular indications calling for the administration of *arsenic*, in preference to *camphor* or *Hydrocyanic acid*, in the first stage of spasmodic cholera.

As to the absolute effects of arsenic poisoning, I shall quote here Virchow's statement: "*Arsenic*, in doses large enough as to induce acute poisoning, acts as an irritant to the whole digestive canal, exciting very active inflammation in its delicate mucous membrane ; accordingly the symptoms to be expected from severe inflammation of this tract set in. But strange to say, the symptoms following a large poisonous dose are not invariable ; the symptoms arising from acute inflammation of the digestive canal are most common, and prove fatal in four or five days ; but sometimes these symptoms are almost or entirely absent, and instead of the patient running the usual course of arsenical poisoning, profound coma sets in from which he never awakes, but dies in few hours, the mucous membrane of the stomach and intestines being free from all inflammation. Sometimes the symptoms are very like those of English cholera."—

From Dr. Ringer's Handbook of Therapeutics I quote a statement from Dr. Blachez, who describes another form of arsenical poisoning characterized by choleraic symptoms of the intestinal canal, with suppression of urine, cramps, and progressive coldness of the body, convulsions and localized paralysis especially attacking the extensors. "If the patient survives long enough, a petechial papular vesicular and wheal-like rash often appears from the second to the fifth day." To which Dr. Ringer adds the following: "A fatal dose of arsenic lowers the temperature of dogs and rabbits 4° to 7° F." It is besides well-known and fully established that *arsenic* lessens the carbonic acid of respiration.

Strange to say, in the toxicological effects of *arsenic* we do not find only a fair representation of the general outlines of cholera; even the different varieties of cholera, as described before, are to be met with in the different cases of arsenical poisoning.

Take the following case, recorded in the *Lancet* 1847, P. 44, by Dr. Letheby—"A girl, 19 years of age, took at night 2 oz. fly water, containing 2 ozs. white Arsenic. Some restlessness during the night, with watchfulness and slight pain in the stomach. In the morning she became sick, and complained of great thirst; the pain in the stomach had become much more intense. During the day sickness increased, and she was repeatedly purged; countenance looked pinched and extremities cold. From this state she soon rallied, and next night she became cheerful and slept comfortably, though she was distressed once or twice by the thirst, which still affected her. Thursday morning she was worse, being cold and drowsy; she was evidently dying; face pale and anxious, extremities cold and bedewed with clammy sweat; pulse hardly perceptible, and she lay in a state of incipient coma. From this time (9 o'clock) she became more comatose, and gradually sank at 12."—

Or the following, from the *Edinburgh Medical Journal* 1358, Vol. III P. 391, as reported by Dr. Robert Paterson.

"She was found in bed early in the evening suffering much from sickness, vomiting and purging. Continued to get worse all night. Next morning the symptoms were much like those of cholera, except that the vomited matter was like thin coffee grounds. She was extremely sullen and silent, would not answer any question, and would rather suffer thirst than ask for drink. Pulse feeble, tongue white, epigastrium tender. Next day symptoms much aggravated. Countenance had assumed a sunken aspect and dark leaden hue. Everything taken into the stomach was immediately rejected, and the purging was also frequent, with pain and straining. This state continued with little variation till next morning, when she died convulsed, sixty hours after the first symptoms were noticed."—

This could be taken as a fair specimen of the non-spasmodic variety of cholera, if we choose to close our eyes to one essential, differentiating fact, to the fact namely that the dejections have not been what they are in genuine cholera: rice-water like.

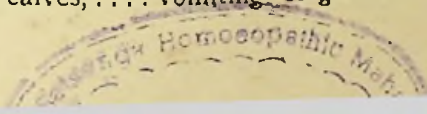
Another specimen of arsenical poisoning of the same order we find in the *Boston Medical and Surgical Journal* Vol. XIII., 1835. P. 334.

"A man, 23 years of age.—Vomiting in the course of half an hour; soon afterwards several dejections. Vomiting and purging, at short intervals, continued through the day. Evacuations consisting mostly of a serous fluid and bile. Quantity vomited during the day amounted to six or eight quarts by estimation. In the afternoon, on attempting to walk from one bed to another, he fell down senseless, was convulsed, had cramp in extremities, and was cold. At 7 in the evening, seventeen hours after the occurrence, found him as follows: Extremities cold, bathed in perspiration; skin blue and

corrugated, feeling as if parboiled ; no pulse perceptible at wrist ; pulsations of carotids rapid and fluttering ; eyeballs retracted in orbits ; countenance livid ; voice husky and guttural ; extreme thirst : pain at epigastrium ; frequent vomiting ; mind clear ; whole appearance like that of a person affected with malignant cholera. Cramps and coldness of extremities increased, vision failed, voice faltered, throat became dry, tongue swollen, annoyed by hiccoughs, delirium, and at last death."—

I shall give you now a case strongly resembling the spasmodic variety of cholera, bearing always in mind the difference in the nature of the dejections. The case is reported by Dr. Hicks, in the *Lancet*, 1870, P. 356.

" A man, at forty-eight years, was engaged in pulling off (arsenicated) wall paper. After about twelve hours, he suddenly felt great difficulty in breathing, with cramp in the chest, hands and arms ; immediately afterwards the cramp attacked both calves, and he became very cold all over and stiff, so that he became completely helpless, and had to be entirely lifted into bed. Violent vomiting very soon set in, and the cramp became more severe in the calves, though it did not again affect the chest and arms. The breathing, however, continued to be much oppressed for two hours. He was by this time in a state of great prostration ; countenance strangely anxious, and very restless ; skin cold and clammy ; pulse very feeble and frequent ; eyes deeply sunken and surrounded with a well marked, dark border ; lips and tongue parched, great thirst ; breathing slow and much oppressed ; sometimes sighing ; burning pain in stomach, increased on pressure, and inclination to vomit ; extremities icy cold in spite of hot applications ; had severe vomiting, with griping pain in bowels and purging ; also cramps, first in chest and arms, afterwards in calves, . . . vomiting of greenish yellow fluid at interval."



After so much similitude between the pharmacodynamic effects of *arsenic* and cholera, it would almost appear that we are under an obligation to state, why we use the drug so seldom in our school as a remedy in the first stages of spasmodic cholera. The only reason I can assign for it is this, that we believe, rightly or wrongly, to possess a surer and prompter remedy to meet the case. I must also add that the principle of prevention being better than cure, must also be admitted to have a good deal to do with the mode of therapeutic proceedings we have adopted. Camphor is prompt in its action, and it is definite and absolute in its action invariably producing the same train of symptoms, when the poisonous dose has been large enough to produce its full effect. Of course Hahnemann was far from viewing camphor as a drug possessed of definite and absolute toxic properties. Whatever his motives for recommending the drug may have been, foremost amongst them was undoubtedly the consideration, that the rapid action of the drug eminently renders it fit to cope with the disease at its very onset. His advice has been crowned in so many cases with success, that people did not dare to do otherwise but give first *camphor* its due chance. Nevertheless I do believe, *camphor* would never have attained whatever it has attained in the shape of success, had the drug really been so unstable in its action as Hahnemann represented it to be. Whatever the case may be we know now better. And when the question arises before us: Are we for the future to assign to *arsenic* a larger place, than it has hitherto occupied, in the treatment of the first stage of spasmodic cholera—then it is but fair that all what is at present known on the subject, should be brought to bear on the question.

Now as far as our present knowledge goes, we may say that, if we were asked by which way we could in the surest and promptest manner, produce in the healthy a state similar

to the first stage of spasmodic cholera ; we might hesitate between *camphor* and *hydrocyanic acid* ; in no way could we, however, reasonably mention *arsenic* in connexion therewith. Leaving alone that the arsenic is comparatively slow in its action, it is altogether variable in the mode of its invading its victims. In certain quantities—and no body can say what that quantity is to be, or may be, in a given case—. In certain quantities it is likely to set up inflammation in the digestive canal with high fever &c.—a state quite different from a primary stage of spasmodic cholera. In some others it may induce profound coma—which is again a state quite different from a primary stage of spasmodic cholera. Should even a state similar to a choleraic attack be brought about by the toxic action of the drug, it would still be doubtful, if the attack is to be one resembling the spasmodic or non-spasmodic variety of cholera. In a word, the arsenic effects, as far as their relation to the primary stage of spasmodic cholera is concerned, are contingent, while the *camphor* or *hydrocyanic acid* effects are, in this respect, absolute. Now contingent drug effects are most valuable in homœopathic practice, whenever they are made use of for the purpose of cure ; for such purposes experience has taught that contingent drug-effects are often even superior to absolute drug-effects ; but the very same experience has taught us, that with regard to preventive purposes on homœopathic principle, we fare much safer by giving preference to the drug which has the desired toxicological effect in an absolute manner on its side.

If we are then to proceed by trying to prevent the spasmodic stage of cholera from developing any farther, then we shall generally succeed far better with *camphor* or *hydrocyanic acid* than with *arsenic*. It must, however, be conceded that *arsenic* has far greater *curative* pretension in the spasmodic

variety of cholera, than either *camphor* or *hydrocyanic acid*, for none of these drugs has any toxic effect which, as far as resemblance to cholera is concerned, goes beyond the spasmodic stage; while *arsenic* runs, so to say, on parallel lines with cholera through all the stages. In fact were it not that the dejections in arsenical poisoning are never rice-water like at the beginning while they are so in cholera, we should have in *arsenic* a perfect cholera-simile.

Now in the non-spasmodic variety of cholera, where our therapeutic efforts must be directed from the very beginning towards checking the choleraic secretions, it would be a great mistake indeed, to expect anything in the shape of cure or even prevention from *arsenic*. The existence and nature of the evacuations are here of primary importance; and the nature of the alvine evacuations in the case of arsenical poisoning are, as a rule, not serous. They are small, soft, bloody and bilious. *Kali arsenicosum*, as seen from Dr. Allen's Encyclopædia and Supplement, has produced white watery stools from the very beginning and should theoretically be superior to all the other arsenic preparations. Clinical experience I have as yet none. It should be remembered that the cholera evacuations are alkaline, while the common arsenic we use is the *arsenious acid*. Whether this has any thing to say in the matter I do not know; clinical experience alone can tell. We have moreover in our Materia Medica about ten compounds of arsenic, and should certainly make better use of them in cholera than we do now. Thus *Aurum arsen.* (in syphilitic patients); *Arsenicum hydrogenisatum* (for inhalation, especially when difficulty of breathing is marked from the very beginning); *Antim arsen.* (when the symptoms are between those calling for the one or the other of the elements of the compounds); *Bromide of arsenic* (Cholera of diabetics); *Cupr arsenic* (of which the text treats further on) *Arsenic Iod.* (syphilitic patients); *Natrum arsen.*

(symptoms generally worse in the morning); *Chininum arsenic* (Cholera grafted on malarial fever or its consequences, provided patient had not been quininised before); *Strychn. arsenic.* (Cholera after debauch). In these cases our routine practitioners would give *Nux vom.* seldom with any effect because a choleraic attack is out of the reach of *Nux vom.* *Strychn. ars.* might save time and life. Of course all that has been said here with regard to the application of Arsenic compounds refers to such cases where *Arsenic* as such is indicated. Often after cramps and purging have subsided, vomiting, not of choleraic but exceedingly acid, continues greatly interfering with the process of reaction. I believe this excessive acidity of the vomit is owing to the muscular cramps that preceded, or still partially subsists; known as it is that a muscle in repose is alkaline, but becomes acid when contracting. Now for such vomiting, which, as far as its character is concerned, stands between the *Nux vom.* and arsenic-vomiting, we might with advantage administer *Strychn. arsen.* I have further to mention *Arsenic sulph.* which might be indicated in cholera beginning with a diarrhœa for which *Sulphur* is indicated. *Strychnos arsenic* might also be thought of in spasmodic cholera and its sequences, when *Cupr. arsen.* has failed. Experience alone can teach whether this suggestion is right or not. But in the spasmodic variety there are evidently strong indications for *arsenic* as a *remedy*, on the ground of its being capable of producing in some healthy people a train of symptoms strikingly similar to that variety of cholera. Like all other contingent remedies, it will only be called for in some particular cases; but whenever the homœopathic indications for its use are pronounced, it can hardly be replaced by any other drug—curative or preventive; at least such is in all likelihood the case, judging from what is generally known in this respect on the subject of therapeutic drug

action. Such remedies may even, under some particular atmospheric or local conditions, be prominently indicated at a certain epidemic, or at a certain endemic outbreak of cholera, to the exclusion of all others. Then we hear an outcry against *camphor*, and a resolution never to try it again, while at the next village, during the same outbreak, it may be the chief remedy.

Let us never forget, that neither *camphor* nor *hydrocyanic acid* inflicts any permanent injury upon those who have come out safely from the effects of their respective poisoning; while an arsenical poisoning, even if safely escaped from, as far as death is concerned, leaves often long lasting, if not permanent injuries behind; it stamps its subjects for a considerable time, with an indefinite train of sufferings and susceptibilities to sufferings, peculiar to its own sphere of pharmacodynamic action—it creates in them a certain dyscrasy. Such drugs as *camphor*, *hydrocyanic acid* &c., are therefore likely to be found to act therapeutically best, in subjects afflicted by cholera, who have in all other respects kept a fair amount of good health. It is evident that in such subjects the impulse towards restoration to health is far more likely to be followed by the desirable result, than in a subject of a broken down constitution. Thus it comes that we shall often find both *camphor* and *hydrocyanic acid* fail in cholera for no fault of theirs, if I may say so, but simply on account of various constitutional shortcomings of the patient. And if those constitutional shortcomings should happen to correspond to an *arsenical* dyscrasy, then we may expect with a fair amount of confidence that *arsenic* will help, where such a remedy as *camphor* or *hydrocyanic acid* or indeed any otherwise pathologically indicated remedy would have left us in the lurch.

All subjects tainted by chronic malarial cachexia, may be said to be inflicted with a dyscrasy similar to the arsenical

poisoning. The signs by which a malarial taint manifests or may manifest itself are numerous. Febrile movements, paroxysmal or periodical, not to be accounted for by exposure to cold &c. ; various digestive disorders especially when characterised by a sensation of burning in the stomach ; periodic nervous disorders, or any disorders dating from a previous ague—all such conditions should draw our attention in the treatment of spasmodic cholera to *arsenic*, in preference to camphor. Camphor rarely benefits such subjects, and if it does, it does so partly only, and we are after all driven to arsenic—often when it is too late. We cannot expect much in such cases from a preventive treatment ; we require here a curative remedy, and such a remedy we possess in *arsenic*, which has besides a potent, and by far more permanent influence upon the vaso-motor nervous system than camphor.

For reasons already stated before, *arsenic* may be superseded by some rival remedy at the beginning of a *choleraic* cholera attack ; but even there it will be a potent, if not an indispensable, auxiliary remedy. In fact there is no variety, nor any stage of cholera, in any of its varieties, where *arsenic* might not be urgently called for, were it only as an auxiliary, and symptomatically indicated remedy. Great restlessness and anxiety, coupled, not merely with depression, but with utter prostration and hippocratic face, are strong indications for *arsenic*. A strange mixture of irritation and prostration is one of the great characteristics of our drug. Should the stomach particularly be the seat of such irritation, then arsenic is so much the more the remedy to be administered. Gastric irritation is, of course, present in all cases of cholera ; but sometimes it forms the chief feature of the whole disorder, to such an extent, that pathologists speak of a gastric variety of cholera. There is severe and almost continual retching without much vomiting ; patient dreads taking water,

though tormented by burning thirst, for fear, it might not agree ; drinks rather little at a time but often, and what is drunk is almost immediately thrown up ; in such a contingency you can hardly do better than prescribe *arsenic* either alone, or in alternation with some other suitable drug, called for by the peculiar nature of the choleraic phenomena. If *arsenic* does nothing else, but allay, be it even temporarily, the gastric irritation, so as to allow the absorption, on the part of the patient, of the remedy we consider to be indicated, then it has done enough for us. It has paved the way to proper treatment.

In all cases of diarrhœic cholera we should, at the beginning of our treatment take into consideration the nature of the diarrhœa which preceded the choleraic attack. The very fact that the diarrhœa has run into cholera would speak favorably for the choice of *arsenic* at the very onset of choleraic stools. Sometimes we find in this way the right clue to the remedy. Should the diarrhœa itself have been of such a nature as to have pointed to *arsenic* as the homœopathic remedy, then the similarity of the case to arsenical poisoning would be perfect. The characteristic *arsenical* evacuations may be summed up in the following : stools small quantity, frequent, dark, greenish, bloody, offensive ; sharp pain in the lower part of the abdomen ; burning in the rectum ; great prostration of strength after each stool ; aggravation at night, especially at midnight ; great thirst (especially at night) ; drinking but little at a time ; restless (especially at night) and anxious.—Should such a diarrhœa have been brought on by taking ices in hot summer, or in consequence of having partaken of some tainted animal food, there would be one indication more for *arsenic*.

Local conditions may sometimes determine the choice of *arsenic* ; thus a diarrhœa preceding cholera brought on by dwelling in damp places, may, under tropic influences, assume

an asthenic type, as above described, and require the exhibition of *arsenic*, and so may the cholera succeeding the diarrhoea, although choleraic evacuations in themselves by no means resemble those ordinarily occurring under toxic influence of the drug. Again cholera breaking out at places where putrid animal matter has been allowed to infest the air, may require *arsenic*, regardless of the cholera type prevailing. I shall read to you what I wrote some years ago about the subject.* In perusing the lately published *Manual of Medical Jurisprudence of India*, by Dr. Norman Chevers, a homœopathic physician may derive some useful information. The following passage is interesting and suggestive:—"Dr. Kanai Lal Dey (Additional Chemical Examiner to Government) informs me that the washings of stinking fish, and human ordure, are used by the natives of Bengal as emetics in cases of poisonings. In a case of arsenical poisoning, which occurred lately at Tipperah we are told that the symptoms were not relieved until the man swallowed some human fæces.—Considering the analogous effects on the human system of putrid animal matter and arsenical poisoning (the analogy is not mine, but Dr. Christison's); considering further the clinical fact, that *arsenic* has proved a potent antidote to the consequences of taking putrified animal matters; we may find in this statement somewhat more than a mere curiosity; we may see in it, a strange confirmation of our law of cure."

After what you have heard about the relation existing between the malarial cachexia and the effects of *arsenic* on the one hand, and of the similarity of the latter to cholera on the other, you will hardly be surprised to learn that, for all we know, *arsenic* should be the leading remedy in that peculiar type of cholera, described in a previous lecture as choleraic

* *Monthly Homœopathic Review* May 1871.

fever. Study *Elaterium*. *Natrum Mur.* and as a matter of mere suggestion, I should say *Natr. ars.* might be given a trial in some cases. *Veratr. alb.* and *Virid* are two other remedies bearing upon the subject. Compare also *Arsen. Hydrogent.* I cannot speak from experience on the subject; I am guided in what I say, by analogy. In cholera outbreaks following in the track of a famine, I should think, *arsenic* must also play an important rôle with regard to treatment; here also I can, however, speak only by way of suggestion. Again cholera occurring after obstinate constipation, or in people suffering from habitual constipation should have a fair trial with *Arsenic*. The retained fecal matter in the organism gives rise to what has been called *Copremia* that is a state of blood infection by the exhalation of the retained fæces as they permeate all the liquid and solid of the body, the blood especially.

If after all what we have learnt about the pharmacodynamic action of arsenic, we should venture to enquire which are the absolute, and which are the contingent effects of the drug so often mentioned; then there could only be one answer, I believe, as to the absolute effects of arsenical poisoning; it is namely the collapse produced by it. The drug may act in some subject as an irritant to the digestive canal, exciting there active inflammation; in others as a powerful narcotic, producing coma; in a third like the poison of cholera—the scene invariably closes with collapse as it occurs in cholera. And herein lies the great similarity between arsenic and cholera. In both, the primary morbid phenomena set up by their respective toxic agents may vary; they may begin in the one case or in the other, with arterial and muscular spasms first tending toward diarrhœic discharges; or the succession may be reversed: the final issue is every where the same—collapse. Collapse is the common characteristic of both poisons.

On the whole it may be said that, the cholera-like effects produced by *arsenic*, contingent as they are, represent a far greater resemblance to the general feature of the disease in all its possible varieties, than any other drug, except one, of our *Materia Medica*. Camphor may come out better in a comparison, with regard to a certain stage of a certain choleraic variety ; another drug may beat *arsenic* in some other variety ; none bears in itself so closely the chief elements of what constitutes cholera in all its varieties, as *arsenic* : and should I ever be restricted in the treatment of cholera in all its possible varieties and phases, to one single drug, I hardly think I could do better than decide for *arsenic*.

In administering Arsenic to cholera patients, especially to children in Bengal, we should not forget that the sweet-meats (Meetais) as sold in the bazar are often colored with ingredients containing Arsenic and that such sweet-meats are liable particularly during cholera season, to give choleraic attacks to those who partake of them. Thus it may, and does often come to pass, that cholera cases which show symptoms most strikingly similar to cholera are, instead of being benefited, seriously aggravated by our Arsenic administration. The poisonous dose in such cases is never large enough, as to require chemical antidoting ; our usual cholera drug Camphor, Veratrum alb. and perhaps *Ipecacuanha* and *Nux Vomica* are our best antidotes. But it would be injurious to administer Arsenic in however small doses. Whether high dilutions ; say the 200, might be relied upon as an antidote must be left to the consideration of the attending physician. Arsenic Hydrogenisatum is said by Dr. Carpenter (*Human Physiology* 1881 p. 359) to reduce to hæmoglobin, and after first exciting rapidly to paralyse the respiratory centres. I cannot say in how far we may make use of this Arsenic preparation in preference to others.

Cutting from the "Englishman"—11th July 1887.

POISON OR CHOLERA ?

The recent death, in Bombay, of a Hindu mendicant from Arsenical poisoning, suggests to the *Bombay Gazette* the possibility of some of the deaths said to be due to cholera, and which occur suddenly in that city, being caused by some other poison than that of cholera. The deceased had lately arrived in Bombay, and was living in a *Dharmshala* in Falkland Road. He was alone, having no friends, apparently, in Bombay. He was admitted into the Jamsetjee Jejeebhoy Hospital as a patient suffering from cholera, and treated for that disease. Death supervened, it was supposed, from cholera. A *post-mortem* examination of the body was, however, made, and the result was the discovery of a quantity of Arsenic, which was the real cause of death. Our contemporary says—"If the symptoms of Arsenical poisoning and of cholera are so much alike as to baffle skilled medical opinion, there is little hope of ordinary people being able to distinguish between them. It is very much to be feared that the occurrence of outbreaks of cholera give opportunities to wicked people to make away with those disagreeable to them. We are told by those who are in a position to observe such things, that they have often been struck by the number of old and infirm people who disappear in times of cholera. The practice of prompt burial, necessitated by the climate, and still more, cremation limits the chance of detection."

Allopaths have lately taken to arsenic in the treatment of their cholera patients. Of course they do so, not because it is homœopathic, but because Dr. Ringer in his *Hand-book of Therapeutics* says so. I wonder who will ever dare to write a *Hand-book of Therapeutics* for a class of men who would not allow others to think for themselves.—"Arsenic has been strongly recommended in cholera" says Dr. Ringer, "especially in the later stages, when there is much collapse." Dr. Ringer

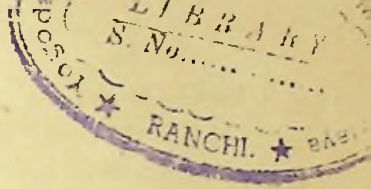
is evidently no fool ; he has looked into homœopathic literature, and he knows all about it. He knows even by whom it has been "strongly recommended in cholera." But he dares not say, for fear . . . yes for fear he might be cried down as a homœopath, and—lose caste !—At first sight it would appear, the question is a mere question of medical sectarianism, and has very little to do with the merit of the thing itself. If clinical experience has taught that cholera patients have benefited by *arsenic*, let it, so would people argue, by all means be prescribed for them ; it does not matter to the patient, nor to his medical adviser either, if it was Homœopathy or Allopathy or indeed any other Pathy which has accomplished the therapeutic feat. Men, professional men, who would argue thus, show before all a lamentably low level of scientific attainment. Can they really be satisfied in doing the work of a prescribing machine ? Can such a work ever prosper in the hands of a medical man ? Let the History of Medicine say, what unreasoning empiricism has done in the hands of unreasoning physicians ; how many millions have been sacrificed to the Moloch of *Mercury*, others to the Service of *Tartar Emetic* ; others again to the worship of wholesale medicinal Stimulation, and so on. An indifference towards a right understanding of the law by which a prescribed drug works out its therapeutic results in the sick, must therefore denote, as I have already said, a most lamentable state of mind on the part of the prescribing physician. Such men could not be classified as belonging to the learned profession ; they belong, by right of their passive mental attitude, to the taught professions. They may have grown old and grey in the practice of their profession ; they have never out-grown the stage of pupilage.

The worst is yet to be said. For when these men go and prescribe homœopathically indicated drugs, on some fanciful allopathic principle, or on no principle at all ; then they

simply kill now and then a patient, whom they could easily have cured, had they only had the courage to know what they are doing ; and they allow further many a man to die, unkilld, whom they could easily have saved, had they only been acting in accordance of what they claim to be : men belonging to an honorable and learned profession. Men belonging to an honorable and learned profession do not feel ashamed to lay aside a pernicious practice, and it is most pernicious to administer arsenic in cholera, otherwise than in fractional, if not infinitesimal doses altogether. As such has it been "strongly recommended in cholera," and if they are willing blindly to follow clinical experience, without enquiring about the principle underlying such experience, then so much the more reason that they should blindly carry it out, as it has been followed in our school for many years. Cholera collapse is one of the most precarious states a man can ever be in ; and arsenic is one of the most poisonous agents of our *Materia Medica*. Under such circumstances it does not require much over-dosing to give a patient the last *coup-de-grâce*. A little aggravation in such cases means almost sure death. And what is worse, you can never know who has actually been killed by an over-dose ; the arsenic and the cholera-collapse being so similar, that it is impossible for any man to distinguish between them. Yet even in such extreme cases, the allopathic dignity (?) has to be guarded before all ; the patient's welfare is a matter of secondary consideration. Smuggling is to be carried on in the face of death, and homœopathic remedies are to be administered in as small doses only, as the allopathic standard of drug administration will allow.

Such is allopathic deceit ! such allopathic conscience !

I have told you, gentlemen, in my previous lecture, how to counter-act, dynamically, an eventual over-dose of camphor. I can say nothing as to how to counter-act a criminal over-dose of *arsenic*.



VI.

We have now arrived, after a long and laborious journey, at the discussion of Hahnemann's second antispasmodic cholera remedy—at the discussion of *cuprum*.

In as much as this metal sets up in the alimentary canal irritation with colic and tympanites, followed by irritation of the nervous system at large, it resembles arsenic, a drug of which I have spoken at length in my previous lecture. The difference between the two with regard to their toxicological action, is however pretty well marked. In *cuprum* poisoning—be it the metal, the acetate or the sulphate—inflammation of the mucous membrane of the alimentary canal is by far not specific, nor is it ever so severe, as is the case in arsenic-poisoning. This is a negative quality of *cuprum* which renders this drug so much the more homœopathic to cholera than arsenic. You are aware that the pathological state of the intestinal mucous membrane in the disease under discussion is all but inflammatory. The specific action of cholera in this respect is quite the reverse of arsenical poisoning. Arsenic is so far deficient in similarity to cholera.—With regard to the abnormal alvine discharges occurring under the action of *cuprum*, they are, as a rule, not choleraic in their nature and consistence ; although there are exceptions, as I shall show hereafter.

Pursuing our comparison between the drugs just mentioned farther still, with the intention of establishing the degree of their respective similarity to cholera—we further find, that *cuprum* has all advantages on its side with regard to its capacity of producing spasms of the voluntary muscles ;

even in the region of the alimentary canal, it is its spasmodic action which distinguishes its pathogenesis. The colic produced by *cuprum* partakes by far more of the nervous character, than that produced by arsenic ; so that, on the whole, it would appear, that *cuprum* is more fit to cope with the spasmodic part of cholera, than *arsenic*.

A close study of the physiological action of acute *cuprum* poisoning shows however, that the general spasms occurring under its action are *subsequent* to the irritation set up in the alimentary canal. Arsenic which is versatile in its toxic action, may exert a direct influence upon the medulla oblongata and thereby reach the motor nervous system ; while under the influence of acute *cuprum* poisoning there ensues no direct action on the medulla oblongata, not even of a contingent order ; as a rule it affects primarily the alimentary canal ; all spasmodic disorders arising under its toxic influence being secondary to the primary action. In fact *Hahnemann* recommended *cuprum* for the second stage of cholera, when vomiting and purging have already set in. For the first, he preferred *camphor* ; and from what we know about this drug's action, that it produces namely idiopathic convulsions by acting directly upon the medulla oblongata, we find *Hahnemann's* recommendation fully supported both by theory and practical experience.

Cuprum it would then appear, is more homœopathic to choleraic spasms than to spasmodic cholera ; and has indeed as such maintained its great reputation in our school, from the time it was first introduced, up to date.

We have seen how *camphor* primarily acts on the medulla oblongata, and thence extends its action through the pneumogastric nerves to the solar plexus. *Cuprum* seems to act exactly in the opposite direction. It takes its start from the hypogastric and solar plexus (fixed pain, or soreness on pressure in the epigastric region is characteristic of the drug)

and reaches the medulla oblongata and the cerebral motor centres either through the pneumogastric nerves or by means of some other connecting channels, known as it is, that the sympathetic and cerebrospinal systems interpenetrate, so to say, one another ; each system transmitting its fibres into the trunks of the other.—Bearing this in mind, we shall not wonder, why we often fail with cuprum in epileptiform spasms, which *originate* in the medulla oblongata.

There is yet another important fact to be mentioned with regard to the relation between spasmodic cholera and cuprum. I have already previously stated that the principal danger of the cholera spasms comes, not from the side of the muscular cramps of the extremities, but from the spasmodic contraction of the arterioles, as manifested by a cold all over the body with more or less lividity of the cutaneous surface. Now there are again symptoms that are, as a rule, met with in cuprum poisoning, merely as concomitants to the gastric disorders which represent the primary toxic action of copper on the human system. We have seen how low the temperature may be made to fall primarily in the case of arsenic poisoning. In poisoning by *Hydrocyanic acid*, we have hardly any records in this respect, owing to the rapidity with which the poison ends life. However the state of the blood is sufficient evidence that oxydation has been made impossible under the poison's influence. As to camphor, the old records could hardly be expected to notice temperature ; I give you here a modern case of poisoning, as reported by Taylor in his *Medical Jurisprudence*, 1883, where you will see that under the influence of this drug there is a considerable fall of temperature : In 1882 a man was admitted into Guy's hospital after having swallowed about 5 fluid ounces of soap liniment. This quantity would contain 150 grains of camphor. His skin was cold and clammy, the pupils were dilated and did not respond to light ;

he was quite unconscious, and the conjunctiva of the eye was insensible to touch; the jaws were tightly set, the limbs were relaxed, but became rigid when handled. Pulse 120. The respiration very stertorous, and 20 per minute. An emetic had been successfully administered to the patient before his admission. The stomach pump was then applied with difficulty in consequence of the rigidity of the jaw; and only a small quantity of mucus and a few scraps of food were recognised in the fluid removed. *The temperature was 2° F. below the normal.* A subsequent attempt to administer castor oil failed, as he was unable to swallow. Five hours after his admission consciousness returned. He vomited, had very little muscular power and fell, on attempting to leave his bed. Ten hours after admission the skin was hot and dry, the pupils were still dilated, pulse 108, respiration very rapid (38) and though conscious, he was drowsy. The tongue was dry, brown and tremulous, muscular rigidity had disappeared. He now made a rapid recovery.—The temperature, as you have seen, was 2 degrees below normal standard. But cuprum poisoning is, as far as I know, by no means marked by any direct fall of the normal temperature. Coldness manifests itself first in the extremities, in those very extremities which are affected by spasms, and spreads only over the whole body, after the respiratory organs have become implicated by the spasms. This reminds one of the experiments of Hitzig, Eulenberg and Landois mentioned in the second of these lectures,* according to which electrical stimulation of regions near the motor centres lowered the temperature of the limbs. Or of some analogous experiments of M. Bochefontaine, according to which, strong stimulation of the motor centres of the extremities causes increase of the blood pressure in the arteries, and retardation of the beats of the heart.—

* See P. 47-48.

The following case is a fair specimen of acute cuprum poisoning, as given in Hempel's *Materia Medica*. A lady, her daughter and a servant girl partook of chicken fricassee which had been cooked in a badly tinned copper Saucepan. In the evening and during the night, these three persons, and more particularly, the delicately formed daughter, were attacked with ineffectual efforts to vomit, contraction and dryness in the inner mouth, thirst, violent pains in the epigastrium, colic, followed by several watery, whitish stools. These symptoms continued on the following morning; the daughter was moreover attacked with uninterrupted anguish, convulsions, painful and hard swelling of the abdominal walls and frequent fainting turns. The mother had eructations which tasted of copper, violent colic with tenesmus, followed by liquid greenish stools.—The next day, the patients were found by the physician with the following symptoms. The mother complained of heat and dryness in the mouth and intestines; a metallic, styptic taste in the mouth, painful feeling in the epigastrium, frequent attacks of colic followed by frequent discharges of fluid stools, painful distention of the abdomen, some anxiety, general prostration, palpitation of the heart, (to which she was subject, more or less) a feeble and somewhat irregular pulse. The servant girl who was robust and vigorous, exhibited the same symptoms, except that her pulse was fuller, her colicky pains were more violent, and the liquid stools more frequent. The daughter had the same symptoms, and moreover eructations tasting of copper, intense pains in the epigastrium and abdomen without diarrhoea, violent headache, fainting turns, cold sweats, and a contracted, small, somewhat irregular pulse.—

To which may be added the following quotation from Wibmer's Toxicology.

" Small doses (of *cuprum aceticum*) if continued for a length of time, may finally destroy life by emesis, catharsis, hectic fever; however, we do not always discover distinct traces of inflammation in the intestinal canal, but the signs of an increased secretion of bile are never wanting. * Besides these signs of local irritations, many symptoms are frequently apparent which denote absorption of the poison and show its action upon distant organs . . . The headache, occasional delirium, deafness, tetanic convulsions, lock-jaw, paralysis and other symptoms, seem to show that, in many cases at least, the acetate of copper acts upon the brain and still more upon the spinal marrow.—Larger doses of ten to fifteen grains very soon cause a violent pain in the stomach and bowels, loathing, constriction of the throat, bilious and metallic eructations, desire to vomit, retching, vomiting of bile, mucus greenish and even bloody substances, distension of abdomen which is sensitive to pressure, diarrhoea with discharge of brownish, greenish, blackish and even bloody excrements; occasionally, constipation with tenesmus, thirst, fever, loss of appetite, anxiety, jaundice, &c., in short all the signs of a most violent inflammation of the digestive organs."—

Taking into consideration all you have now heard about the peculiarities of the *cuprum* action, you will, I hope, see that this drug is not analogous in its toxic effects to camphor, or, at any rate, that the analogy between them is too remote, as to allow them to be considered as interchangeable quantities. *Cuprum* as a homœopathic remedy in spasmodic cholera, is only indicated after vomiting and purging have set in; there must be some decided irritation of the alimentary mucous membrane, before we can ever

* This is no doubt the general rule and therefore I have said that the alvine discharges occurring under the toxic influence are not choleraic. That exceptionally they may, however, be wanting in the signs of increased bile secretion, and approach, moreover, to all appearance, choleraic evacuations, the previous case has shown in one of the subjects poisoned.—

think of making use of that drug in cholera. In other words, its function actually begins there where the function of camphor ends. But even after purging and vomiting have set in, you must not rely too much upon *cuprum* to arrest them, knowing as you do, that there is but little similarity between choleraic evacuations and such evacuations as generally occur under the toxic influence of the drug so often mentioned; nor can you reasonably expect, that it shall subdue general arterial spasms, and the alidity and cyanosis dependent upon them, since it has no direct action on the arterial system. *Camphor*, *Hydrocyanic acid*, or *Arsenic* will do that far better, even after the evacuation period has set in, provided the discharges are yet scanty, and the principal danger is still threatening from the side of the contracted arteries. All *cuprum* can reasonably be expected to do is to check the cramps of the extremities, occurring or increasing during the evacuation period, in as much as these cramps originate from, or are intensified by, the irritation set up in the digestive canal. This is certainly not much. For after all those cramps are only partly owing to irritation of the alimentary canal. We must not forget that the loss of water by the cholera discharges, forms another element of nerve-irritation; the anæmia produced by impoverishment of the blood, may again be another important element of nerve-irritation; and with regard to both these factors *cuprum* must be pronounced impotent on homœopathic principle, at least as far as its direct influence is concerned. Indirectly, however, it can hardly be denied, that *cuprum* is capable of exerting a calming influence on nerve irritation, as far as the same is caused by dessication. For it is not so much the loss of water which causes dessication of nerve tissue, but the incapacity of the gastric mucous membrane of absorbing and assimilating outward supplies in the shape of drink, and thereby eventually compensating for the loss of the liquid

portion of the blood. Now this incapacity is entirely owing to extreme gastric irritation ; and the same being purely nervous, non-inflammatory, should certainly find in *cuprum* a far greater simile than in *arsenic*. Arsenic may, or may not affect, the gastric mucous membrane ; but whenever it does so, it is irritation tending towards inflammation which is set up, while under the influence of *cuprum*, a purely nervous irritation is often produced. I am convinced we have in this respect often erred on the side of arsenic.—On the whole it would appear that there is hardly any cause to consider *cuprum* as anything more than a very useful auxiliary remedy in cholera, good for checking certain unpleasant symptoms, as gastric and nervous irritation, and some such spasms as are connected therewith, but far from checking the progress of the disease itself, be it in its spasmodic or non-spasmodic form.

We must, however, not under-value the services of a remedy which is capable of subduing nervous irritation in cholera, and especially of subduing irritation of the solar and hypogastric plexus. The whole choleraic disorder seems to gravitate towards this network of the sympathetic nervous system. In whichever way the disease may make its first appearance, the solar plexus is soon made to feel the whole brunt of the attack. If we remember at the same time how quickly, comparatively speaking, patients recover from an attack of cholera, if they do recover at all—we can hardly avoid the conclusion that, extremely dangerous a disease as cholera no doubt is, it must after all be purely neurotic in its origin ; and such being the case, or at least the conclusion, we cannot help assigning to the ganglia of the abdominal viscera the whole series of such hæmatic alterations as manifest themselves by vomiting, purging, total absence of bile-secretion &c. Camphor could not succeed so well as it does, in arresting the progress of the first stage of spasmodic cholera from developing any further, were it not, that this

drug has the same tendency, like the cholera poison itself, to assail, in the second instance, the solar plexus.

Collapse, it has been said, is the great final issue of cholera, where all varieties meet, in the case the disease is not checked in its course; with equal reason it may be said, that the solar plexus is the great highway through which all varieties pass, before they reach that final stage. And *cuprum* that travels, pharmacodynamically, over the same ground, will therefore, and does therefore often check the further progress of the disease. It is true the sort of irritation set up in the before mentioned sympathetic ganglia of the abdominal viscera by *cuprum*, is not exactly the same as that produced by cholera; otherwise the alvine discharges under the toxic influence of *cuprum* would be choleraic in their nature; but not in all cases is there required a perfect similarity between drug-action and disease, in order to effect a cure, far less an arrest of the progress of the disease: and in the evacuation period, before collapse has set in, such an eventual check of the further development of the morbid process, will often result, as it were, by itself, into restoration to health, provided there be still left sufficient recuperative power in the patient. By cure, in the proper sense of the word, I understand namely, the restoration to health of a man afflicted with a chronic disease; in such a case there is no reasonable trusting to the self-restoring power of nature; the very fact that the disorder has become chronic, and is as a rule gradually growing worse, shows how little we can expect from nature when left to her own resources. The stimulus towards improvement must here entirely come from outside. Otherwise is the case with regard to acute diseases during the stage of development. Such diseases, of which cholera is a fair specimen, get often well as it were, by themselves, without any outward impulse. Of the fifty per cent. of cholera patients who thus get better by themselves, there is only a small proportion who go the

length of collapse ; most of them get better before that stage is reached. There is then evidently a considerable amount of *vis medicatrix naturæ* still in full activity, at the evacuation period of cholera ; the mere checking of the progress of the disease, means here restoration to health, as a matter of course, and under such conditions, we may fairly trust to a medicine that is somewhat deficient in similarity to the disease.

And after all, the case of poisoning cited before shows, that cuprum is capable of producing cholera-like alvine discharges ; exceptionally, it is true ; yet such exceptions suffice to show, that there are conditions under which *cuprum* comes very near in its toxic effects to the effects of cholera poison, and of all such conditions, those prevailing during a cholera epidemic are certainly most effective in this respect.

But it is not only with regard to the stage of cholera-development that *cuprum* has many points of similarity with the disease under consideration. As the disease advances towards the stage of collapse, dyspnœa assumes a prominent feature of danger owing, as you have learnt from Niemeyer's description, cited in a previous lecture, partly, to the altered state of the blood and, partly, to the paretic state of the heart. But while all this is going on, there is a third element no less active in bringing about a final dissolution : the spasmodic contraction of the pulmonary arteries, which in itself constitutes a threatening danger to life. This danger is purely of neurotic origin ; and *cuprum* which counts difficult respiration of a similarly neurotic origin amongst its pathogenetic symptoms, may here be of great help.

Do you remember, what I told you in a previous lecture about the muscular unrest tormenting often patients in the state of collapse?—Well *cuprum* is their grand remedy, if they be within the reach of remedies at all. In the arsenic

patient the restlessness proceeds from extreme anxiety ; patient throws himself from one side to the other, because he wants apparently to better his position. The *cuprum* patient moves because he cannot rest—because his motor centres are excited ;—and there is a certain cerebral excitement observable besides, while the *arsenic* patient is mentally calm. Again, in the *cuprum* patient the respiratory spasms are more fitful, while the *arsenic* patient seems to be under the influence of an unremitting grasp of oppression. Gastric irritation is by no means so severe in *cuprum* poisoning as in *arsenic* ; and this is one reason more, why cuprum may be better indicated in some cases of collapse, than its rival arsenic, the irritation being by far less in that stage than at the onset of the disease. I quote here from Dr. Hughes's *Pharmacodynamics* : " In 1866 Mr. Proctor, who treated a number of fully developed cases with great success (he lost only 14 out of 98) writes—' For the cramps it was unquestionably the best remedy, and I may say for the vomiting also. In the stage of collapse, I generally found myself trusting mainly to cuprum, and the impression is very strong on my mind that in collapse it is the most reliable of our remedies.' It appears to go deeper into the organism and to fasten upon the disease with a firmer and more tenacious grip. Certainly it accomplishes much by keeping the stomach quiet, and thus enabling us to introduce and to retain, what other medicine, or stimulant or nourishment we may desire"—This is certainly not the general experience of the profession, neither in India nor in Europe. Whenever the dyspnoea has, so to say, fastened upon the patient, we must recur to *arsenic*, *camphor*, *hydrocyanic acid*, or to such other remedies to be indicated hereafter. But we need not discard *cuprum*, when otherwise indicated, at the first signs of a setting in of dyspnoea, especially so long as the difficulty of breathing is paroxysmal in its nature—going and coming—or getting better each time after vomiting has taken place.

Again at the stage of collapse there may sometimes occur a state of intestinal irritation, arising out of a paralytic state of the intestinal muscular coat. Choleraic secretions in such a state of things, would go on within the elementary canal, but the power of expelling them is absent, the preceding colicky spasms of the intestines having ultimated in a state of muscular exhaustion; this may, however, not always be the case, for the retention may be owing to a spasmodic state of the intestinal muscular coat; the secretions lie then within the intestinal canal as a foreign body, causing local irritation with consequent uneasiness, nausea, inclination to vomit and general restlessness. If this state is allowed to go on for a time unchecked, then the choleraic secretions within the intestines undergo partial decomposition, various gases are generated, which distend the intestinal canal, press upon the intestinal walls and increase thereby the very paralytic state of its muscular coat. Gradually the whole abdomen becomes enlarged, and to all the troubles extant there is super-added a state of tympanites, a state most uncomfortable in persons otherwise healthy, but dangerous in the case of a cholera patient. The tympanitic distension of the abdomen has the consequence of pressing upon the diaphragm, thus interfering with the act of breathing, which is, in the stage of collapse, but too deficient, as it is. Homœopaths are in the habit of prescribing in such cases: *Carbo vegetabilis*, *Lycopodium*, *Terebinthina*, *Asafœtida*, *Nuxvomica* &c. With the exception of the first named none of these remedies are homœopathic to the case; and not always do we succeed with *Carbo vegetabilis*, which is only indicated when the state of collapse is rather far advanced. We need not wonder, that our practitioners have not fared better in such contingencies than the allopaths. There are only few drugs in our *Materia Medica*, known to paralyse in their primary action the intestinal, muscular coat; *Plumbum*, *Alumina*(?) and *Opium* stand foremost amongst them. The two

first named remedies are slow in their action and have besides no further similarity with the case before us. *Opium* however acts promptly where indicated, and has moreover produced in many a prover watery diarrhœa!—*Opium* is therefore the truly homœopathic remedy in the case described before, and I may say, many a life has been saved by me, through the timely administration of that drug, so helpful whenever indicated. I usually prescribe one drop of the 3rd decimal in an ounce of water, a teaspoonful of which mixture to be taken every 15 to 20 minutes.

Unfortunately the very state in which *opium* would be so imminently indicated, had it been brought about by the natural course of the disease—this very state is but too often the consequence of a previous administration of *opium* on the part of some mischievous allopath, who had been called in at the onset of the disease. Under such desperate circumstances we may still derive sometimes some benefit from the administration of *Veratrum alb.* mother or 1st decimal. This often brings on the choleraic secretion, and the tympanites is often relieved in a very short time. Should on the other hand there be reason to believe that the tympanites is owing to a spasmodic state of the intestinal muscular coat then I use the 3rd decimal of the acetate of copper* (for it is this preparation of copper which almost invariably produces distention of the abdomen, with sensitiveness to touch) in the same way as I indicated before with regard to *opium*. Should this be of no avail, I still cling to *cuprum acct.* as almost the only sheet anchor, and try the drug in a higher dilution. I have seen enough of *Lycopod.* &c, in such cases, and am satisfied that there is no satisfaction to get out of them. The tympanites they are capable of producing and eventually curing

* See footnote of P. 150.

belongs to quite another chapter altogether. As a differentiation between the paralytic and spasmodic state it may be mentioned that the first has no sensitiveness to touch while the 2nd has ; the first is liable to occur along with other spasmodic phenomena, the other during the stage of pronounced collapse. Nicotine is another drug of great usefulness in such cases. This drug corresponds however to a variety of cholera quite different from that to which cuprum corresponds. I shall come back to nicotine in the course of these lectures. Again, we have in *Colchicum* another remedy closely allied in its pathogenesis to cholera and known to produce almost invariably tympanites. *Colchicum* however belongs also to another class of cholera ; it belongs to the veratrum variety, of which more later on. In the spasmodic variety of cholera, cuprum stands first whenever tympanites intervenes.*

Hiccough is another most troublesome attendant of cholera ; it is a nervous disorder affecting the diaphragm and the glottis at the same time, the one being, at regular short intervals, convulsively contracted, while the other closes suddenly. There are a good many drugs known to affect the respiratory muscles, including the diaphragm through the phrenic nerves ; but there are very few which affect the glottis in a purely spasmodic, not inflammatory, manner. Cuprum takes the lead amongst them, and so does it also in cases of hiccough ; although *Arsenic*, *Veratrum album*, *Lycopodium*, *Cicuta virosa*, *Physostigma* or *Secale cornutum* may sometime be required.

The mention of such drugs as *Cicuta virosa* &c. in connexion with cholera, reminds me to say a few words about the apparent neglect of all such antispasmodics on homoeo-

* It should however be remembered that the veratrum variety is by means strictly diarrhœic in its nature. Veratrum is primarily a paralyser and secondarily a spasm-producer.

pathic ground, in cholera. No one has ever yet derived any benefit from *Cicuta* or from *Nux vomica* or *Strychnine* in the first stage of the spasmodic variety of cholera. Dr. Russell tried *Oxalic acid*—a drug, according to my estimation of its physiological action, standing between strychnia and arsenic—without any result whatever, and soon gave it up for good. The fact is, all these drugs are spinal irritants, with some of them the irritation set up going on to inflammation, while the cholera spasms are purely nervous in their nature. In conformity with this difference we find in the one case the spasms attended by high temperature, owing partly to inflammation and partly to muscular contraction, which is in itself a source of heat ; while cholera spasms are attended by a temperature below the normal standard. Furthermore, the cholera spasms are not spinal at all in their origin ; they are partly asphyctic in their nature, starting as such from the medulla oblongata, and partly cerebral, starting from the various motor centres and particularly affecting the extremities. Again the difficulty of breathing in the case of strychnine poisoning is owing to tetanic spasms of the respiratory muscles, which are under the control of the phrenic nerves, the same taking their origin in the cord ; while in spasmodic cholera the difficulty of breathing is due to morbid irritation of the vaso-motor centres and the consequent contraction of the pulmonary arteries and the arterial system in general.—These are the reasons why the above mentioned drugs are not indicated in the homœopathic treatment of cholera ; and why, on the other hand, such drugs as *camphor*, *hydrocyanic acid*, *arsenic* and *cuprum* have found a suitable place, as therapeutic agents, either in the spasmodic variety of cholera, or in choleraic spasms.

Cuprum has been recommended by Hahnemann in cholera, as you have seen from the extract I quoted to you at the beginning of my first lecture. Since then not only clinical ex-

perience has fully confirmed the correctness of his recommendation, but Nature herself, stood up, as it were, to bear witness to the grand truth of Homœopathy. It has been observed at various epidemics in Europe and in America that copper miners, or workers in copper are never affected by cholera. Even people who wear a light copper belt, or a copper coin near their skin, are said to escape cholera. Dr. Hoyne in his *Clinical Therapeutics* says: "Dr. Burq* ascertained by numerous experiments made in the hospitals, that the application of copper rings on the limbs is a certain means of causing the cramps in cholera patients to cease immediately, and often all the other symptoms vanish at the same time."

* From Dr. Burq's metalloscopic experiments regarding restoration of sensibility in cutaneous regions rendered anæsthetic by long standing diseases, it is to be seen that, when small metallic plates are allowed to remain in contact for a few minutes with the skin of patients who have lost for years all cutaneous sensibility, then the patients acquire their lost local sensibility, at the place of the metallic contact; while there is at the same time a visible increase of flow of blood to the parts, and the tissues regain their elasticity and tension. There are two things to be noticed in connexion with the above phenomenon. The change is only temporary, lasting but few minutes after the removal of the metallic plate; and secondly that, according to the individuality of the patient, plates of different metal have to be applied; that is to say, there is in the case of each patient a certain metal which will produce the phenomenon, and no other. The correctness of the above experiments and their respective results have been confirmed by a medical commission of enquiry, established for the purpose in Paris. (Heinigke's *Arzneimittellehre* P. 72.)

While these sheets go through the press, the Paris correspondent of the *Indian Daily News* (October 3rd 1853) gives us the following item of news:

Dr. Burq, who ever since 1852 has recognised copper as a specific against cholera, read a paper with a remarkable amount of evidence in support of his theory to the Academy of Medicine on September 4th, and it was very favourably received. In 1852 Professor Hus, of Stockholm, wrote to him:—

"In Fahlers where there are the largest copper works in Sweden, cholera never was seen."

In 1865 Dr. Gallarini, of Florence, affirmed that, in that town which contains 32 establishments where there are workers in copper, no case of cholera occurred either in 1836 or 1854. At the same period, Dr. Rogalis made confirmatory observations at Naples and Palermo. In the Rue Catalana, a very filthy street in Naples, but where copper is either worked or stored in almost every house, no case of cholera occurred during the epidemic of 1855, although the disease was raging all around.

An officer of rank in the Turkish Army named Tedesco, observed that in factories where copper saucepans and kettles were made there was no cholera.

During the two great cholera periods in Egypt—1850 and 1865—the Arab quarter of Cairo, where copper utensils are manufactured, was free from the scourge. That is an incontestable fact.

While lately in Vienna (Austria) I tried to ascertain in how far workers in the arsenic mines of Styria or the workers of the furnaces in Silesia have been known to be exempt from cholera. I was told by men whom I have reason to consider reliable, that the men as a rule could not stand the action of the arsenical fumes, unless they habitually take arsenic internally; they become by sheer necessity arsenic eaters. As such they are known to be exempt from all sorts of infectious disease, cholera included. To what degree they are exempt from infectious disease in general and cholera in particular, I had not the opportunity of ascertaining. If we hear then so little about the prophylactic power of *arsenic* against cholera, it may either be, because the drug is not so perfect a protector as is the case with *cuprum*; or because it is so general a protector against all infectious diseases, that no particular notice has been taken of cholera.

At the meeting of the Academy of Sciences, October 30th, 1865, Dr. Velpeau read a communication from M. Casiano del Prado, Government Engineer in Spain, from which it appeared that a numerous population on the banks of the Rio Tinto was entirely spared, although there was much cholera of a violent kind in the neighbourhood. A French Engineer, M. Roswag, who, for fourteen years, was attached to the mines near the Rio Tinto, certified that the copper miners, more than 30,000 in number, enjoyed complete exemption from the disease.

A practitioner from San Francisco, lately on a visit to Paris, told Dr. Burg that a hot spring in Southern California, 50 miles from Angeles, strongly impregnated with copper, was reputed far and wide to be sovereign remedy against cholera.

Professor Dr. Nussbaum, the celebrated German authority upon hygienic matters, has expressed himself as to the innocuousness of the cholera bacillus as follows: "Since Koch discovered the cholera comma bacillus it has come to be known that no human being living at the place where the epidemic rages escapes this poisonous fungus, for it is in the air we inhale, in the water we drink, upon the food which we eat; it is in the soil, and when this is moist and unclean, multiplies with extraordinary rapidity. In spite of this fact, in a city of say two hundred thousand persons, visited by cholera, perhaps but 1 per cent., that is two thousand, will be attacked. The other one hundred and eighty thousand persons remain unimpaired in health, although they have all inhaled, swallowed, and drunk the cholera bacillus. It is now known with certainty that the cholera bacillus is dangerous only to those persons whose stomach is not in a healthy state, and jeopardises life only when it passes into the intestines. A healthy stomach will digest the bacillus, and therefore it does not reach the intestines in a living state."

There is a common saying to the effect that prevention is better than cure; and cuprum and its undisputed prophylactic virtues against cholera, present us with a striking illustration of the truth of the above adage. Cuprum is certainly no specific cholera remedy, in the strict sense of the word; yet as a prophylactic it is efficient in its action to ward off the morbid invasion.—May be, there are some hidden virtues in the copper metal which our physiological provings have hitherto failed to bring to light; may be, that cuprum has some specific physical or physiological action upon the condition under which cholera, and, indeed, some other epidemic diseases are generated, spread and are allowed to take effect upon men, whereby it becomes endowed with preventive virtues.* In fact I have heard that during the last outbreak of typhoid fever in Paris, workers in copper have shown an immunity from the disease, that has drawn the attention of the sanitary authorities on the subject. Whatever the case may however be, it appears that, as far as our present knowledge of specific prophylactic agents goes, they stand more or less in homœopathic relation to the disorder respecting which they are capable of exercising prophylactic virtues. There are no doubt cases, and whole outbreaks of typhoid fever which show strong similarity to cuprum poisoning. “Cuprum like arsenic, has a specific destructive affinity to the tissues constituting the alimentary canal” says Dr. Fothergil, “it causes enormous vomiting, profuse discharges of bile upwards and downwards, inflammations and erosions of both stomach and bowels, delirium, convulsions, syncope and death.”—This refers to cases of

* If there is any truth in Koch's Cholera Bacillus—a truth strictly denied by Dr. Klien—then *cuprum* may have some further claim as a cholera prophylactic, known as it is that sulphate of copper is next to corrosive sublimate, the best disinfectant. I would strongly advise practitioners to try *Cuprum sulphuricum* in all cases where *Cuprum metallicum* or *Acetate* should act unsatisfactorily; to try moreover low dilutions of the drug (*Cupr. sulph.*) say to 3x where higher dilutions fail to fulfil our expectations.

poisoning by water from a spring impregnated with verdigris (acetate of copper). As to the chronic poisonous effects of the metal itself, Heinigke says: "There are persons who are unaffected by the action of small quantities of metallic copper; most persons however show the following symptoms after having been for a long time exposed to its action: metallic taste, greenish coloration of the hair; digestive disorders; nausea and vomiting; colic and diarrhœa; convulsions, paralysis and slow fever; the gums recede, and show a purple margin."—In Allen's *Encyclopædia of pure Materia Medica* you will find many cases of poisoning, with symptoms like the following: febrile heat for several days; fever (many cases); continuous fever, almost typhous; hectic fever; &c.—Cuprum has been actually recommended, as far back as 1866, as a remedy in typhoid fever, on homœopathic principle, by Dr. Bæhr in his *Science of Therapeutics*. "Of the capacity of cuprum" he says, "to produce typhus symptoms in their whole succession, we have the testimony of no less an authority than F r e i c h. (See Frank's Archives. Vol. IV.) The copper-typhus is not distinguished by violent fever, but from the very onset of the fever there is extraordinary weakness, and the same increases under symptoms of blood-decomposition (nose-bleedings, petechiæ) so rapidly, that death occurs in a comparatively short time under symptoms of general paralysis." From the *Cyclopædia of Drug Pathogenesis*, article *Cuprum*, it may be seen that such typhous symptoms of cuprum poisoning are often unpreceded by any gastric symptoms. Patients would be well for a few days when they gradually lose strength, and merge gradually into a state as described above. The prophylactic virtue of copper in some typhus epidemics is therefore one proof more, of the existence of some homœopathic relation between the physiological action of the prophylactic agent and the disease to which it refers; although it is by no

means sure, that such a relation may be all that is required to confer upon a drug prophylactic virtues.

Let it be understood that the relation spoken of is not to be taken in the sense of causality ; nor do I even profess to say, that the benefit we derive from the administration of cuprum in the treatment of cholera cases, is directly owing to the drug's homœopathicity to the disease.—What we, homœopaths, call the curative law of similitude, may, for all we know, not be, in a strict sense, a real principle of cure, nor a natural law, but only an empirical maxim, a therapeutical rule. We do not mean to say, a homœopathic remedy cures, *because* it produces in a healthy body similar symptoms ; the similarity of the symptoms is only the indication to find out the right remedy. It may not be the cause of the effected cure, but only the guide to it. In fact neither Hahnemann nor were his disciples able to give a satisfactory explanation of the process of the homœopathic cure. Between the homœopathic similitude and the cure there may be a third link in the chain of causation, at present unknown to us ; and this may so much the more be the case with regard to prophylactic remedies.

As to special indications for cuprum in cholera, it may be said that the drug is indicated by colic of a paroxysmal character ; by soreness in the præcordial region with sensitiveness to touch, and lastly by cramps in the extremities beginning at the fingers and toes. Drinking cold water, it is said, relieves the vomiting ; (in arsenic cases, cold water is immediately brought up) and the act of drinking, it is said, by others, is accompanied by a gurgling noise, which would indicate a state of paresis of the œsophagus. The chlorotic constitution, and generally speaking all such constitutions where disordered nutrition goes hand in hand with what is called nervousity, are according to the late Dr. V. Grauvogl, especially apt to derive benefit from cuprum. The Reviewer of this book (*British Journal of Homœopathy*, April 1884) says :

"Of *cuprum* Dr. Salzer does not speak so highly as we should have expected"—It would then appear that *cuprum* has done better service in England than in India. This may be accounted for by the fact, well-known in our school, that the drug acts better in light-haired people.

It may not be out of place here to say a few words on the subject of drug alternation in homœopathic practice. There has been much discussion about the subject, since Hahnemann first enunciated his great principle, that drugs, homœopathically administered, in order that they should cure promptly, safely and surely, should be administered single. There is, to my mind, not only a great truth contained in those words of Hahnemann, but a general truth no less. But not always are we in a position to lay hold upon the truly, all-sided homœopathic remedy ; the question then arises : are we to trust to a remedy the homœopathicity of which to the case before us we know to be deficient in many essential points ; or are we to complement the deficiency by a second remedy, to be given in alternation with the first ? Well, a long and varied experience has taught us that the second alternative is the best, that is to say, is the least of the two evils ; for an evil it is, not to be able to lay hold upon the single homœopathic remedy, which no doubt attains a far greater therapeutic result, than any combination of remedies, all other circumstances being equal.

Missionaries report good results from *cuprum* in cholera. Of course we must take what they say with a grain of salt, otherwise we might be carried away to believe that *cuprum* is infallible in all stages, ages and seasons. They give low triturations (one reports excellent results from *Cuprum met. 2x Trit.*) and it remains to be seen whether their alleged better results are due to the low trituration in which they say to administer the drug. There is one missionary (Rev. H. Lorbeer of

Ghazipore) who sells a cholera-mixture which I had got analysed by Dr. Kanai Lal Dey, Chemical Examiner to the Government of Bengal ; it is composed of Sulphate of Copper and Camphor. He stated in a letter to the "Englishman" of the 2nd May 1892 that his cholera mixture saves 80 out of hundred patients. Of late, he says, he adopted the method of administering 2 or 3 drops of opium in case his remedy does not act promptly. The suggestion is, to my mind, a very resonable one. Cholera patients become often so frightened that their whole nervous system becomes upset, and they become unimpressionable to drug action. Opium would calm them and restore the receptivity to drug action. It is a piece of reasonable homœopathy taken from Hahnemann again. Why the Rev. gentleman commits himself to gross plagiarism for the sake of money making is one of those unpleasant puzzles concerning which the less said the better. Since the above was written Dr. Mitra, chief of the Medical Department, Cashmeer, had, in a severe and long lasting cholera epidemic, tried, amongst other cholera nostrums, Rev. Lorbeer's infallible cholera-mixture. Dr. Mitra gave a fair trial to all and every cholera-mixture known to him ; he did however not try Homœopathy. Thus Revd. Lorbeer's plagiaristic proceeding had one good result, the result namely that it was systematically and impartially put to test. The therapeutic result as recommended by Dr. Mitra was a sad failure, more than 60% died under Lorbeer's medicine.

We are therefore so much the more disposed to welcome the introduction of a drug which unites in itself the physiological action of copper and arsenic ; I speak of the arsenite of copper. Dr. Hale in his New Remedies, fifth Edition, says : "This heroic remedy has always been a favorite one with me. Many years before it was proved by Dr. Blackley I had used it in many cases, and with uniformly good results. I selected it according to the well-known provings of both drugs, and

from the recorded cases of poisoning found in the standard works on toxicology."

"I first used it in some severe cases of cholera, which occurred in the year 1867 and 1876. These cases were marked by the usual intestinal disorder, to which was added severe and painful cramps in abdomen and extremities. The alternation of *Arsenicum* and *Cuprum* did not prove as satisfactory as I expected, but the use of cupric arsenite in the 6x trituration, in water, for children, and dry on the tongue in adults, generally acted promptly. I can recommend it in cholera infantum, spasmodic and neuralgic pains in the bowels, accompanied by screams, and cramps in the fingers and toes, attended with great debility and threatend collapse. I have also used it with good effects in cholera, dependent on a profound affection of the nervous centres, and presenting the well-known characteristic symptoms of *Cuprum*, united to the dyscrasia which always indicates *Arsenic*. Again in cases of spasmodic cholera with great anxiety and restlessness associated with unbearable pain in the extremities, respiratory and abdominal muscles &c. *Cuprum arsen.* has often done for me what none of its components given alone or in alternation could do. In the state of uræmia, or especially uræmic convulsions, we may also find in *Cuprum arsen.* what hydrocyanic acid might fail to effect (see last lecture ix). In the tenth volume of Allen's Encyclopædia, you will find under *Cuprum arsen.* the following symptoms mentioned: Cold, clammy perspiration of intermittent nature. If you now study the section of Paroxysmal Sweat in my book on Periodic Drug-Disorders, you will find there mentioned, *Bellad.*, *Hepar sulph.*, *Lachesis*, *Sepia*, *Conium*, *Saccharum album*. None of these drugs has cold clammy perspiration; *Cuprum arsen.* alone has it, and therefore the more worthy of our notice in cases of emergency. -

There is one drug more to be mentioned in connexion both with the spasmodic variety of cholera and with the spasms occurring in cholera; the well-known ergot of rye, *Secale cornutum*. Wibmer gives the following graphic description of toxic effects of this drug:

“At first the patient only complains of languor, and of formication of the tips of the toes and fingers, which sometimes look blackish blue in some places. Frequently it commences with nausea violent vomiting and pains in the stomach; the abdomen becomes distended and hard; the head feels dizzy; the senses become blunted. At a later period the patients are attacked with violent convulsions of the hand, feet, knees, shoulders, elbows, mouth, lips and tongue. These shift from one side of the body to the other, and are generally accompanied with violent pains; at times by a burning heat, and at other times by chilliness; sometimes they abate periodically, and then return again; sometimes the spasms assume the form of emprosthotonos; at other time that of opisthotonos. These convulsions most frequently terminate in epilepsy. They are very destructive to children. Between the paroxysm the patients lie in an uninterrupted sopor; after the paroxysm most of them manifest a craving for food, without being able to satisfy themselves. They are exceedingly feeble and languid, complain of dizziness and hardness of hearing; their limbs are rigid and motionless. Sometimes they are attacked with violent diarrhæa; the tongue swells very much; the secretion of saliva is increased, the eyes frequently become covered with a thick mist so that the patients become blind or see double. Their mental faculties are disturbed; melancholia, madness, intoxication set in, the vertigo increases, the pains now cease, sensibility is extinguished. The hands and feet are sometimes covered with spots resembling flea-bites; they dry up as it were; the skin turns black, wrinkles, whole

extremities sometimes become gangrened and fall off. In this way the patients escape death, dragging their mutilated bodies about for months and even years afterwards. Many, however, die within nine or twelve weeks.....It was observed in various epidemics, that the convulsions and pain in the limbs with stupor, would prevail ; and in other epidemics gangrene of the extremities ; hence the distinction between *convulsive* and *gangrenous* ergotism."

Considering that gangrene is caused by depriving tissues of their nutrient fluid, the blood ; that the tissue starvation as occurring under the toxic effects of *ergot* is known to be brought about by the contraction of the blood vessels—*ergotin* or *secale cornutum* must be looked upon as eminently homœopathic to all such cases where arterial spasms lie at the bottom of the pathological disorders. We know besides that under the full toxic effects of the drug the temperature is below the normal standard ; there is, moreover,* "great anxiety and fear of death" ; the face, in some victims, is pale, sunken, hippocratic, with anxious expressions ; there is profuse, cold sweat over the whole body, extreme debility, prostration and restlessness ; in short the collapse of ergot, whenever produced in a subject, is not easily distinguishable from an arsenic-collapse.

Like all violent poisons, *secale* is twofold in its destructive effects upon the human organism : neurotic and hæmatic ; and we can, in many cases, hardly tell, which of the two elements is prevalent in the ensemble of its pharmacodynamism.

Ergot produces besides, violent convulsions, accompanied by chillness, and offers thus another feature of similarity to spasmodic cholera ; for as far as can be judged from its pathogenesis, the convulsions seem to be idiopathic, and not like those produced by *cuprum*—subsequent to gastro-intestinal

* *Allen's Encyclopædia of Pure Materia Medica.*

irritation. On the other hand, ergot is not altogether without any disturbing influence upon the digestive organs ; it produces, as we have seen, nausea, violent vomiting and pains in the stomach, and "sometimes they are attacked with violent diarrhœa." The nature of the evacuations is here again not choleraic ; nevertheless it could hardly be denied, that on the whole there is much of the ergot effects which strikingly resemble the main features of cholera.

You might feel inclined to ask me : What is the use of running after other drugs with half and three-quarter resemblance to cholera, since we have already so many of them ?— My answer is, if we had enough of them, then our mortality in cholera would not be what it is ; a mortality of somewhat near thirty per cent. in an acute disease like cholera, shows that there is something deficient in our treatment. I say deficient, where some others might have expected me to say : there is something wrong altogether. But the very fact, that we do save 24 out of every fifty patients who would otherwise have been doomed to die, and who do die under any other, but homœopathic treatment, shows that our system is the right one provided we have the means to carry it out properly. Now Homœopathy has always insisted upon paying as much attention to the individuality of the patient, as to the pathological individuality of the disease. The very fact that only a certain number of patients do benefit by our treatment, shows that the rest of them have been, in some respects, otherwise constituted than those who have been saved ; else, why this difference in the result, since the remedial means applied have actually been the same in all cases ?—

Happily we know on the other hand that just as there are no two patients exactly alike to all therapeutic intents and purposes, so there are no two drugs alike, with respect to their physiological action on the healthy ; so that, in the measure as we extend our knowledge of specific drug action.

we extend at the same time the sphere of our therapeutic knowledge and usefulness.

To return to the drug under discussion, we find in *secale cornutum* certain particularities, which might lead us to administer the drug in certain particular cases of cholera, or rather to certain particular cholera patients, with far greater advantage, than we could ever expect to derive from any of the remedies previously analysed by us.—*Secale* has namely that particularity that it causes arterial contraction by acting directly on the arterial muscular coat, and not as is the case in cholera, and all the other drugs mentioned before, by irritation of the sympathetic system of nerves. We know this from the experiments of Brown Sequard, who has shown that division of the sympathetic does not materially affect the arterial contractions, produced by *secale*. As to convulsions of the voluntary muscles arising under its influence, opinions seem still to be divided, in how far these phenomena are to be considered as purely neurotic. Some authors maintain that the convulsions are caused by cerebral and spinal anæmia, which anæmia is supposed to be brought on by the arterial contraction of the cerebral and spinal blood vessels ; just as some authors attribute the choleraic spasm to impoverishment of the blood in consequence of the choleraic discharges. Anyhow it is established beyond doubt that *secale* exerts an irritating influence upon the muscular coat of the blood vessels—arterial as well as venous and, indeed, upon the unstriped muscular fibre throughout the body, exciting everywhere a persistent and long lasting contraction.

Such being the case, we shall find *secale* best suitable to constitutions, where the arteries are apparently assailed by a process of degeneration. Women at the climacteric period suffer often in consequence of such a beginning degeneration of the arteries ; and men between 50 and 60 give often out no uncertain signs in the same direction. We may then be

induced in the case of such patients to administer *secale*, just as we have seen, that in another class of patients—the chlorotic—*cuprum* may have the preference to other allied remedies ; and yet in another class of patients—the malarial cachectic—*arsenic* might have to be administered, in so far as the individuality of the patient may determine the choice of the remedy.

Let it be understood, *Ergot* in spite of all apparent similarity to cholera in many of its prominent toxic effects, cannot stand the test of a thorough-going comparison with the fundamental disorder of the last named disease. Not to say anything of the evacuations peculiar to the two abnormal conditions—cholera and ergot-poisoning—the very spasms of the arteries, which occur in both, materially differ from each other. The arterial spasms of cholera are due, as has been so often stated, to morbid irritation of the vaso-motor centres ; while in *secale* we have seen from the experiments of Brown Sequard, that neither the vaso-motor centres nor the sympathetics have any thing to do with the arterial contractions occurring under its influence—the contractions being solely due to irritation of the unstriped muscular tissue of the vessels.

But while *secale* can never be enlisted among the rank of cholera remedies on homœopathic ground, it can be made serviceable as an excellent therapeutic auxiliary on the very same ground. In order to understand this, we need only remember that an injury however inflicted, directly or indirectly, may prove equally hurtful. The arterial coats that have been unnaturally contracted under the influence of a morbidly excited vaso-motor nervous system may not always be in a condition to resume their natural calibre as soon as the sympathetics themselves have ceased to be morbidly excited. Such a return to their natural calibre on the part of the arteries, after the removal or cessation of the extraneous, nervous influence, can only be expected to take place in virtue of the elasticity of the arterial coat. Now this elasticity

may be damaged by atheromatous deposits within the walls of the blood-vessels, in the class of patients described before; something is therefore still to be done in such cases, after all injurious, nervous influence had been removed, be it by medication or by the *vis medicatrix naturæ*. And here *secale*, by its direct action on the arterial coat, may do for us, what no remedy, homœopatic to cholera, could do; for the simple reason, that none of those remedies act on the arterial coat; they, all of them, act, like the cholera poison itself, on the vaso-motor nerves, or their centres. Again, whenever cholera attacks a woman whose menses are habitually profuse, or a woman who is just menstruating, we should never lose sight of *secale*—alone, or as an intercurrent remedy. Cholera originating from a diarrhœa contracted after child birth may also find its suitable remedy in *secale cornu*.

But it is not only in patients of the above description that *secale* may be called for; any cholera subject may, now and then, be in a condition, as to require *secale*. You remember no doubt what I told you in one of my previous lectures about the effect the enormous loss of water in cholera patients must necessarily have upon muscular contractility and tissue elasticity in general. You will then be able to judge for yourself about the importance of the drug under discussion in the treatment of cholera. You will moreover, after what I said on the subject, be in a position to understand an observation made by the late Dr. Russell, for which he could not account, considering that he himself could not at that time have been acquainted with Brown Sequard's experiments.

Dr. Russell writes as follows:—

"*Secale cornutum*, or ergot of rye, is a medicine in which we have great faith in some of the worst varieties of cholera. We have seen the most decided advantage from its adminis-

tration. . . . While we would recommend cuprum and veratrum to be given rather by themselves than in alternation, we should feel inclined to give secale alternately with *arsenicum*. It is not easy to give a reason for this, beyond the observation, that so given, we have seen more benefit to the patient, than from either singly; and we do not think that the two medicines interfere. We should give it strong, in the first, second, or third dilution; a dose every half hour alternately with arsenic; and thus in cases particularly of women, where there is great prostration and violent watery discharges, we have seen cases, which we looked upon as quite hopeless, steadily rally under this treatment; and we have no doubt of the beneficial effects of the remedies."

"By far the fullest account of the effects of ergot of rye is that given by Dr. Buchner of Munich in the 4th volume of the British Journal of Homœopathy. It is well known, that a very fatal disease like an epidemic has frequently prevailed from the use of this substance among the poor of France and Germany. In the district of Guyenne and Lorraine alone there died in the year 1770 no less than 8,000 persons from this poison. It is described by Traube* as coming on 'suddenly, without any warning; the patient is attacked with giddiness; dimness of sight; frightful contortions of the body; trembling of the limbs; cold perspiration; great anguish; restlessness; hippocratic countenance; intense thirst; pain at the sternum; oppression of the chest; the pulse small, intermittent, often imperceptible.' If to this we added vomiting and purging, which secale cornutum sometimes produces, it would be impossible to discriminate between the ergot disease and cholera."—

And yet Ergot has been tried in cholera and failed! Dr. Kafka distinctly tells us that "From *secale cornutum* or *vera-*

* *Geschichte der Kriebelkrankheit, Göttingen 1782.*

trum we have never derived any benefit in the stage of Cholera collapse."—Dr. Bähr mentions the drug, but says that owing to deficient provings, he cannot recommend it in practice.—Dr. Joslin in his Homœopathic Treatment of Epidemic cholera does not mention the drug at all. I myself had once a great confidence in *secale*, on (false-understood) theoretical ground till I have come to learn better.

Whenever we have to overcome arterial spasms in cholera, *secale* may, for reasons explained before, find a place, when the best indicated homœopathic remedy has failed. Whenever you try it singly, in such cases, it will fail ; and it is therefore that the drug has fallen out of practice. Dr. Russell's observations, as to the alternation of the drug, deserve our full respect and imitation. You will save many a desperate cholera case, by knowing how to apply *secale cornutum*.

But it is not only in the cholera attack itself that *secale* is often serviceable ; it is as serviceable, often even the more so, in the sequelæ of the disease. When the stage of reaction has set in, with its manifold congestions in the brain, in the lungs, the kidneys, the intestines &c. ; then we are apt to ascribe the incompleteness of the reaction to the thickened state of the blood, to the depressed state of the sympathetic nervous system &c. We forget altogether, that the unequal flow and distribution of the blood through the various organs of the body, might as well be owing to the want of elasticity on the part of the walls of the blood vessels and their incapacity on the one hand to resume their natural calibre, and on the other hand, to obey the vaso-motor nerve impression exerted upon them. A few doses of *secale* will here prove to be as beneficial, as they sometimes do in the algid stage of cholera.

Secale is again one of our best remedies in some of the remote sequelæ of cholera, going by the name of *asthenia*. When a cholera patient has apparently gone through the whole ordeal of the disease and is just about to progress to-

wards recovery, it may happen, that he is found to be lingering, unable to regain health and strength, and sinking every day lower. It is as if the whole of his recuperative power had exhausted itself in the struggle with cholera, and nothing is left in him for the sustenance of life. As long as the asthenia is general, that is to say, not marked by any local disorder, we shall hardly see much benefit from *secale* alone. We have here to deal with a case of mal-nutrition, or mal-assimilation, and shall have to administer such remedies, as were characterised by the late Dr. Grauvogl as nutrition-remedies, of which more hereafter. *Secale* must here take the place of an auxiliary remedy, though often indispensable, as such. But when the general asthenia is associated with some distinct local signs of mal-nutrition, then think of *secale*. The existence of bed sores point to *secale*; and should they be sloughing or even gangrenous, you will still do best to have recourse to *secale*. In cancrum oris, *secale* vies with arsenic and other remedies. In uterine hæmorrhage it is our leading remedy. "All the symptoms are aggravated on the appearance of the menses," is a characteristic of *secale*. You have learnt from Wibmer's description, how deeply *secale* disorganises the organs of sight and hearing. Ulceration and ultimate sloughing of the cornea is one of the sequelæ of cholera; should you have the chance of detecting the coming evil early enough, when there is some obscuration of sight, the cornea looking dim and hazy, without there being yet any pronounced ulceration, then you may in a short time, restore an eye which is otherwise almost doomed. One of my first cures in Calcutta was the case of a middle-aged Eurasian lady who suffered of deafness for 4 or 5 years, consequent upon an attack of cholera. *Secale* in various dilutions cured her in about two months time.

And finally let us not forget—what has hitherto entirely been forgotten both on the part of our authors and practi-

tioners—that *secale* has amongst its pathogenesis a considerable number of febrile symptoms, as a reaction from the state of lowered temperature, primarily caused by the drug ; and that of one prover typhoid symptoms are recorded as having occurred, while under the drug's influence. "Between the paroxysms" says Wibmer, "the patients lie in an uninterrupted sopor."—When cholera patients gradually enter into a state of coma we are in the habit of administering *opium* ; *Secale*, or such other drugs as shall be mentioned hereafter, are far more suitable to such a condition.

I close the chapter of *Secale* with the following quotation from Kafka.

"We administer of *Secale* the first to the third solution, every quarter or half hour, whenever *cuprum* is insufficient to cope with the spasms ; when, moreover the cramps of the extremities are associated with collapse and cyanosis (which is not necessarily required for spasms calling for *cuprum*) ; when the spasms are so violent as to produce opisthotonos ; when the extensors of the fingers and toes are spasmodically affected (in *cuprum* it is the flexors that are affected). Should we fail in such cases with our remedy, then we should remember, that the drug we use may be deteriorated, and we resort to *Ergotin* 1 to 3, which we administer every half hour or every hour, according to the frequency and severity of the spasms.—We have, at a previous occasion warned against a too persistent use of camphor, especially in the case of children, as such a proceeding is liable to bring on a too stormy reaction, with violent congestions in head and chest. A similar caution is to be observed with regard to *Ergotin*, as there are likely to occur, in consequence of an eventual over-dose : cerebral hyperæmia, associated with narcotic phenomena."—

VII.

Considering that the spasmodic variety of cholera, in its genuine type, is rather rare now-a-days, it must have appeared to many of you, that too much time has been taken up with the consideration and analysis of remedies which are in the first instance more or less calculated to act as antispasmodics. Knowing however as I do, how important the spasmodic element is in *all* cholera varieties, I do not think we could well afford to dispense with any of them.—Coming now to the diarrhœic variety of cholera, we are delighted to meet, for the first time, with a drug the physiological action of which is perfectly homœopathic to cholera. I speak here of a drug which is almost unknown in homœopathic practice, which is, however, nevertheless destined considerably to advance our cholera therapeutics. It is *Ricinus* I am going to entertain you about, during this lecture. The drug is prepared from the *seeds* of the castor oil plant, and shall be called simply *Ricinus*, in order to distinguish it from the oil, the well-known *oleum ricini* of the old school.

We have to thank Dr. Hale of Chicago for having first drawn our attention to this drug. "I am amazed" he says in his *New Remedies*, "that Hahnemann, or some of his contemporaries, did not institute provings of the seeds. They must have been aware of their poisonous action. Knowing its botanical relationship and the almost universal use and abuse of the oil, it is surprising that *Ricinus* did not, in their hands, become a polychrest. It is certainly as capable of occupying such a place as *Euphorbia*, *Jatropha*, *Croton tiglium*, or *Veratrum*."

"It ought to be useful in cholera Asiatica, cholera morbus and infantum. It will doubtless prove a specific in many cases of mucous enteritis in the form of diarrhœa and dysentery."

I am happy to tell you, gentlemen, that after having been put by me to a practical trial for the first time this year in Calcutta, it has really proved to be, what Dr. Hale predicted : useful, very useful indeed, in the diarrhœic variety of cholera. This is so much the more agreeable, since we have hitherto not possessed one single remedy which could have been pronounced similar in its effects with regard to abnormal evacuations to those occurring under the influence of cholera. *Veratrum album* was our sheet anchor in such cases ; but how different are the ejections brought on by the toxic effects of that drug, from those of a cholera patient !—It is true, under the action of *veratrum* the alvine evacuations are as a rule serous—a great advantage over all the other drugs previously mentioned ;—but they are at the same time bilious, while choleraic evacuations are characterised by total absence of bile. *Veratrum* lacks also the suppression of urine, so pathognomic of cholera. Again in the diarrhœic variety of cholera vomiting and purging set in without colic ; the same gradually appears, in the measure as the evacuations become profuse ; while under the toxic influence of *veratrum*, the diarrhœa is almost invariably associated with colic. Is it a wonder after this that we have hitherto so badly done in cholera ?—With a wrong impression about the therapeutic use of camphor, and with no suitable remedy for diarrhœic cholera, we could hardly have done better than we did. I consider an average loss of 26 per cent. in an acute disease like cholera, a very poor clinical result, with a therapeutic system like Homœopathy to work upon. It is of very little consolation to us to know, that under any other therapeutic system the result has been by far worse.

Again I say I am happy to inform you, that in *ricinus* we possess a remedy which is, in diarrhœic cholera, that, what

camphor was in the hands of Hahnemann and his followers in the spasmodic variety.

As the use of this drug is altogether new in our school, I shall lay before you all what is known of it. In doing so I avail myself of the labours of Dr. Hale and Dr. Allen.

I quote first from the *New Remedies* of the first mentioned author.

"As the oil probably derives its purgative action from the principle which renders the seeds themselves so harsh and even poisonous, it may be well to describe their effect more particularly. M. Mialhe proved that an emulsion made with the kernels of the seeds is violently emeto-cathartic in the dose of one hundred and fifty grains (from seven to ten seeds), and that even a tenth part of that quantity produces both vomiting and purging. He hence inferred that the active principle of the seeds is yielded but slightly to those varieties of the oil which are obtained by pressure alone, without heat. This is more fully proved by instances such as the following: Giacomini relates that when a child, he experienced a violent attack of vomiting and protracted exhaustion from eating nine or ten of the seeds. Bergius records the case of a man in full health, who ate a single seed of Ricinus which, however, left an acrid taste in his mouth. Early the next morning he was seized with violent vomiting, which continued alternately with purging throughout the entire day. Lanzoni saw a young woman attacked with violent cholera morbus, and in excruciating pain in the bowels, from eating three of the fresh seeds. Dr. Taylor records a fatal case of poisoning from this cause. Three young women ate of the seeds, one about twenty of them, another four or five, and a third two of them. Upon the two latter persons the effects were those of a violent cathartic, but the first was seized with vomiting and purging, and looked like one in an attack of malignant cholera: the

skin was cold, pale and shrunken, there was pain in the abdomen, and the mind was in a drowsy, half conscious state. The dejections consisted of bloody serum. No reaction took place and death occurred within twenty four hours. On examination, the gastro-intestinal mucous membrane was found to be abraded and inflamed. A soldier in Algeria is said to have died from eating only three castor oil seeds. The whole intestinal mucous membrane was found after death coated with blackish blood. The lining membrane of the stomach was somewhat reddened and softened.

A case is related by Bergius where only *one* seed produced symptoms of poisoning; namely, nausea, vomiting and diarrhoea.

After twenty seeds, gastro-enteritis and death, preceded by convulsions and general collapse.

A young and strong man, after eating two grains of the seeds from which the oil had been expressed, was seized with such violent vomiting that his life was in danger.

The following case of poisoning by the seeds shows something worse than more enteric inflammation, for they appeared to cause albuminous urine and jaundice.

Bean, a sergeant in the seventh company of engineers, entered the hospital at half past five, July 10, 1871. He ate the same day in the morning, some ricinus seeds as a purgative. The seeds were perfectly ripe, dry, and gathered in the fall of 1869. As he did not find the taste very disagreeable, he ate seventeen of them. No accident happened immediately after eating them, and he took some beef-tea with appetite. Three or four hours afterwards he passed several loose stools and suffered afterwards from pyrosis, cramps in the stomach and nausea, followed by vomiting. The stools became at the same time more numerous and copious, and were passed without tenesmus or colic, formed of serous liquid mixed with mucus.

About 4 P. M. the diarrhœa became incessant, with cramps and chilliness ; at 5 P. M. he entered the hospital.

Pathology. Present state : Pale face, the forehead covered with cold sweat, and features drawn ; the eyes are convulsed and drawn upward in the orbita, the conjunctiva injected, and copious lachrymation ; the pupils only moderately dilated ; pulse normal in frequency, but so small, that sometimes it can hardly be felt at the radial artery. Intelligence perfectly clear ; patient complains of headache, vertigo, buzzing in the ears, and a sensation as if a bar laid over his stomach, with profound anguish ; burning thirst ; pyrosis, nausea, vomiting ; the vomited matter is fluid, lightly colored by some bile and holds some glairy filaments suspended ; epigastrium very sensitive, and the pains radiate toward the navel and hypochondria ; neither light nor strong pressure aggravates the pain, at the same time the patient feels a sensation of violent constriction in the intestines ; the diarrhœa becomes colliquative, and the stools look like those in cholera. Complete anuria since 10 A. M. ; voice very veiled ; profound adynamia ; it takes two persons to hold the patient.

The time for antidotes had passed, and the only indication remained to combat the coldness, the muscular contractions, the stoppage in the circulation—in one word, to remove the pseudo choleraic symptoms consecutive to the enormous loss of water the patient had sustained. Frictions with camphor were ordered, sinapisms to the thighs, and hot flaxseed tea given in large quantities. Antispasmodics could not yet be given on account of constant vomiting.

Heat returns, but the chief physician, Dr. Teray, orders, on account of the vomiting, iced drinks, an antispasmodic potion, emollient injections in order to empty out the last traces of the poison, poultices on the abdomen, and continued frictions. The vomiting lasts till 3 A. M.

July 11th. Some fever, tongue hot and dry, anorexia pyrosis.

Vomiting again; the epigastric and abdominal pains, as well as the diarrhoea continue; more cramps; extreme lassitude; absolute anuria. At 10 A. M. he passed a small quantity of dark colored, thick and highly albuminous urine.

July 12th. Fever and diarrhoea continue; cramps in long intervals; severe headache; urine still scanty, with large precipitates, by heat or nitric acid. The same treatment.

July 13th. Pulse normal; face slightly congested, tongue white; no appetite, pyrosis; vomiting and abdominal pains; moderate diarrhoea, without tenesmus or colic. Icterus fully pronounced. Urine still very albuminous.

July 14th. Some diarrhoea and great lassitude.

July 15th. Only two stools; appetite returns; urine ceases to be albuminous. Discharged.—

Some more similar cases are given by Allen in his *Encyclopædia of Pure Materia Medica*. In one case there was diarrhoea without any pain throughout. Allen emphasises that symptom, pointing out that it has been verified in practice. From the cases I shall read to you, you will see that painless evacuations form, indeed, a characteristic indication for the administration of ricinus in cholera. Absence of pain at the outset of choleraic evacuations is more than a mere symptomatic indication; the absence of pain is of great pathological significance; it shows that the cholera case we have to deal with, is of a pure diarrhoeic variety, taking its origin in the vegetative sphere, without being in the least mixed up with, or prompted by, any tissue-irritating or spasmodic element.

For reasons given previously, it is natural to expect that, in the measure as the watery evacuations go on increasing, there will arise nerve-irritation with its subsequent spasms; partly in consequence of the anæmic condition of the blood.

and partly in consequence of incipient dessication of nerve tissue. But for all that we should not lose sight of the fact, that in all such cases, the spasms, muscular as well as arterial, are secondary ; although they may, in some particular constitutions assume, in the course of the disease, an independent pathological existence of their own—known as it is, that whenever nerve irritation has once been roused, it may continue even after its primary cause had been removed—and require as such some special therapeutic measures. In advanced cases, this is always more or less the case, and if the disease has been allowed to go unchecked, till collapse had set in, we know from Dr. Goodeve's observations, that there is invariably present spasmodic contraction of the pulmonary arteries. A close enquiry as to the way how the disease had developed, is necessary before we decide upon the plan of treatment to be adopted.

Characteristic of the diarrhœic variety of cholera, is its slow, insidious setting in. It begins with a diarrhœa running on for days, or for hours as the case may be, either gradually merging into choleraic evacuations, or unexpectedly bursting forth with a sudden gush of vomiting or purging. There are no cramps, hardly any colic before or during the attack ; nor are there indeed, any prominent signs of tissue irritation in the alimentary tract (although there may be a good deal of them, sooner or later afterwards); the whole morbid process being apparently worked out within the silent sphere of the vegetative system. The temperature of the body denotes hardly any change at the outset, unless we apply the thermometer, when a slight fall of a few decimals might be observed. It is in this sort of cases that ricinus is that what camphor is in the spasmodic variety of cholera ; and just as camphor, or one of its analogues, may be helpful, in fact indispensable, throughout the whole attack, from the first invasion, till collapse has actually set in ; so may ricinus prove helpful

and indispensable throughout all the stages of diarrhœic cholera, the stage of collapse included. You have seen how in the case of poisoning cited before, the ricinus seeds slowly, almost imperceptibly, worked their way towards the formidable attack the man had to sustain. And then when the attack did manifest itself, there were first a few loose stools, without cramps or even colic; all this came afterwards, in the measure as vomiting and purging progressed—just as in diarrhœic cholera.

In how far the sensation "as if a bar laid over his stomach"; or the other symptom—Epigastrium very sensitive; the pains radiate towards the navel and hypochondria—may be particularly indicative of the remedy, must for the present be left to future clinical experience.

When I said before that *Ricinus* may be called for in all the stages of genuine diarrhœic cholera, the stage of collapse included—I have only to add thereto the condition: provided vomiting or purging, or vomiting and purging is still going on; and further, provided the remedy just mentioned had not been fairly tried in the preceding stages. If it has been, then it would be an act almost bordering on obstinacy, to continue its application, in the face of palpable failure. Nor did I ever mean to say that *Ricinus* should exclusively be used in diarrhœic cholera; we should never forget the important role nervous phenomena play in cholera, and how such phenomena may assume a pathological existence of their own, when once brought forth. What I mean is this, that we must look in the diarrhœic variety of cholera, so long as evacuations are in a more or less prominent manner present, to *Ricinus* as the leading remedy, and to all the other remedies mentioned before, as so many auxiliaries; just as *Ricinus* would have to be considered an auxiliary remedy in all other, but the diarrhœic variety.

Let us not forget that Ricinus and its analogue—*Jatropha curcas* are the only drugs known, that have produced genuine rice-water like evacuations, whenever the virulence of their irritant action has not been great enough, as to produce gastro enteritis, with such alvine discharges as are usual under such conditions. *Ricinus* resembles in this respect *cuprum*, which has one action on the gastro-intestinal mucous membrane in large doses, and another one, in small doses. With *cuprum*, however, the absence of bile, and the rice-water like appearance of the evacuations are exceptional, even where no inflammation is produced ; while with *ricinus* they are the rule. Again with *cuprum*, nervous symptoms, especially colics, precede the loose stools ; while in *ricinus* the latter precedes the loose stools, provided the same are choleraic. As to the differentiation between the eventual use of camphor and *ricinus*, in choleraic attacks preceded by diarrhœa, I refer you to what I have said on the subject at a previous occasion, when treating at length on the application of the first named drug.

Baboo Behari Lal Bhaduri, L. M. S., Editor of the *Indian Homœopathic Review* says* ; “ We ourselves have met in previous practice with two cases brought on by eating the pulp of the seeds. There were rice-water stools, cramps and suppression of urine. We were then followers of the allopathic system, and had to give stimulants to cure the cases. After our conversion to the new school, the facts of the poisoning of these two cases led us to prepare a tincture of the seeds long before we read Hale’s article about the drug. We also supplied it to Dr. Salzer. We expected much from this in cholera cases of our country, but we cannot say that we have given the drug a fair trial. We are in the habit of giving this medicine when *Veratrum* fails, and in a few cases we have

* February 1883.

seen undoubted improvement from its use. The fact is, although we knew the provings would give rise to cholera, our faith in the medicine has never been so strong as to enable us to stick to it when improvement was not prompt."

In one of the cases of poisoning related by Dr. Hale there was : vomiting and purging ; cold, pale, and shrunken skin, and dejections consisting of bloody serum.—Stools as above described, sometimes occur at the state of cholera collapse. *Mercurius corrosivus* is, generally, the remedy we rely upon, and with good reason, for Taylor in his Medical Jurisprudence says : "The symptoms produced by corrosive sublimate, in the first instance, resemble those of cholera ; if the person should survive several days, they in some respects assume the character of dysentery."—We do not make use of *Merc. Cor.* in cholera cases, because of its prominent inflammatory action on the bowels, which is never present in cholera ; but when the discharge from the rectum becomes bloody, it is the best remedy at our disposal. Theoretically speaking, we should have in *Ricinus* a rival in this respect to the drug before mentioned, although I can say nothing as far as experience goes. *Merc. corros.* appears to be indicated when the above described stools are attended with tenesmus, while *ricinus* should act under similar circumstances better, when there is no tenesmus.—In how far *Mercurius corrosivus* should supersede all other cholera remedies, in patients tainted by syphilis, is as yet an open question with me. Not a single one of our cholera remedies corresponds to what Hahnemann called the psoric constitution, and what the late Dr. V. Grauvogl showed to be identic with what he designated as the carbo-nitrogenoid constitution, that is to say, a constitution in which oxydation is deficient, not in consequence of some local derangement of the organs of respiration and circulation, but in consequence of the blood corpuscles having partly lost their functional capacity of carrying oxygen.

Mercury has the same effect upon the blood, and is in fact as homœopathic to the psoric or scrophulous, as to the syphilitic constitution. I need not tell you that in the advanced stage of cholera, if not from the very beginning, a somewhat similar hæmatic condition prevails.—Who knows how many lives could have been saved by a judicious administration of *Merc. corros.*, had we not been such inveterate routinists in all matters concerning the homœopathic treatment of cholera. We do not reject *arsenic*, because of its decided inflammatory action on the gastro-enteric mucous membrane; and there is no earthly reason, why we should not try at least, in some such suitable contingencies, as hinted at, what the corrosive sublimate can do. The 3rd centesimal should be the lowest attenuation employed.

In seasons where dysentery and cholera are simultaneously prevalent—and in tropical climates such a concurrence is by far not out of the range of possibility—we should again look to *ricinus* as the remedy particularly indicated by the *genus epidemicus*. Again in such cholera cases which happen to be preceded by a diarrhœa consisting of bloody serum, we shall have one reliable indication more for the application of the drug so often mentioned. *Gambogia* should be remembered in cholera, and particularly in choleraic diarrhœa when the frequency of the stools goes hand in hand with the frequency of drinking water. The *Gambogia* stools are yellow, watery; but even choleraic stools proper might be benefited by the occasional administration of a dose of *Gambogia* in such cases.

In connexion with *ricinus* I mentioned before, as one of its analogues, *Jatropha curcas*; and I might have mentioned another drug besides, namely, *Euphorbia corollata*. I must however confess, I have never used the latter mentioned drug in cholera, nor have I ever heard that somebody else had used it with anything like success.—Both these drugs are in

so far analogous to ricinus, that they produce in the healthy, rice-water like dejections from the stomach. The stools are watery and painless, but not rice-water like, at least as far we are able to judge from the records before us, regarding provings and cases of poisoning. To be however fair and impartial in our comparison of drugs, with respect to the eventual similarity of their physiological effects to cholera, we should not lose sight of the fact, that as far as our records of provings with, or of cases of poisoning by, ricinus is concerned, we miss in a similar manner a distinct statement to the effect, that the vomit produced under the influence of the last mentioned drug had ever been rice-water like. However we have under the head of ricinus the following symptoms, which come pretty near to cholera vomit: The vomited matter is fluid, lightly colored by some bile, and holds some glairy filaments suspended; and again: Violent vomiting and purging, accompanied by burning pain in the gullet and stomach with all the symptoms of Asiatic cholera. (Allen from Pharm. Journ. 1866, effects of eating a few seeds.)

But were even the vomit caused by *ricinus* as deficient in similarity to that occurring in cholera patients, as the alvine evacuations of *Jatropha* and *Euphorbia* respectively appear to be, we should still feel justified in considering the toxic action of the first named drug by far more homœopathic to the disease under discussion, than the action of either *jatropha* or *cuphorbia*. The very name of diarrhœic cholera tells you the history of this variety of cholera, to which variety alone the aforesaid drugs can after all lay a claim as to their eventual homœopathicity to cholera. It is then the intestinal mucous membrane which, in that variety, gives out the first sign of distress; we know besides from clinical experience that purging in some shape or other often continues long after vomiting has ceased: reason enough why we should give preference

to *ricinus*, even if it were deficient in homœopathicity with respect to the nature of the fluid matter brought up by the stomach.

With regard to suppression of urine, so significant a symptom in cholera, *ricinus* is again homœopathic, as we have seen from the before-cited case, while *Jatropha* and *Euphorbia* are not.—There is one symptom more worth mentioning concerning *ricinus*—it is recorded by Allen from the *Journal de Chimie Medical* 1856. In a man who ate the seeds of *ricinus*, gangrene appeared in one foot and necessitated amputation.—How important this symptom may be for us, should a future experience teach, that it is a genuine toxic effect of the drug, may be apparent to you, from what I have said in a previous lecture about *secale cornutum*.

Jaundice is not a frequent sequel of cholera; we have however seen, that it is so, in choleraic fevers; * here again *ricinus* may be of great therapeutic value to us.—*Ricinus* produces Jaundice.

To give you the full pathogenesis of *Jatropha*, would simply be to repeat, as far as vomiting, purging and spasms are concerned, the pathogenesis of *ricinus*, with such differentiations as I have pointed out, as peculiar to the last mentioned drug. Remembering besides that the three plants, *Ricinus communis*, *Jatropha curcas* and *Euphorbia* belong to the same family of Euphorbiaceæ, we shall by no means be surprised, that their respective physiological action does not differ much from each other. There is, however, no death recorded in consequence of *Jatropha*-poisoning, although amongst the records, there is one of a sailor who ate a handful of the seeds. With *ricinus*, we have seen, it is otherwise. *Jatropha* seems further to have some direct effect upon the heart, depressing its action and causing some palpitation.

Nausea is one of its prominent effects, and the vomiting seems, in most cases of poisoning at least, to have preceded the purging. On the whole it would appear that *Jatropha* exerts its toxic action, primarily, on the pneumo-gastric nerve. Of *Jatropha urens* we read in Allen the following, rather puzzling remarks. "*Jatropha urens* (the most poisonous plant known.) Natural order : Euphorbiaceæ. Authority : Kew Garden's Quarterly Review, December, 1851. Mr. Smith in reaching over the plant touched his wrist against the fine bristly strings. — Numbness and swelling of the lips.—The action of the poison was on the heart ; circulation was stopped, and Mr. Smith soon fell unconscious ; the last thing he remembered being cries of 'Run for the Doctor'."—It would not be wise, at the present state of our knowledge about the cardiac action of *Jatropha urens*, to trust to it in collapse, when paralysis of the heart is threatening. Should however such a state be associated with persistent nausea, the drug might deserve a trial.—

Since the first invasion of the jatropha poison makes itself felt by nausea and vomiting, and since the vomiting caused by it is described as easy and copious, consisting of a large amount of a watery albuminous substance—we might give the preference to *Jatropha* in all such similar cases occurring in cholera, the stools being either simultaneous with the vomiting or following it. Concerning *Euphorbia* we notice on the other hand the following. "Suddenly, with no premonitory symptoms of pain, a distressing sense of deathly nausea sets in, accompanied in a few minutes by faintness ; then sudden and powerful vomiting of, first the food &c. in the stomach, then large quantities of water mixed with mucus, then clear fluid, like rice water." This last symptom is italicised by Allen, and marked by an asterisk which means that the symptom has been verified by clinical experience.— In continuation of the above symptom we further read :

"In less than a minute after the vomiting commenced, great commotion in the bowels, followed immediately by copious watery evacuations; this simultaneous vomiting and diarrhoea continued for nearly an hour, at short intervals or intermissions, all the while accompanied by great anxiety, a death-like sense of faintness and exhaustion."—This was the effect of 25 grains of the powdered root. After 50 grains the effects were much more intense, but lasted only a little longer.—Languor, great weakness, prostration were common to all the three provers. One prover had cold heads, feet and nose, and cool skin all over. There were no pain, neither spasms noticed by any of the provers.—*Jatropha* on the other hand has sharp colic in the transverse colon and rumbling in the abdomen—reported by one prover; others report of more or less severe colic; others again were free from colic, but complained of much noise and rumbling in the abdomen; or constant gurgling as of liquids, low down in the abdomen; with rumbling of air. Again, with regard to spasms, *Jatropha* has produced spasms of the extremities by far severer than those occurring under the influence of *ricinus*; it is especially the calves where the *jatropha* spasms make themselves the most felt.—Painless diarrhoea seems to be common to all the three drugs under discussion. Under the influence of *jatropha*, we read, as a prominent and often clinically verified symptoms "Watery diarrhoea, as if it spurted from him."—But though the dejections from mouth and stomach seem almost to be characterised by their profuseness, yet the *jatropha* subject has none of the signs pointing to any serious disorder. His skin is neither cold all over, nor cyanotic; neither shrivelled nor bedewed with cold sweat. Eyes not sunken; nose not cold, neither pointed; face by no means distorted, hardly pale; voice neither feeble nor husky. There is no feeling of anxiety; one prover actually reports: "An extasy, as if an ideal had appeared to a poetic painter,

or like that which sometimes comes to a dying person, with bright eyes directed upwards, a feeling of lovely warmth and ethereal lightness, during the painful diarrhœas."—From all this we see, that purging and vomiting even of a rice-water like fluid does not yet constitute cholera. *Jatropha* and *Euphorbia* may be excellent remedies in choleraic diarrhœa ; in diarrhœic cholera they could hardly be expected to be of more than symptomatic significance in the treatment of the disease. It would not be wise to trust to either of them in the advanced stage of cholera ; but at its very outset, they may do much good by checking the threatening invasion. Strange to say, it is just as to the mode how the attack sets in, that the differentiation between their physiological action is most marked. Thus :

<u>Jatropha</u>	<u>Euphorbia</u>
Nausea and vomiting.	Sudden vomiting, without any premonitory signs.
Vomiting simultaneous with or followed by purging.	Vomiting simultaneous with purging.
Colic, (in the transverse colon) rumbling in the abdomen ; tympanites.	Pain entirely absent ; no rumbling, no tympanites.
Cramps, especially in calves.	No cramps.
Palpitation of the heart.	No palpitation.

You might ask ; How can a drug which has "sudden vomiting" as a characteristic, ever be expected to be called for as a homœopathic remedy in diarrhœic cholera, one of the characteristics of which is just its slow and gradual invasion.—The answer consists in this, that a phenomenon may, up to a certain point, be slow and gradual in its making way towards its outwards manifestation, and yet burst forth with unexpected suddenness after a certain point in the line of its development has been reached. And this is just what often happens in diarrhœic cholera. A slight nausea, a laxity of the bowels, a general feeling of indisposition—for hours,

or even for days—and then, all of a sudden, there is a violent fit of vomiting, or a profuse, loose stool, which leaves hardly any doubt about its nature and significance. Well, the progress of such a sudden outburst of vomiting might, perhaps, best be checked by the timely administration of a few doses of *euphorbia*. Should, on the other hand, cholera first manifests itself by an increasing nausea, gradually developing into vomiting, then we might perhaps do best by using *Jatropha*, reserving *ricinus* for such cases of cholera-invasion of the usual form, which begin with more or less choleraic stools.

There is one more ingenious suggestion to be mentioned, coming from Dr. Hale, with regard to the eventual suitability of *Euphorbia* to some epidemics of summer diarrhœa, which might find application even in case of cholera, at its first stage of invasion. "I wish to call your attention," says Dr. Hale, "to the similarity of the action of *euphorbia* to some epidemics of summer diarrhœa, when previous to the attack the child or the adult, has an eruption of small watery vesicles with redness of the skin. It has been observed that, if the eruption suddenly recedes, choleraic evacuations suddenly occur. Now this remedy may be quite homœopathic to such cases, as is *croton tiglium*. If the eruption had been like *urticaria*, *apis* or *arsenicum* is indicated."

I remember some years ago I was called in the night to see a patient leaving in some of the villages near Calcutta. The man had cholera for the last 48 hours. He was treated homœopathically from the very beginning. He was far advanced in the state of collapse. The attending practitioner had just given him a dose of sulphur, before I arrived. After he had related to me all he had done in the shape of medication, I asked him, how he came to prescribe sulphur.—"Partly," he said, "because, remedies properly indicated, failed to benefit the patient, and partly because the patient is troubled with a

skin disease." The skin disease after due enquiry turned out to be scrotal eczema, for which he had used some ointment only shortly before he fell ill with cholera. I gave him a few pellets of croton tiglium 12. dry on the tongue, with instruction that the medicine should be continued every half hour, for two or three hours. Just before I was going to leave, which was only 15 to 20 minutes after the administration of the first dose of *croton*, patient passed a large yellowish, greenish, watery stool—a stool so characteristic in all respects of the mode of purgation produced by the drug just administered. I changed the dilution of croton from the 12 to the 30., ordering that a dose should be given every hour, instead of every half hour—and the patient made a good recovery.

Jatropha may be worth a trial in case of tympanites, as described in a previous lecture. Pressure on the abdomen, brings out, in such cases, a gurgling noise—the secreted fluid contained in the intestinal tube, rushing, in consequence of the pressure, from one intestinal tract to another, and thereby causing a gurgling sound. Such sounds are often heard even without any pressure. *Jatropha* prominently causes such gurgling noise, with tympanites.

In conclusion I must say that most of my suggestions concerning both *jatropha* and *euphorbia* are given on theoretical ground. As to *ricinus*, I can recommend it with full confidence based on experience. *Ricinus* is one of our greatest acquisition in the homœopathic treatment of cholera. As the remedy is still new, although it has acquired in a comparatively short time a large reputation, I extract the following cases, from the March and April numbers of the *Indian Homœopathic Review*. The first four cases have been reported by Baboo P. C. Majumdar L. M. S.; the remainder by Baboo Behari Lal Bhaduri L. M. S., Editor of the above-mentioned *Review*.

Case I. Prolhad, aged 35 years, robust constitution, was attacked with purging and vomiting on the 25th December,

1882. I was called at 6 P. M. and found him quite prostrate. The voice became husky, skin of the fingers and toes shrivelled, eyes sunken, nose pointed and pinched. On inquiry I was told that the man took some indigestible substances a day before. There was still purging and vomiting, the evacuations were serous mixed with flakes of mucus resembling the true cholera dejections. Pulse was scarcely perceptible at the wrist, extremities were cold. The cramps were not very marked, only there were slight contortions of the muscles of the extremities. I prescribed Ricinus after every stool. At 9 P. M. I was informed that four doses of the medicine were taken and the vomiting ceased ; there were four stools, the last one, passed about half an hour ago, was a little yellowish ; but in the night, the friends of the patient could not exactly judge the real nature of the stool ; but it was decidedly less copious and seemed to be thick in consistence. I saw the patient at mid-night and found unmistakable improvement. The extremities were still cold but pulse could be found though very small and thready. I ordered the medicine every three hours. I visited the patient next morning and found him much improved in his condition. He passed one large semi-solid stool in my presence which consisted of fæcal matter, mixed with some yellow mucus. There was complete *anuria* before but with his last stool he passed about two ounces of pale, straw-colored urine. The extremities and surface of the body assumed nearly the normal temperature. I discontinued the medicine and ordered arrowroot in water for diet.

Case II. The manager of a wine-shop in Amherst Street, a healthy young man, fell ill of cholera, the purging and vomiting of rice-water character were marked, but no collapse. I was told that before my visit three doses of Rubini's camphor, ten drops each time, were taken. I found him shivering, pulse small, but frequent, eyes blood-shot, great restlessness and anxiety. There was a slight pain on pressure

upon the hypogastric region. The patient had a great fear of death. I at once prescribed Aconite 1x every two hours; scarcely four doses of the medicine had been consumed, before I saw the patient again. At my first visit I found him wrapped up in a blanket, but now he has thrown it away. Restlessness was diminished, pulse very small and thready, skin was not warm but perspiring. Purging and vomiting remained unaffected. I stopped Aconite and gave Ricinus 6 after every evacuation. It was arranged that I shall see him once more before ten o'clock in the night. I went at candlelight with a homœopathic friend of mine. We were surprised to see the patient almost cured. After taking two doses of Ricinus the purging and vomiting stopped, pulse improved, in volume and frequency. We ordered a little barley water, and stopped all medicine. Next morning he was all right, and I allowed him rice and fish.

Case III. A young lady, aged 16, of a robust constitution, was attacked with cholera on the 15th January, 1883. After the first stool I was called to treat her. The husband of the patient was very anxious, inasmuch as there were two deaths from cholera in the same family, though they were treated homœopathically by some other eminent physician. She had a copious stool, which, the husband said "was purely water." I inquired whether she had any pains in the abdomen or nausea, but was answered in the negative. She had another copious stool in our presence, of rice-watery nature, and some cramps in the extremities, though not very violent. I at once prescribed Ricinus 6, in drop doses after every stool. She took three doses in the night and the husband reported to me next morning that she was much better. There were altogether five stools since I left her, but the last two assumed distinctly a bilious character. I discontinued the medicine and gave her arrowroot in water. In the evening I went to

see the lady and was told that she had three scanty stools during the day. I ordered her another dose and she was all right in the next morning. Though this is a very simple case, there having been no collapse, still the husband was struck with my treatment.

Case IV. Babu Siris Chandra Ghose, aged 22, a student, had an attack of purging and vomiting on the 22nd January 1883. An allopathic physician prescribed chalk and opium which did him no good. The stools were exactly choleraic, there were cramps of the arms and legs, pulse scarcely perceptible at the wrist, features sunken, voice husky. I prescribed Ricinus 6 after every evacuation and Cuprum met. 12 every hour till the cramps abated. He was much better after taking two doses of Ricinus and two of Cuprum. At midnight I was summoned to see his brother who had an attack of cholera from 10 P. M. I saw him rolling on the bed very restless from pain in the abdomen. In this case I prescribed Ricinus 6, which did him no signal service. After three hours' trial I changed the medicine, and gave him Veratrum 6. My former patient was all right. From Veratrum 6 this patient got permanent relief. These two cases are very instructive. In painful cases Veratrum gained the laurel. But in most painless cases Ricinus truly deserves a high place. Formerly, in these latter kind of cases we generally used Podophyllum, but not with very satisfactory result. On the contrary, where vomiting was predominant, Ipecac. or Iris vers. gave us some help. Ricinus, I hope, will probably supersede them all. Its action is very prompt and permanent. I hope some of our colleagues will give it a fair trial and report the result in some homœopathic periodical. I have four more cases in my note-book which shall be reported at the earliest opportunity.

To which case I shall only add the remark, wherever, in what has been described before as diarrhœic cholera, vomiting

is predominant, we may at the beginning, derive far greater benefit from *Jatropha* than from *Ipec.* or *Iris*.

BABOO——Mookerjee, aged 16, student. The patient's mother came to bathe in the Ganges and took a lodging at Kidderpore. Cholera cases were then cropping up here and there in the vicinity. A servant of the family got the disease and died. They were very much panic-stricken and wanted to go home. The next day, however, the son got the disease and the mother had to abandon the idea. The attending physician had given him Camphor at first and then some other homœopathic medicines. I was called at 1 A. M. The stools were watery but yellow, passed without any pain, cramps in the extremities, thirst for large quantities of water; vomiting now and then. The patient is naturally of very weakly constitution; pulse very weak and thready, I gave *Euphorbia corrolata* 3x one drop after each stool.

In the morning I found the patient same as in my first visit. A different dilution of the medicine was given. On my enquiry as to how he was, he said that in spite of all we could do he was sure to die. He said that the servant's case was much milder, yet he succumbed to the disease. How could he then possibly survive the attack of a far worse nature? I saw him again in the evening and finding him worse, stool watery, containing a little yellow mucus, pulse almost gone, and cold perspiration, gave him *Ricinus* 3., after each stool, and *Carbo veg.* 30 every hour.

In the morning I found him decidedly better; pulse much improved, no perspiration, stools thicker in consistence and less in number, thirst still troublesome.

Ricinus 3 every three hours.

In the evening he had passed urine and was in a fair state of convalescence. No medicine.

27th March 1883.

—————Dass, a young man of 20. Had come to Calcutta only a week ago. Got the disease at 9 A. M., and was treated by the allopaths. When I saw him at 1 P. M., collapse had already set in, stools like liquid barley without any pain, cramps and restlessness, thirst and perspiration. Pulse hardly perceptible at the wrist.

Ricinus 6th one drop after every stool.

I got the report at 5 P. M. The very first dose of the medicine had proved efficacious; perspiration and cramps ceased; had become quiet and the stools also were being passed at longer intervals. The medicine was advised to be continued every three hours.

At 1 A. M. I was called in hurry to see the patient; tympanites had supervened and the patient had again become restless. The allopathic doctor had given Chlorodyne. At my first visit he was rather drowsy. In the evening the drowsiness had almost gone, but not entirely. Nux Vom. 30 was given and Ricinus stopped. In the morning he was doing well. Passed urine in the afternoon. At night he became delirious and restless, thirst for large quantities of water and constant. Rhus tox. 30, brought on prompt relief.

A BOY, aged 9 years, got cholera and was treated by the allopaths with Chlorodyne and stimulants. I saw him at 9 A. M. He had passed a rice-water stool just before. The patient was very drowsy, eyes turned up and half-shut, thirst constant and for large quantities of water; could not ascertain satisfactorily whether there were pain in the abdomen during stool. Gave Veratrum 12 and left Ricinus 6 to be given if veratrum three doses would not relieve.

In the evening I saw the boy again and was told that the first medicine did not do him any good, and that at 12 noon

the second medicine, Ricinus 6th was given. After only two doses the stools became bilious and the child was more comfortable and wanted something to eat. Nothing was however allowed in the shape of food. When I visited him, the drowsiness had entirely gone; stools had become thicker in consistence; the thirst was however yet very troublesome. I advised the boy's relative to give no medicine, but to report to me should any new symptoms appear. Next morning I was told that the boy had steadily improved and had tolerably good sleep at night, passed urine in the morning. As he was reported to be very weak, one dose of China 6 was given. The boy had some accession of fever in the evening for which Acon. 6th was given. At night he became very restless, thirst for large quantities of water and wild talk. Rhus tox. 30 cured him. In the same family another boy was ill and Ricinus 6th was given, which cured. This boy also had Veratrum 6th given to him by his father, an amateur homœopath.

A female, aged 18, came to my hands after having been treated by the allopaths with Opium, Calomel, and stimulants. Had the disease in the previous evening. I saw the patient the following morning. She was very drowsy, passing rice-water stools, every quarter of an hour, cramps in the extremities, very thirsty for large quantities of water. She was listless but at the same time restless. Cold perspiration all over the body. On my enquiry she said that there was no griping when she passed stools. Her whole body had become blue and fingers and toes blue and shrivelled. Pulse thready, gave her Ricinus 6 after every stool and Cuprum Met. 12th every hour. In the afternoon I was told that the stools were being passed at longer intervals, cramps almost gone, very little improvement in the character of the pulse. Perspiration almost same.

Continued Ricinus 6th and Carbo Veg. 30 every hour. In the morning I was told that the stools had become bilious; pulse better, but perspiration not entirely gone, no urine. She was yet drowsy. I saw her in the evening, she had made good improvement, but no urine yet. In this state she menstruated and all medicine was consequently stopped.

The next morning as I was passing by the house, my carriage was stopped and I was called to the child of the previous patient; I saw the patient at 9 A. M. The child got the disease at about 3 P. M.; and a lay practitioner had given Veratrum 12th to be given after every stool. The same afternoon I saw the child again, he was just the same. In the morning both during stool and in the intervals between them, the child complained of a sort of pain in the abdomen. He did not complain of it in the afternoon. I gave Ricinus 6th after each stool. The next morning he was reported to be better.

A FEMALE, aged 23, bathed in the Ganges about quarter of a mile from her home. In the morning she did not have a satisfactory stool and she felt heaviness of the bowels. As soon as she reached home she passed a very copious watery stool, a dose of Camphor was given and intimation sent to me. I arrived at 9 A. M.; she had four stools, the last one passed in the clothes. Stool rice-water, no pain in the bowels, pulse thready, thirst for large quantities of water. No cramps, perspiration in the forehead. Ricinus 6th one drop after each stool, and also kept Veratrum Alb. 12. to be given in case the first failed.

At 2 P. M., a man came to me. She had rallied, stools became bilious after two doses of Ricinus had been given. No urine yet. She passed water at night and was all right by the next morning.

A CHILD, 5 years old, had taken some unhealthy sweat-meat during the day. In the afternoon his abdomen was noticed to be swollen. Begun to pass stools from evening. His uncle gave first Pulsatilla and then Ipecac. At about 12 midnight passed two very copious fetid, yellowish stools; complained of pain in the chest and head, but nothing in the abdomen. The child had become very prostrated and was restless. He had also vomited twice. I gave Ricinus 6th and kept Veratrum Alb. 12. In the morning I saw the patient better but had not passed water yet. I stopped his medicine. At night his uncle came to me and said that the child had passed water in the afternoon but he was not better for that. He was then a little feverish and his abdomen had become heavy and swollen; restless, thirst and drowsiness, and some delirium. I gave Opium 6th every four hours.

In the morning he was somewhat better. I was again called to see him in the evening. There were some collection of the wind in the bowels, was restless, stools yellow, but not at once watery. Now and then sighing respiration. He talked with great difficulty and said he felt exhausted on speaking. Gave Natrum Sulph. 12th, some improvement in the morning. In the evening the symptoms again aggravated, began to pass yellow liquid stools and very weak and prostrated. I gave China 6th. This at once produced the required improvement and he passed the night well. He had good sleep and the stools had become almost normal. His prostration also was not so marked.

A child, 9 years old, got Cholera at the latter part of the night of the 25th. In the morning he was seen by the family physician who suspected worms and gave Sulphur. He was passing watery stools, and would vomit water immediately he drank it. Another practitioner saw him and gave Ricinus 6th. He was not able to retain even a teaspoonful of medicine

before that, the medicine now enabled him to retain water till a large quantity of it collected. One dose of Ipecac. ʒo made him all right.

Without attempting to enter into a speculative contemplation about what might after all be a mere coincidence, I shall content myself to state the fact, that both cholera and the ricinus plant are indigenous to India, and especially to Bengal.

A chapter on the treatment of diarrhœic cholera would be incomplete without mention of the premonitory diarrhœa and its treatment. This is of so much the more importance, as the character of the cholera-preceding diarrhœa will often determine the choice of the remedy to be administered during the actual cholera attack.

Not every case of diarrhœa occurring during a cholera epidemic is necessarily a fore-runner of cholera. On the other hand, every such case may, when unchecked, run on, gradually or suddenly, to cholera. This merging of the one into the other, manifests itself either by the character of the stools, or by the fact that the urinary secretions grow less and less. A diarrhœa during a cholera season accompanied by deficient micturition should, under all circumstances, be looked upon as incipient cholera, and treated as such. To check a diarrhœa during the prevalence of cholera, may therefore mean very little or very much. It will be our task to pay the utmost attention to all bowel disorders at a time when cholera is prevalent.

Remember, please, that a cholera case preceded by diarrhœa is not necessarily of the diarrhœic variety.

It is hardly possible for me to enumerate here all remedies that may be called for in the disorder under discussion. The

following are a few of the chief remedies, likely to be indicated :

Aconite. Pulse accelerated, soft ; sensation of cold intermingled with heat ; after exposure to great heat, or after perspiration had been checked by a chill ; after fright, fear, or other depressing influences : skin dry ; thirst ; stools bilious or white ; urine high coloured ; sensitiveness to cold, likes to be covered ; prevalence of paralytic cholera.

Asarum Europ. Habitually chilly, nervous, weakly ; mucous or watery stools.

The indications for *Arsenic* have already been mentioned before.*

Camphor. Diarrhœa sudden, brought on by a chill ; chilly sensation not intermingled with a feeling of heat ; sweat, if there be any, rather cold, clammy ; no desire to be covered ; pulse wiry, number of pulsations normal ; no thirst ; stools fœcal, dark brown ; prevalence of spasmodic cholera.

China. Diarrhœa occurring in hot weather after eating fruits. The stool is licenteric ; yellow, or brown, watery, offensive. Worse at night or after eating.

Croton tiglium. Evacuation sudden, copious, watery, yellowish green, coming out with a rush ; patient is moved after every drink ; prevalence of diarrhœic cholera.

Hydrocyanic acid. Pulse weak, quick, variable ; oppression of the chest ; unpleasant sensation at the epigastrium ; weakness in the limbs—all coming quite suddenly. Stool almost involuntary.

Ipecacuanha. Nausea may be a concomitant symptom in all cases, where the remedies mentioned before, or to be mentioned hereafter, are indicated ; wherever this symptom is prominent and constant, it may be considered as an indication of *Ipecac.* Stools fermented, green.

* See page 126.

Oleum Ricini. 1 to 3*x*. Whenever there is no distinct indication for any particular remedy, I would advise a trial of the oil of Ricinus; especially during the prevalence of diarrhœic cholera.

Phosphoric acid. Evacuations ash-grey colored, liquid, copious, painless; tongue covered with a gluey mucus; general sense of weakness, not felt to be caused or increased by the evacuations.

Sulphur. Diarrhœa coming on suddenly after midnight, awaking the patient and driving him out of bed. (Such cases of diarrhœa frequently give rise, when unchecked, to the worst types of cholera.) After midnight diarrhœa may also point to *Pulsatilla*, when caused by a diet of pastry pork, fatty meals in general or by eating ice-cream after a meal. Stools greenish, yellow and slimy; stools continually changing character: now yellow, now green, now watery, now slimy and frothy.

Periodicity plays a great rôle in the life of men; and thus it becomes an important factor in disease, and consequently in all processes of restoration to health, may such processes be brought about by Nature's innate recuperative power, or by some outward impulse in the shape of drug action. It is well known, that there is a slight diurnal variation in the temperature of the body, quite irrespective of external heat or cold. The minimum temperature occurs, according to Dr. Jürgensen from 1-30 A. M, to 7-30. Sidney Ringer and P. Stewart found the period of highest temperature to extend from 9 A. M. till 6 P. M.; the lowest is about midnight. These observations fully correspond with what is otherwise known with regard to the relative activity of the respiration and circulation at different periods of the twenty four hours.—The occurrence of a sudden diarrhœa during the prevalence of cholera, after the midnight hours, is therefore more than a mere incidence. The sulphur diarrhœa is characterised by a similar peculiarity, and has done us good

service whenever indicated.—Sulphur should not be repeated too often, nor should it be administered in too low attenuations.—Even after cholera has already made its appearance, and the usual remedies fail to do good, we shall often derive a good deal of benefit from the administration of a dose of sulphur to our patient, provided the premonitory diarrhœa had set in the way described before.

Now and then we find in allopathic journals a case, or a whole series of cholera cases, reported, as having been cured by sulphurous acid. Then the drug is put to the test by some others, and found to be of no use. The old school of Medicine has yet to learn, that there is no specific for any disease as such, although the chase after such remedies has now gone on for thousands of years. A general pathological disorder experiences some modification in its manifestation in each given subject ; this modification is due to the constitutional variety of the subjects affected—to their respective individuality ; and whenever we neglect, in our therapeutic attempt, to take notice of this individuality, we shall find, that we have reckoned without the host.

While preparing these lectures, I tried sulphurous acid on myself, and I thought I should be able to lay before you a whole array of symptoms. I gave also about two drachms of it to Baboo Kali Pada Banerji of the firm of Messrs. Berigny & Co., a man whom I always found reliable and trustworthy ; neither he nor I could develop any symptoms. I went so far as to acidulate my drinking water for two days with the drug mentioned—to no effect. It set my teeth on edge, and I gave it up in despair.—For all that, I am not prepared to say, that sulphurous acid is an innocuous drug. Its toxic action most likely begins after large doses have been taken for a considerably long time.

Sulphur has some reputation as a cholera prophylactic. Dr. Hering says : " Sulphur prevents cholera Asiatica with

individuals, if the finest powder, called milk of sulphur, is put into the stocking, so as to come in contact with the soles of the feet; a pinch a day is sufficient to cause a gentle pouring out of sulphurated hydrogen through the pores of the skin all over the body, blackening bright silver. But whether the substance which carries the disease is destroyed by it, has not been ascertained yet."—Prophylactics should be selected not only according to the requirements of the *genus epidemicus*, but also, and in certain cases I should say chiefly, according to the requirements of the individual, they are calculated to benefit. Patients afflicted with skin diseases, with piles, with congestions of head, lungs, &c., might benefit more from sulphur than cuprum. Cuprum sulph. should, any how in the case of some individuals, be preferred to *Cupr. met.* and this not only as a prophylactic, but as a remedy, should they be attacked with cholera.

This was rather a long digression from the main subject under consideration—the treatment of the premonitory diarrhœa during a cholera epidemic. And yet, the subject is by no means exhausted. There remains still to be mentioned :

Iris versic. Diarrhœa coming at 2 or 3 in the morning. Stools copious, sour belching, vomiting. Anus burns during passing of stool and afterwards.

Podoph. Stools coming regularly in the morning, stop with the advance of the day, and may or may not appear again in the night: These stools are generally profuse in the morning with a mealy sediment, cramps in the calves and toes. *Podoph.* represents a picture of cholera, and is in such cases most useful. In cholera proper it has not been found of any use, as far as I know. But in the precursory diarrhœa occurring in cholera seasons it is a remedy not to be neglected, often even an indispensable remedy. In the tenth volume of Allen's *Materia Medica* p. 636, we find

a record of a policeman who took two ounces of Sulph. and Molasses at one dose: "Within an hour he vomited, throwing the most of it out. Within five hours a diarrhœa commenced, slight nausea, painful griping and rumbling in the bowels. (I purpose to give the gastric symptoms only). These symptoms continued till the morning of the third day, when the diarrhœa became painless and almost involuntary. The stool was light colored, watery and lienteric. This condition continued till the middle of the seventh day when the discharges of the bowels stopped, and were followed by symptoms in the lungs and head." Hahneman records moreover: "Diarrhœa like water every half hour always preceded by rumbling in the abdomen, without pain." *Kali Sulphuricum* (see Allen V and X volumes) has even more claim upon our attention in case of cholera than sulph.; it has actually produced all the symptoms of cholera. It should certainly be tried. Considering moreover that *Kali carb.* has (like sulph.) produced diarrhœic stools every morning between 3 and 4, preference should be given whenever such a diarrhœa pathologically occurs, to *Kali sulph.*, as the same combines the two elements, each of which is characteristic of early morning diarrhœic stools. There remain only a few words more for me to say with regard to—

Veratrum album.—Stools watery, greenish with flakes; vomiting; coldness and blueness of face and hands; colic before every stool; desire for large quantities of cold water; for acids; prostration after every stool, with cold sweat on the forehead, during the stool. Prevalence of either diarrhœic or paralytic cholera.—The indications of veratrum show, that it is best suited to cholera, or to a diarrhœa which appears on the point to assume a graver form of disorder.—Under similar circumstances, during prevalence of cholera, simultaneous with, or preceded by an outbreak of variola, I would recommend: *Tartar Emetic.* Particular indications for the

use of this drug, both in the stage of diarrhoea occurring during cholera seasons, and for the diarrhœic stage of cholera itself are the following : Profuse sweats with thirstlessness or desire to drink often but little at a time. (Tart. Em. is classed by Grauvgl amongst the Hydrogenoid—remedies that show aggravation from dampness and aversion to water, which in fact being in excess in the system in an unassimilated state, does all the mischief). Postular eruptions in the face or on any other part of the body is another strong, I might almost say urgent, indication for our drug. The Tart. Em. patient is phlegmatic, indolent, given to sleepiness (although, most likely as a reaction very irritable when not somnolent, as is often seen in children); he would fall asleep after every fit of vomiting or purging.—The nausea is more persistent in Tart. Em. patient than in any other; there is a constant strain or attempt towards vomiting.—The veratrum patient vomits after drinking large quantities of water, and there is an end of it, soon he drinks again and vomits again, of course, by no means merely the water he drinks (phosphorus). The arsenic patient vomits because there is *gastric* irritation; in the tartar emetic patient, there is simply gastric uneasiness, coupled with a feeling of faintness. The vomiting is cerebral originating in the *medulla oblongata*. Of course when once set up it may by its very action establish gastric irritation, and in this way the vomiting may continue after the tartar emetic action has exhausted itself. In such a state of things arsenic may finally establish order on homeopathic principles. To distinguish further, we may say: Arsenic aggravations are caused by cold; Veratrum aggravation by heat; and tartar emetic aggravation by dampness. There is again the least reactionery power in the tartar emetic patient; he gives passively way to his disorders without hardly any struggle; he rather faints under the weight of exhaustive discharges, then tries to keep up in order to

make a stand against the threatening extinction. And in this passive state, near the brink of death the tart. emet. would remain for a considerably long time without getting either better or worse.

Of such drugs as *Nux Vomica*, *Pulsatilla*, *Chamomilla* &c. we shall only then find occasion to make use, when some infringements against the usual dietetical rules has, to all appearance, given rise to the bowel disorder. Thus :

Chamomilla after anger.

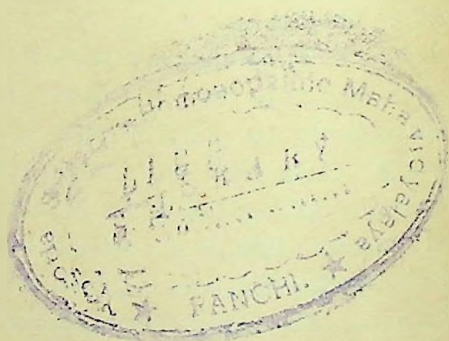
Nux Vomica after intemperate drinking, or eating ; acidity of the stomach ; ineffectual urging to stool ; stools with tenesmus.

Pulsatilla, after indulgence in greasy food ; diarrhœa especially at night ; greenish watery ; mucus ; tongue coated white ; feels chilly, yet likes fresh air ; finds the room uncomfortable.

I could go on in this way, giving you ten or twenty remedies more, all suitable in certain casualties. The above will, however, be found sufficient for the usual run of diarrhœic cases preceding cholera.

Properly speaking, no cholera case should be considered as treated homœopathically, that has been tampered with at its stage of premonitory diarrhœa by some other medication of massive dosage. Only then could we have an exact idea of what the mortality of cholera under homœopathic treatment really is. I am afraid half of our patients have been poisoned by opium, chlorodine &c. before they come under our treatment. These are no more cholera patients, but poisoned cholera patients ; and yet all failures are put to the debit of our account, increasing thereby the rate of cholera mortality under homœopathic treatment. Now, this is not as it ought to be. Of course the world at large, will always be ready to throw stones at us ; but we, for ourselves, should know better. No homœopath should consider a cholera case as being, or having been homœopathically treated, unless the case has

from the very beginning been under his care. The world may throw stones at us ; this is no reason why we should pick them up and pass them on amongst ourselves as current coins. Let it, once for all, be established amongst ourselves, that no case shall be admitted as having been treated by our system of medicine, unless we had the opportunity of treating it from the very outset—and our statistics will be, I am sure, by far more favourable than they are now.



VIII.

I have to-day to entertain you, gentlemen, about a third variety of cholera, of which I have hitherto kept silence, in order not to complicate the subject which has all along occupied our attention. This variety will form the subject of my present lecture.

Although, however, I have not distinctly made mention of the cholera variety which is intended to occupy us this day, I have clearly pointed at it on a previous occasion. When speaking of the diagnostic differentiation between the spasmodic and non-spasmodic variety of cholera I said :

Concerning the state of the patient at the time when we are called upon to decide the special nature of his disorder, we may say : Whenever cyanosis and objective coldness of the body sets in at the commencement of the disease, it may be considered almost a sure sign, that we have before us a case of cholera attended with arterial spasms.—When the choleraic discharges are idiopathic, cyanosis and objective coldness increase with the frequency of the evacuations, and unless the same be very profuse from the very beginning, it takes a few hours, as a rule, before anything like cyanosis and sensation of coldness to the touch are prominently established. Their comparatively early manifestation show that the venosity of the blood to which they are due, is not a consequence of the viciated condition of the blood, but of the spasmodic arterial obstruction. In such cases the dyspnœa will also be found greater at the very beginning, than it would be the cases, whenever the choleraic evacuations are at the root of the

disorder. You will also find the thermometer in keeping with the general state of vensity, and consequently lower, than in the non-spasmodic variety of the disease. In short, a state of depression, coldness, dyspnœa and cyanosis, out of proportion to the choleraic evacuations just set in, denote the origin of arterial spasms. The pulse will be a further indication to you, for with the arterial spasms there is arterial tension ; the heart corresponding with the general state of the vascular system, will be found to be in a state of irritation, its sounds more or less accentuated ; while in the non-spasmodic variety the pulse is soft and more or less compressible from the beginning, and the impulse of the heart is weakened. Corresponding with this state of things we find such patients listless, apathetic, indiffernet towards all their surroundings ; while the choleraic patient of the spasmodic variety is restless, full of anxiety—not so much anxious perhaps about his condition, as about the want of air, he cannot help feeling.

Let us, however, not forget that all the above mentioned symptoms—dyspnœa, algidity and cyanosis—may just as well originate in a state of cardiac paresis, though the sympathetic system in general may not be particularly disordered. In fact, as far as the circulation is concerned, the consequences of a weak action of the heart are just the same, as what follows spasmodic contraction of the muscular coat of the arteries. In the first case there is deficiency of propelling power ; in the second, there is increase of resistance to the flow of blood through the vessels : the effect, it is evident, must be in both cases, well-nigh the same—impeded circulation and venous congestion, incomplete æration and oxydation of the blood, hence : dyspnœa, algidity, and lividity, and as a secondary consequence, congestion of the portal system, diarrhœa, and—under the influence of epidemic cholera—rice-water discharges. We shall see hereafter that such a combination and sequence of symptoms may occur during a cholera epidemic.

Yet camphor, which "is nothing if not spasmodic" would be out of place in such a contingency, where paresis of the heart's action is, if not at the root of all the evil, at any rate, prominently associated with the danger attending the existing evil. If you want therefore to make it sure that the dyspnœa and cyanosis, eventually present at the very onset of cholera, are really due to a spasmodic condition of the arteries; in other words, if you want to make it sure, that camphor, or one of the drugs analogous to it in action, is, beyond any further doubt, the homœopathically indicated remedy in the case before you; then you will have to take the state of the patient's heart into consideration, before coming to a definite conclusion on the subject.

You see then, gentlemen, that the non-spasmodic variety of cholera is not restricted to the diarrhœic variety; that there is, moreover, a variety of cholera possible, with all its virulent signs of cyanosis and algidity from the very onset, without being associated with general, arterial spasms, but with a state of things, rather opposite to spasms; in other words, with a state marked by paresis, either of the heart alone, or conjointly with a paralytic state of the vaso-motor nerves in general.

That this is no imaginary cholera variety we have only to consult various authors, who describe a variety of what they call *cholera acuta*. The patient feels as if he were stunned; or he has a sensation of a load on, or of weight in his head. This is associated with vertigo, vanishing of sight and hearing, numbness with or without tingling in the extremities; oppression of the chest; pulse rapid and feeble; soon after, nausea, retching, or vomiting, rumbling in the bowels, with or without gripes; watery motions; suppression of urine, and so on. Dr. Buchner called this variety—*cholera paralytica*, and this is certainly a more appropriate name, considering that it expresses the fundamental pathological condition upon which the disorder depends.

Like the spasmodic variety, the paralytic variety of cholera may either constitute in itself a life-endangering disorder, owing to threatening or actual failure of the heart's action; or it may supervene to diarrhœic cholera, in any of its stages, and assume an independent pathological existence, requiring therapeutic measures especially adapted to its condition.

As already indicated before, these two phases of acute collapse—the spasmodic and the paralytic—can only be distinguished from each other, by a close examination of the cardiac action. I am afraid, sight has altogether been lost of this important distinction in our school, and camphor has often been administered where there was *algidity and cyanosis without spasms*, which, taken by itself, irrespective of the condition of the heart, may mean in many cases an invasion of *cholera paralytica* and not of *cholera spasmodica*.

Let it be remembered that, although the two varieties mentioned before, seem to be in every respect opposite to each other, they nevertheless likely to merge into each other. It is especially the spasmodic variety which is liable to end in a state of cardiac and vaso-motor paralysis, known as it is that excessive and continual nerve or muscular irritation ultimately results in exhaustion. On the other hand it is a well established fact, that whenever a muscle is deprived of its due supply of oxygen, so that the blood circulating within its tissue becomes venous, the venous blood stimulates for a time the muscle to contract. Venosity with its vaso-motor paralysis may thus give rise to spasms of all sorts. Again diarrhœic cholera may become complicated, either with spasmodic or paralytic cholera, and it may at one stage assume the form of the one, and at the next stage the form of the other. Much will therefore be left to the ingenuity and discrimination of the practitioner, in the treatment of a disease of so complicated a nature as cholera.

After this preliminary observation which will now be far better appreciated than it could have been at the beginning of these lectures, I shall lay before you those drugs which are, from a homœopathic point of view best calculated to meet the cholera variety under discussion.

Foremost amongst them stands *veratrum album*. The pathogenesis of this drug resembles in a striking manner the paralytic variety of cholera. The stools are not choleraic in veratrum poisoning; they are distinctly bilious in their character: greenish, watery, with flakes. The secretion of urine is by no means suppressed under its toxic influence. Barring, however, these two most important disqualifications, the drug just mentioned presents a pathogenesis, strikingly similar to paralytic cholera. As it is, it would represent an exact picture of choleraic diarrhœa, or cholérine. Yet many a remedy we have discussed in previous lectures, that has been found wanting, as far as its pathogenesis went, in some cholera essentials, has nevertheless yielded very essential therapeutic results in the clinical experience of our school. We have seen what camphor can do, in arresting the progress of spasmodic cholera, if not as a remedial, yet as a palliative agent; although this drug is well-known, not to have anything like choleraic evacuations amongst its pathogenesis. By virtue of its antispasmodic action on the arterial blood-vessels, it relieves the portal system of its congestion, and arrests the transudation of serum kept up by that congestion. A similar congestion may be brought on by vaso-motor paralysis, and veratrum may, and does, act beneficially in a similar manner, apart from all its direct influence upon the intestinal mucus membrane. The following cases of poisoning are intended to show, the sphere and mode of action of the drug under our present consideration.

Dr. Hempel in his *Materia Medica*, has the following: Horn, in his *Archive of Practical Medicine*, relates the

poisoning of three people who took the root by mistake. The symptoms were—in about an hour, burning in the throat, gullet and stomach, followed by nausea, dysuria vomiting; weakness and stiffness of the limbs; giddiness, blindness and dilated pupils; great faintness, convulsive breathing and small pulse. In the case of one of the poisoned people, the pulse became imperceptible, breathing stertorous and a total insensibility set in, even to ammonia when held under the nose. Next day this person became lethargic; she complained of headache and had an eruption similar to flea-bites. They all recovered.

Hahnemann relates the following case of poisoning in his Lesser Writing: I had the greatest difficulty in restoring two children, one a year and three quarters old, the other five years old, who had both taken white hellebore by mistake, the former four grains, the latter seven grains. But few minutes elapsed before the greatest changes were observable in both children. They became quite cold, fell down, their eyes projecting like those of person in a state of suffocation, the saliva ran continually from their mouths, and they seemed devoid of consciousness. I saw them half an hour after the accident. The parents had tried to incite vomiting by means of a feather, but without success. Milk administered by the bowels and poured down the throat in large quantities, had no effect except the production of scanty vomiting, which did no good, but only increased the faintness.—When I arrived, both seemed at the point of death; distorted, projecting eyes; disfigured, cold countenance; relaxed muscles; closed jaws; imperceptible respiration. The infant was the worst. The impending death by apoplexy, the failing irritability, at once induced me to combat the symptoms, if possible, with strong coffee. . . . In the course of an hour all the danger was gone, and the natural temperature, consciousness and respiration had returned.

Büchner relates the following experiment with *veratrum*. Walter macerated 40 grains of the root of *veratrum* in an ounce of water, of which he took a teaspoonful without experiencing any effect. A table-spoonful of the solution caused in three hours a burning heat in the whole body which lasted half an hour, after which a copious perspiration broke out for five hours. Six hours after swallowing the drug, the room seemed darkened; he was unable to bear the light of day, or to hold his head erect, which he had to press against his chest, otherwise he experienced a violent headache and an intolerable distress in the occiput; the pulse was accelerated; at times he felt cold, and at other times hot. His strength was very much reduced; finally, he vomited ten times, had a number of discharges from the bowels; the face was sunken, pale, altered, covered with a cold sweat. Next day he was well again.—

From the above cases it will be seen that, apart from all disturbing influences in the region of the digestive organs, *veratrum* has a fair claim of being considered as a homœopathic remedy in certain choleraic attacks ushered in by phenomena cardiac or vaso-motor paralysis. Such cases are by no means rare in India, especially in the hot season. I have seen cholera cases having in all respects the appearance of a case of sun-stroke; till, at last, vomiting and purging set in, the dejections became sooner or later choleraic, and revealed the true nature of the disorder. It would be erroneous to think that all cases of sunstroke are invariably associated with intense pyrexia. Sunstroke and thermic fever are by no means identic terms. Dr. Fayrer, in his "Tropical Disease" says: Cases of simple exhaustion and syncope may occur during great fatigue or over-exertion, or when there is depression of vital power from any cause during exposure to high temperature. The skin is pale, cold, moist, the pulse feeble. Death may occur in this state from

failure of the heart, but complete recovery more frequently occurs.—

Now in such cases *veratrum* (album or viride) is the homœopathic remedy. Many a homœopath might have administered in such a contingency camphor; if he has succeeded, he has done so, partly in virtue of the stimulant action of the drug on the vaso-motor centres, that is to say by having practised unknowingly a little bit of Allopathy, which is after all often good enough, in cases of emergency, where extinction of life is threatened by a severe shock imparted to the system; or he may have succeeded, because, in the words of Dr. Fayrer "complete recovery more frequently occurs."—Believing as we do, however, that the administration of a remedy—and were it even merely a palliative remedy—on strictly homœopathic principle is by far superior in its effects to any allopathic contrivance, we shall administer in cases of sudden collapse in consequence of threatening cardiac, or vaso-motor paralysis, such drugs as are by virtue of the similitude of their pathogenesis, entitled to a place in our Therapeutics. What is more, in cholera cases as before mentioned, where cardiac paresis is at the root of the evil, none others but such remedies which by their primary effects have proved to be cardiac paralyzers will ever be able to cope with the attack and to stem its further progress. Our *ricinus* will fail to check the vomiting and purging of the spasmodic variety of cholera, or to restore the patient to health even after those evacuations have been partly checked; and such remedies as *veratrum*, *aconite*, *tartar emetic*, and in some contingencies, *nicotine*, will take leading place in our remedial choice.

There are many particularities connected with the physiological action of *veratrum* worth knowing. Although a paralyzer of muscular action, it may nevertheless, in its transient primary effect, produce muscular twitching. In the

case related by Hahnemann, the jaws were spasmodically closed. It is especially in the respiratory tract, that veratrum reveals undoubted spasmodic action. In spasm of the glottis, it stands near cuprum. Of late I have seen, especially during the cholera season of 1883-84, many cases of cholera where the patient used to complain from the very beginning of impeded breathing on account of a sort of intercostal spasms : strange to say the complaint was in all cases, I had seen, located at the left side—and provers of veratrum have noticed a similar complaint on just the same side. *Cicuta virosa* tried by various practitioners had no effect. Veratrum persevered in acted beneficially. Its spasmodic action on the intestinal muscular coat is well brought to prominence by the severe colic, most of its provers experienced. It is the alkaloid, *veratrine*, which has of late particularly attracted the attention of some physiologists, and by their exertion, we are now able to understand better the mode of its action.

Given in fatal doses, says Dr. Phillips in his *Materia Medica* (Vegetable Kingdom), veratrine produces violent vomiting and collapse, intense depression of the pulse, and a kind of tetanic spasms, which usher in asphyxia and death. The spasmodic condition of the muscles has been the subject of much discussion. The excellent researches of Prevost of Geneva demonstrate, and as it appears conclusively, that the muscular spasm is due to direct irritation of the muscles by the alkaloid. Veratrine is a heart poison because it is a muscular poison. The convulsions which occasionally occur, and also the alterations in sensibility, can at present be only imperfectly explained. Nor is it possible to say why vomiting or diarrhoea should occur, as it does in a considerable number of cases. At any rate, it is not the result of inflammatory irritation, for none such takes place. No signs of inflammation are found in

the alimentary canal after death; the later researches have proved this conclusively, although a contrary belief formerly prevailed.—

So much is sure that the twitchings and convulsions are not produced by the action of veratria on the brain, as they occur after section of the spinal cord. They are partly due to the direct action on the muscles, for they occur when the cord is destroyed, and in animals whose nerves are paralyzed by curare. (Ringer).

I am unable to understand why Dr. Ringer believes that the twitchings and convulsion are only partly due to the action of the drug on the muscular substance, when it has been once proved that curarised animals would manifest signs of convulsion; this fact should be looked upon, as settling the matter conclusively.

Again as to the general paralysis of the voluntary muscles it is not owing to muscular exhaustion produced by powerful tetanic contractions; for paralysis is produced in warm-blooded animals without tetanus. . . . The rapid occurrence of rigor mortis and acid reaction make it probable that veratria kills the muscle. It produces, however, no morphological change in the muscles till rigor mortis sets in. . . . Dangerous as the veratria symptoms appear, yet they speedily pass away if the drug is discontinued. Some self-experimenters have experienced dull, aching pains, made worse by movement, and tonic and atonic contractions of the muscles, sometimes violent, especially at the extremities. This substance has the same prostrating effect on birds, and in America is sometimes used to destroy these animals; it makes them too weak to fly and thus they are easily caught, but if left a while, the effects of the drug pass off, and they escape. (Ringer).

All this is most useful information to us. The veratrum spasms have nothing in common with such as are liable to

occur under the action of cuprum, which latter are reflex, starting from gastro-intestinal irritation, and assuming later on a more or less independent character of their own, after the irritation has spread to the motor centres. Nor are they like the ergotine spasms, which for all we know, are cerebro-spinal, although it is still doubtful if the drug exerts a directly irritating action on the brain and cord, or if the irritation is due to an anæmic state of those organs, consequent upon arterial contraction. Neither are they like the camphor, the arsenic, or the hydrocyanic acid-spasms, which take their origin in the medulla oblongata, and are asphyctic in their nature.—The veratrum spasms are due to direct irritation of the muscular substance, that is to say of the muscular protoplasm, while the muscular function is all along tending towards temporary extinction. The whole feature of a veratrum victim denotes a state of utter prostration and helplessness. Owing to cardiac and vaso-motor paralysis, the circulation of the blood in the lungs is almost suspended; there is want of breath, but hardly any respiratory struggle—no clonic convulsions—for the respiratory muscles are paralyzed; what there remains of muscular excitement is simply of the nature of local irritation, giving rise to tetanic contractions.

If we now ask: Where do we find a counter part to the above picture?—Then I say, in patients in a state of acute collapse, after fatigue brought on by physical work, long walks &c., exposure to extreme heat.—In such men, muscular function is more or less exhausted, while the nutritive function of muscular tissue repair is so much the more active. Here we have a fair counterpart of what is going on in a veratrum subject—protoplasmic irritation coupled with functional exhaustion, going on within the same muscular tissue. It is no rare occurrence in men who have undergone great fatigue, to find themselves surprised by muscular twitchings, whenever they lie down to rest; such twitchings are a sure

sign that the natural, healthy stimulus towards repair has been overtaxed, and has degenerated into morbid tissue irritation.

Well, under all such circumstances, where the history of the case points to physical overwork as the primary cause of a choleraic attack, or, indeed of any other similar attack of acute collapse, we may look upon *veratrum* as the most appropriate homœopathic remedy. Of course we should before all make sure, that we deal with a paralytic form of cholera.

I have purposely kept the other part of the pathogenesis of *veratrum*, concerning vomiting and purging, in the background; because it is my conviction that its significance has been magnified in our school, at the cost of such consideration, as I have laid before you. The fact that *veratrum* is capable of causing serous ejections from mouth and rectum, is no doubt a most valuable additional hint to us to use the drug in cholera; especially so, since we now positively know that, similar to cholera, "no signs of inflammation are found in the alimentary canal after death."—But for all that, *veratrum* could have done as little for us in cholera, as *Iris versicularis*, *Elaterium*, *Croton tiglium*, and many such other drugs characterised by watery dejections; they all serve to good purposes in choleraic diarrhœa, or in the diarrhœa preceding cholera; but are incapable to cope with cholera, whenever distinctly pronounced. That *veratrum* can do, and has done more for us in certain forms of cholera, although the evacuations occurring under its toxic influence are far from being choleraic—in fact they are invariably bilious—is simply owing to its ulterior action on the heart and the vaso-motor nervous system; and this action of it may be utilised in any form and in any stage of cholera. In one particular respect *veratrum* is actually inferior as a homœopathic remedy in cholera to the above mentioned *Elater.* or *Croton*; this is notably the case in diarrhœic cholera. This kind of cholera invariably begins with diarrhœa, the vomiting setting in later on. The patho-

genesis of *veratrum* shows however that the digestive canal, whenever affected by the drug, manifests its first disorders by vomiting; purging may follow or may be absent altogether; at least there are some such cases of poisoning on record. At the same time we have one reason more why Ricinus is the more adapted remedy in diarrhœic cholera. The purging and vomiting of a watery character of *veratrum* come on suddenly unlike the purging and vomiting of Ricinus which begins with bilious discharges, gradually merging into choleraic evacuations. Sudden attacks of cholera with its characteristic ejections should therefore be treated at the beginning with *veratrum*, and ricinus should only be resorted to after *veratrum* has failed. In other words, *veratrum* may, in many cases, be better fit to *check* a choleraic attack than ricinus.

Even the spasmodic form of cholera may require *veratrum* in some of its advanced stages, when the heart begins to flag and to give out unmistakable notes of failure. Experience has however taught that the action of *veratrum* is too evanescent as to be able to cope with a collapse of cholera, when coming on at the final issue of the disease. It remains to be seen, if we could do better by substituting the alkaloid, *veratrine*, at the place of the tincture of the root of the plant hitherto exclusively in use in our school. I carry the alkaloid with me in two different attenuations, the 3rd decimal, and the 3rd centesimal, with a view of seeing if the same could be made to act in a more satisfactory manner, *whenever indicated*, than our *veratrum* dilution. For want of sufficient experience, I am however unable to say anything definite on the subject.—We have seen from cases previously given, how satisfactorily camphor acts, even in deep collapse, provided the same has been owing to spasmodic arterial contractions; I can therefore hardly believe, that *veratrum* should not be as useful in collapse owing to a paralytic condition of the heart. Perhaps we give the remedy at too long intervals: Dr. Carroll

Dunham recommends it to be given, like camphor, every five minutes. Much of the disreputation of the drug in collapse may also be owing to its not having always been administered at the right place and according to right indications.

Here is a case to the point recorded by the late Dr. Russell : " A visitor applied to me to see with him—to use his own expression—a hopeless case, which he had just discovered. In a room I found a woman quite alone, and lying on the floor ; she looked exactly like a person who had been drowned, and just dragged out of the water ; and excepting a low, hoarse cry ' cramp cramp ! ' she was indeed, to all appearance, dead. Her garments were saturated with perspiration ; and this cold clammy sweat bathed her face and limbs, both of which were cold as marble and shrivelled. Her eyes deeply sunk in their sockets, were turned up ; her tongue cold, and her pulse no longer perceptible. The alvine discharge was still welling from her. As the visitor, Mr. Farnum, lived very near, he volunteered to give the medicine himself, and to watch the case, if I thought there was the slightest chance of saving her life. *Veratrum* of the 30th dilution was given, as the remedy best indicated in this moment. The happiest effects followed a repetition of this medicine, and of others when they were successively called for. By the judicious care of the visitor, and the assistance of Charles Corbin who afterwards assumed the case, the woman became perfectly restored to health. Nor is this a solitary instance of the brilliant effects of our remedies when properly administered. I saw several not dissimilar cases, terminating successfully under the hands of other practitioners."

We are apt to accuse the remedy, the dilution, the inadequate repetition of the dose, whenever we fail to cure ; to accuse our own self, and the ignorance innate in us, is the last thing we ever think of. I myself in writing down what I have just read to you about my suggestion regarding *veratrum*, have

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allowed my pen to run in the same groove of error ; and I just let it stand as it is, in order to give you a fair specimen of the vicious habit which is in us. There is no doubt a good deal of truth in the suggestions I ventured to make concerning the drug under discussion ; but a good deal of truth may just as well mean a good deal of error at the same time. Let us apply ourselves to the right understanding of a drug's action ; to its rightful application in a given case, and the chances are, we shall in this way achieve by far greater therapeutic results, than by mere change of dilution, or by mere substitution of an alkaloid to the original drug.

One thing we must not forget in connexion with *veratrum* ; it is not, what we would call a protoplasmic poison, like *aconite*, *camphor*, *tartar emetic*, *hydrocyanic acid* and many more, and should therefore not be relied upon, in cases of severe collapse, unless it is, of all the other drugs at our disposal, the most homœopathic. Dr. Russell would certainly not have selected *veratrum* in the above case, had it not been that the cholera process proper, was still in full working order. The continual drain from the bowels, pointed to no other drug at his command, but *veratrum*. As far as the last symptom is concerned, we have now in *ricinus* a far more reliable, because in a greater degree homœopathic, remedy. But, let us not forget, that the cardiac depression under the toxic influence of *ricinus* is owing to the serous drain on the system ; which in the case of *veratrum* and its analogues, cardiac depression is idiopathic, and may actually help to keep up the watery discharges from mouth and rectum. The true reason why *veratrum* has proved impotent in far advanced cases of cholera collapse appears to me to be this, that the pathological condition in such cases, is seldom restricted to a sphere within reach of *veratrum*. Cholera may begin with distinct symptoms of cardiac paresis of the nature and origin pointing to *veratrum*, and this state may, for a considerable time, during the progress of the

disease, be the chief factor of the whole disorder. Sooner or later the condition of the patient will however in most cases assume a more complicated feature ; the neurotic element will make itself felt, and aggravate the original state, and *veratrum* will no more be indicated, because it does not cover any more the whole range of the pathological disorder, knowing as we do, that this drug has hardly any direct action on the nervous system.

Symptomatic indications for *veratrum* are : Cold perspiration on the forehead ; coldness of the lower extremities ; contracted pupils ; violent thirst for cold water and acid drinks ; vomiting aggravated by drinking, or by the least motion ; great weakness, with feeling of emptiness after every fit of vomiting or purging. During stool especially : cold sweat on the forehead. Colic, mostly before every stool. The stools are watery (greenish) with flakes. They resemble to some extent the stools occurring under the action of *phosphorus*, another drug, which is said to be sometimes helpful in removing some of the troublesome symptom manifesting themselves in cholera. Indications of phosphorus are : evacuations containing grains like tallow ; (and herein lies the distinction between the characteristics of the one drug from the other : grains like tallow indicate phosphorus ; flakes *veratrum*) excessive thirst ; vomiting after the water has become hot in the stomach ; bloated abdomen, with rumbling and rolling in it. *Elatarium* resembles *veratrum* in its action, and has been given successfully in cases in which *veratrum* seemed to indicate but failed to cure. (Hempel and Arndt's *Materia Medica* 3rd edition.) *Colchicum* is another drug worth remembering and trying in cholera patients of a gouty habit or tendency. Let us here not lose sight of Dr. Carroll Denham's injunction not to administer *Veratrum* and *Colchicum* in succession.—Both of the drugs just mentioned have watery stools with flakes (*veratrum*) or shreds of mucus (*Colchicum*) and whenever

choleraic stools show a similar particularity, experience has taught me that *Veratrum* and not *Ricinus* is the remedy to be relied upon, whether there are gripes or not accompanying the vomiting and purging. The application of *Ricinus* in such cases is simply so much time wasted. All this I can say from experience. The *Ricinus* stools are *rice-water* like, that is to say liquid, of the consistence of thick serum, with some little shreds *floating* in ; they do not sink to the bottom, but remain floating. Such are the choleraic stool at the end of the choleraic process, when only small stools are discharged in a sort of passive manner, almost oozing out. Taking all considerations together it would appear that *Ricinus* is more intended to cope with those final discharges and to complement the action of *veratrum*. Choleraic evacuations may begin in this way, and then again *Ricinus* should be given. But when the evacuations are characteristically choleraic, that is to say rice-water stools which after a certain time allow the flakes to sink, then *veratrum* is the best similitum. Tartar emetic has also rice-water stool, but there is no separation of flakes. (Compare Cyclopædia of Drug Pathogenesis, article Antim Tart. p. 297). The flakes of the *veratrum* stool sink to the bottom of the vessel and are covered by a *watery* fluid of the *color* of serum. It is not a genuine rice-water stool, for in the latter it takes time before the flakes separate from the serum and sink to the bottom, while in *veratrum* the flakes are distinct and separate at the moment the stool is passed. It might be compared to a coagulated sort of rice-water. It is remarkable that such were the stools as described by Hahnemann (see p. 6) and in such stools *veratrum* then and now is the specific. Let us however not forget that these are not genuine choleraic stools ; where they are, *Ricinus* is the remedy. The above observations lead me to make another correction. It is namely not fair to classify *veratrum* amongst the remedies for paralytic

cholera since there is a class of diarrhœic cholera evacuations for which veratrum is so exclusively indicated. Veratrum should be classified as pertaining, according to the feature of the case, both to the paralytic and diarrhœic cholera variety. Aconite is the first in representing the paralytic variety—veratrum and tart. emetic come next. On the other hand we have seen from another note that veratrum is not altogether a muscular paralyzer, that it is moreover capable of producing spasms. So that on the whole one drug has in its pathogenesis a good many feature, touching at all the three varieties of cholera.

In passing now to the next analogue of *veratrum*, I shall begin by quoting to you from Dr. Bell's *Therapeutics of Diarrhœa*: "Although not of frequent use in diarrhœa, *tartar emetic* will repay careful study. Veratrum has doubtless been given many times, where the choice should have fallen on this remedy, as the colic, desires, and vomiting are quite similar.—Tartar Emetic has, however, more drowsiness and twitching of the muscles than veratrum."—

While it is hardly possible to distinguish between the vomiting and purging as occurring under the influence of veratrum on the one hand and of *tartar emetic* on the other, there are yet important differences to notice, even in the sphere of dynamic action, where the drugs so closely meet. Tartar emet. is also one of those drugs which, in certain doses is capable of causing inflammation of the gastro-intestinal mucous membrane, while veratrum, as we have seen before, never does. The following quotation will however show you, that tartar emet. is in this respect not less adapted to cholera treatment as cuprum for instance. "Solutions of Tartar Emet. brought into the blood current, directly affect the brain and cord, especially the vagi, under whose influence the functions of the heart, the lungs and the stomach are regulated. Consequent upon these immediate effects upon the central nervous

system, we observe morbid changes in the organs of blood-circulation, respiration and digestion. Thus vomiting takes place, before the inflammatory state of the stomach had yet begun to develop ; and considerable coldness of the body, great prostration, weakness and muscular trembling ensue, long before the strength has been consumed by the gastro-enteric inflammation spoken of. Death ensues after large doses (in man as in animals) in consequence of cerebral and cardiac paralysis, preceded by convulsions.*

In spite of such palpable indications, *tartar emetic* has been entirely neglected in our school in the treatment of cholera. Tartar emetic has one great fault ; it has got a bad reputation as far as its therapeutic action in the disease under discussion is concerned. Hoyne says, it has been tried, but has not come up to our expectation. And so the drug is thrown out altogether from the stock of our cholera remedies.—It is certainly not indicated in the spasmodic variety of cholera ; a glance at its pathogenesis is sufficient to see that. Neither can we make use of its emetic quality, for the same is of purely cerebral origin in the first stage of tartar emetic poisoning, and too closely related to inflammatory action at the second stage of poisoning. The diarrhoea again produced under the influence of its toxic action is invariably inflammatory in its nature. Two cases of poisoning recorded in the Cyclopædia of Drug Pathogenesis, p. 297, show however full similarity to cholera in all respects, there being certainly no sign of inflammation any where. The only difference was this that there was in the liquid rice-water stool—no separation after standing into clear liquid and flocculent deposits. All these are conditions not to be met with in cholera ; the vomiting is not cerebral, neither is it ushered in by gastritis and the same remark applies to the choleraic purging. Tartar emetic is

* *Dr. Carl Heinigke's Homœopathische Arzneimittellehre,*
P. 37.

therefore as unsuitable to the diarrhœic variety of cholera, as it is to the spasmodic form. There remains then the third, the paralytic variety of cholera ; but even here, it may be said, Tartar emetic is but seldom indicated. In this variety the circulatory apparatus may be invaded in three different ways. The heart itself may be the first sufferer ; or the vaso-motor nerves may be affected, or the medulla oblongata as the centre of the vaso-motor system may receive the first shock. It could only be in the last mentioned contingency that tartar emet. has a legitimate claim, and it must be confessed that such a casualty is rare. As a rule the centres of circulation and respiration are the last to be affected in the paralytic variety of cholera ; it is either the heart, or the sympathetic ganglia which are the first sufferers, leading later on to paralysis of the centres.

Little therefore as may be the chance for tartar emetic in any of the cholera varieties at the commencement, or even at the first stage of developement of cholera, it grows in importance in the measure as the stage of collapse approaches, provided threatening paralysis of the heart represents its main feature ; tartar emetic being in this respect just the opposite to veratrum album which loses ground, as we have seen before, in the measure as the disease advances.

I am happy to say, isolated as I stand with regard to my advocacy of tartar emetic in certain types of cholera collapse, I am not quite alone. Dr. Kafka fully shares my views on the subjects. And with what enthusiasm does he proclaim his confidence in the drug, when indicated !

“ As soon as the first signs of threatening paralysis of the heart and its arteries manifest themselves—which can only be ascertained by a careful physical examination—then the great indication arises, to administer such remedies which are capable of warding off the dreaded exhaustion of the cardiac action. We do not require, in order to attain this our aim.

any stimulants or nervines ; nor any of those famous spirits and ethers. Guided by the results of physiological pharmacodynamics, we are in possession of a few remedies that go far beyond anything we could ever attain by any amount and any contrivance of stimulation. Foremost amongst them is tartar emetic. It corresponds to the disease in its farthest developement, especially when there is still much vomiting with great efforts and intervening fainting fit ; when the patient, in consequence of venous cerebral congestion, falls into a state of sopor, showing however full consciousness when spoken to ; when there is much præcordial anxiety with oppression of, and a feeling of, burning in the chest ; when the patient lies there, motionless, in consequence of extreme exhaustion, hardly having strength enough to answer a question ; when he often moans and groans ;—to which I would add : when the number of respirations per minute is very small.—With regard to the alleged cerebral anæmia of Tartar Emetic, further evidence would be required if the symptoms produced by the drug might not point to cerebral anæmia, known as it is that cerebral heperœmia and anæmia show in many respects similar symptoms.

It would be erroneous to think because the choleraic vomiting is, in the first instance, not cerebral, therefore it is never so ; in the progress of the disease the emetic centres may become irritated to such a degree, that this irritation keeps up the vomiting, after calm has been established at the original seat of the disorder. And this sort of vomiting will find in *tart. emet.* its homœopathic remedy.

When we now remember, that the diarrhœic form of cholera almost invariably ends in collapse characterised by threatening paralysis of the medulla oblongata, and that cholera of the spasmodic variety *may* end in this way—we shall understand the importance of *Tart. emet.* in cholera.

I remember some eight or ten years ago there was a severe outbreak of cholera during the cold season, in Kidderpore—a suburb of Calcutta. It was considered to be one of the most unmanageable outbreaks, yielding to none of our well reputed homœopathic remedies. I saw one such case in an exceedingly far advanced stage. Patient was an elderly woman and I could not help expressing my surprise, when I first saw her, at having been called at all, the case looking as if nothing was any more left to be done. I heard however that she was in that dying state for the last twelve hours. Breathing stertorous ; number of respiration per minute about 6 or 7 (paralysis of the pneumogastric nerve) ; now and then sighing ; heart's action slow ; impulse hardly perceptible, second sound especially so ; coma so marked that the homœopathic practitioner in attendance had administered opium ; now and then some strange grimaces, denoting a sensation of nausea ; vomiting and purging had ceased some hours ago ; unconscious when spoken to, unless the question was repeated a few times in loud voice ; no answer, not even by signs, but simply some vague expression, that she is aware that a question has been addressed to her.—I gave her Tart. Emet. 3 cent, a sip of the mixture to be repeated every quarter of an hour, and to be given at longer intervals, as soon as the first signs of improvement should show themselves.—I saw her again after about 4 or 5 hours and found her much better in every respect. Breathing easier, number of respiration increased ; consciousness fully returned, asked for water, and complained of excessive weakness. She finally recovered.

This case brought me, for the time being, some more cholera cases in the same quarter. I had the opportunity of seeing some patients at the earlier stage of the disease. In all of them there were hardly any spasms ; beginning failure of heart's action, coupled with a state of somnolency was everywhere present ; no anxiety, on restlessness ; matters were

taken easy, as if it could not be otherwise. *Tartar emetic* proved in all these cases the specific remedy.

Strange to say, this cholera outbreak had been preceded by a severe outbreak of small pox. Variola had just gone out to all appearance to make room for cholera; and it remains an open question with me up to date, in how far the genus epidemicus was here influenced by the foregoing small pox outbreak, known as it is to us, that *tart. emet.* is homœopathic to both these pathological disorders. I am not prepared now to enter into speculations on the subject; but would strongly advise you, to keep *tart. emet.* before your mind, at a similar contingency, which is after all not rare in this country.

I close this subject with the following quotation from Dr. Ringer's Hand-book of Therapeutics:—

"In antimonial poisoning there is great motor and sensory paralysis and loss of reflex action. The loss of reflex action and motor power, Radziejewski shows, is due to the effect of the tartar emetic on the cord. This salt also powerfully affects the heart, in the frog slowing and then arresting it in diastole; and it affects the heart of warm blooded animals in the same way. The arterial pressure falls greatly. Whilst the pulse is slow the diastolic pauses are long, but each beat influences the mercurial column of the cardiometer five times more than normal. After a large dose the pulse at last becomes very frequent and feeble, and the heart stops in diastole. *Tartar emetic.* directly affects the heart; affects it even when the heart is removed from the body. Radziejewski was shown that the ends of the vagi are paralyzed, and Ackermann that the contractility of the cardiac muscle is destroyed. (Wood)."

"In the *Journal of Physiology* I have published in connexion with Mr. Murrell some experiments showing that tartar emetic, like potash salts, arsenious acid, aconitia and hydrocyanic acid,

is a protoplasmic poison which destroys the functions of all the organs of the body in the order of their vital endowments. . . . Our experiments confirm the conclusions of previous observers concerning the action of tartar emetic on the muscular substance of the heart."

"We have thus shown that tartar emetic paralyzes the central nervous system, the motor nerves, the muscles, and destroys sensation and therefore we are led to infer, that probably tartar emetic is a protoplasmic poison, destroying function in all nitrogenous tissue. Our experiments, however, fail to show, whether it manifests for all nitrogenous tissues an equal affinity, or whether it has a special action on some."

"As in the case of potash salts, arsenious acid and aconitia, tartar emetic, we suggest, weakens or paralyzes the heart though its action on all the tissues, ganglia, nerves, and muscular substance of this organ, affecting first the ganglia, then the nerves, and last the muscular substance."—

To this long quotation I have only to add that, while all those above-named drug substances are no doubt great paralyzers of function, they are, each in its own particular way, as great tissue or protoplasmic irritants; Carbolic acid is a paralyzer from the beginning to end, and should find a prominent place in the collapse state of paralytic cholera (Compare first footnote App. II) and that they are more clearly distinguished from each other by their last mentioned physiological action than by the first.

Arsenic as you will remember from a previous lecture, has no less, in its great toxicological versatility, symptoms similar to tartar emet. We have seen that instead of acute inflammation of the digestive organs, which would prove fatal in four or five days, these symptoms are almost or entirely absent in some cases of arsenical poisoning; and profound coma sets in from which the victim never awakes, but dies in few hours, the mucous membrane of the stomach and intestines being free

from inflammation.—In how far we may make use of these arsenic symptoms, on homœopathic principle, in the paralytic variety of cholera I am not prepared to say. But in the coma which sometimes closes the scene in cholera, arsenic, possibly the Bromide of arsenic or *Cuprum*, compare pp. 150-51 should be given instead of opium, if, indeed, medicines can do anything at all in such advanced stages. Ether should be tried in such cases, especially when the heart's action is still proportionally strong while there are cerebral hyperæmia, stertorous breathing and threatened paralysis of the respiratory centres. In this respect Ether resembles Tartar Emetic but in the latter the heart action is weak, its arteries are paralyzed, while just the contrary obtains in Ether, heart and arterial vessels being active till the last, and even after respiration has ceased. Ether produces diabetes. In diabetic patients affected with cholera of the above described state of collapse, Ether may be our only sheet anchor.—Not always, however, is the coma owing to hyperæmia of the brain; the coma may moreover be due to a state of Hydrocephaloid. The brain substances being shrunk because of the loss of its watery parts, the blood vessels deprived of their usual pressure allow the blood to transudate. The state of the blood-vessels themselves may be sufficient to account for such a transudation. The forehead in such cases is mostly cold and clammy. *Veratrum album*, *Helleb. nigra*, should be thought of in such cases. The coma may be owing to brain exhaustion, then lime might be administered. On the other hand it had been mentioned before, that the very anæmic state of the brain may produce a release of pressure on the cerebral mass, the blood vessels being empty and flabby. Cerebral irritation would then ensue. *Zinc* is homœopathic to both conditions, it stimulates primarily and depresses socondly. *China* is here another remedy to be thought of, and if this fails *Calc. Phosph.*

Closely related to *veratrum album*, but of a far wider range of action, is *aconite*, the physiological qualities of which I must suppose you are sufficiently acquainted with. Aconite is no hæmæmic poison ; it is in so far inferior to arsenic and even to cuprum. It resembles in this respect camphor and veratrum. As a tissue irritant, its sphere of action goes as far as that of arsenic; but it is in this respect far less destructive in its effect than arsenic. The irritation set up by it tends towards catarrhal inflammation only, and the condition of the subject thus affected, maintains its sthenic character, while arsenical poisoning is invariably associated with an adynamic type. It irritates not only muscular tissue like veratrum, but almost any tissue of the human frame, nerve tissue included. As such it may even produce violent tetanic convulsions, such convulsions being most likely associated with a rise of temperature.—Of all these physiological effects we can hardly make use in the treatment of cholera. But over and above its poisonous effects as a tissue irritant it is a depressor of nerve-function, especially of the sympathetic nervous system ; and when the toxic dose has been so large as to induce nerve-depression to its utmost, there is hardly room left for nerve-tissue irritation, and the picture represented by the patient is that of total collapse, as described before, when speaking of veratrum. But in aconite it is not only the muscular tissue of the heart which is threatened with paralysis, but not less its ganglia and nerves. Meantime *aconite* appears to depress in a similar way the central nervous system.

Wherever, therefore, there is reason to believe that we are dealing with a paralytic form of cholera, brought on by depressing influences, otherwise than mere bodily fatigue, we shall derive far greater benefit, *at the first onset of the disease*, from the administration of a few doses of aconite in rapid succession, than from veratrum. We use in such cases the lowest dilutions of aconite: a drop of the mother tincture in about 3 or 4

ounces of water, of which a teaspoonful is given every five or ten minutes. Aconite in such cases should be used in the same way as camphor in the spasmodic variety of cholera—till the patient feels relieved, or so long as there is no vomiting, no purging. Often the first dejections in cholera are more or less bilious; when such is the case, we may still go on with the aconite-administration. Should the evacuations, however, in spite of our efforts to check them, go on increasing, assuming at the same time the choleraic character, then we may recur to *veratrum*. Any how, the threatening cardiac and vaso-motor paralysis must here, from the very beginning, occupy our chief attention.

The gastric and intestinal irritation set up in the course of the evacuation period may bring on spasms of the severest kind; and the superficial observer might be inclined to consider the case as a variety of spasmodic cholera, while a single stethoscopic examination would reveal to us, often to our great surprise, that the heart's action is weak out of all proportion to the stage patient is in. Cuprum is often here of great service; it not only ministers to the spasms but also to the heart. This is however not always the case. Sometimes it would appear, as if muscular spasms go hand in hand with the gradual sinking of the heart. And here it is where *cuprum arsenicosum* will do more for us, than any of its components could ever achieve singly.

Of the further use of *aconite* in the collapse of cholera, I intend speaking in my next lecture.

"If a leaf or a small scraping of the root be chewed," writes Dr. Phillips, "a sensation of numbness is quickly produced upon the lips and tongue, and this effect is still perceived after the lapse of many hours. A quantity sufficient to cause death, if received into the stomach, produces pungent heat in the palate and fauces, accompanied by a sensation of burning in the stomach itself. To these sensations are soon

added a condition of painful numbness, which pervades the limbs, to the fingers and toes, and a general tremor of the whole body. Severe vomiting, attended by pain in the abdomen, quickly follows, and along with it, an intermittent, weak, and irregular action of the heart. There is then an approach to suffocation, with great anxiety, restlessness and vertigo; the limbs become cold and clammy, the pulse is more and more irregular, and death soon puts an end to the patient's sufferings. Neither convulsions, spasms, stupor, nor delirium can be reckoned upon as certain, though it is true that in several recorded cases one or more of these phenomena have been manifested, and it frequently happens that after full and poisonous doses the mind remains unclouded to the last."

From a large number of experiments on both cold and warm blooded animals, the following conclusion are drawn by Dr. Ascharumow :*

1. Aconite produces death from asphyxia by cardiac paralysis.

2. The medulla oblongata is, in the first place stimulated, the vagi are thereby affected in a similar manner, and this stimulation is succeeded by paralysis of these organs.

Accordingly, aconite primarily produces slowing of heart's action, with spasmodic contraction of the arteries, and secondarily frequent beats of the heart, with dilatation of the arterioles and capellaries, in other words, vaso-motor paralysis.—It has been observed, that under the influence of aconite, the impulse of the heart is always weak, may its action be quick or slow.† The invariably weakening effect of the drug upon the heart's impulse, is ascribed to its paralyzing effect upon the cardiac ganglia. In so far aconite distinguishes

* Virchow's Archiv, 1866, p. 255.

† The hard, strong pulse of *aconite*, of which we hear so much in our school, as a homœopathic indication of the drug in febrile disorders, is the pulse of reaction occurring in aconite-patients who are about to recover from the depressing action of the poison.

itself from *camphor*, *hydrocyanic acid* and *Arsenic* ; under the influence of all these poisons, the heart's impulse is primarily so much the stronger, the slower its beats. Such is also the case at the first stage of the spasmodic variety of cholera. It is therefore that aconite is hardly indicated in that variety, although contraction of the arterioles and capillaries is a prominent toxic effect of that drug. Such a contraction often follows exposure to cold, or sudden inhalation of cold air, and may, under certain physiological conditions, combined with such influences as are known to be active during an epidemic, give rise, either to a sudden choleraic attack of the type so often mentioned in this lecture, or to a diarrhœa, which may ultimately lead to it. Aconite, in such cases may be just as useful, as we have seen camphor to be in choleraic attacks of the spasmodic variety, and in the diarrhœa preceding them.

I cannot close this lecture on the paralytic variety of cholera without making mention of nicotine, a drug which has altogether been neglected in our *Materia Medica*. The neglect chiefly arises, I presume, from the fact that almost every body smokes tobacco. Under such circumstance it is supposed, nicotine would be quite inactive. We use however coffee, in attenuation, with good effect in coffee drinkers ; there is then no reason why we should, on the ground before-mentioned, discard nicotine, without even submitting it to a therapeutic trial. There are besides women and children who do not smoke, and they represent at least three quarters of the number of our patients. Moreover recent researches have rendered it more than probable, that tobacco smoke owes very little of its potency to nicotine ; it is to the combustion products of the tobacco leaves, of which pyridine is the most powerful, that all the mischief arising from smoking is owing.*

* It is to be regretted that Allen in his *Encyclopædia of Pure Materia Medica*, article *Tabacum*, has mixed up the effects of the drug as such, and those arising from smoking it.

Taylor relates a case of a girl who in half an hour after the administration complained of faintness, and of feeling sick, and, in another half hour became quite collapsed, with cold sweats; she vomited, was slightly convulsed, and died in an hour and a half after the first reception of the poison into her system. On postmortem examination the heart was found flaccid; neither stomach nor intestines presented any trace of inflammation.

The profound nausea and vomiting caused by tobacco, seem to be purely cerebral in their nature; the drug is in so far not homœopathic to an acute stage of paralytic cholera. The convulsions occurring under the influence of its toxic action seem to be spinal in their origin; this would again be an unfavorable indication of the drug in the disease under consideration. But as a cardiac paralyzer, tobacco and so much the more its alkaloid, nicotine, takes a foremost rank, and should certainly not be neglected in certain cases of cholera collapse. Here again I must reserve what I have to say on the subject to my next lecture. Dr. Vassili of Naples employed in 1888 a small balloon which he lined internally with a layer of gelatine containing cholera bacilli. He found, by drawing through this balloon, the smoke of from one to four cigars—the number of cigars required, depending on their strength in nicotine—the gelatine was completely sterilised. To which the *Lancet* (February 20th 1892) rightly observes, that this is no reason why tobacco should be considered, even on theoretical ground, as a cholera prophylactic. "There is a great difference between the sterilising of microbes in nutritive gelatine and in the human being. Sulphurous acid is also an antiseptic, but it still remains to be proved that London fogs and London smoke save the metropolis from zymotic diseases."

An attempt has been made some years ago to use salicylic acid in cholera. The remedy was brought before the public

with great praise. It was at the time, when the drug had been brought, for the first time, before the allopathic profession. Guided by a mere outline of its physiological action, I had the courage to assert, that this acid can never become a cholera remedy, far less a cholera specific. My prediction has, thus far, become true ; nobody hears now-a-days anything of salicylic acid in connexion with cholera. The letter I addressed on the subject to the *Englishman* runs as follows:

TO THE EDITOR OF THE ENGLISHMAN.

SIR,—From an editorial in your impression of the 27 instant, it is to be seen that most favorable results have been obtained by the use of the Salicylic Acid treatment of cholera, which was introduced into India by Surgeon-Major Boustead, of the Bombay Army, some months ago ; and that, in answer to correspondents Dr. Boustead has replied that half a grain for each year of age of the patient, is a safe dose to be administered by a non-professional person, but this dose can be exceeded every hour if administered under the supervision of a medical man. As it is, therefore, likely that the above-mentioned drug will soon be extensively tried all over India in cases of cholera, both by professional and non-professional men, I believe—and I hope that you, Mr. Editor, will share with me this belief—that it is of the utmost importance that people should know something about the action of Salicylic Acid on the healthy human frame. The medicinal use of this drug is, comparatively speaking, new to the medical profession, and the following is, perhaps, the only information in existence as to its physiological action on the healthy. We owe what is known in this respect to Dr. C. A. Ewald, Assistant Physician to Professor Frehrich's ward in the Charité Hospital, Berlin, as recorded in the *Practitioner* of March 1876.

Within fifteen minutes, or even less, after the administration of Salicylic Acid, a copious perspiration breaks out, first on the face then on the thorax, abdomen, and the rest of the body, accompanied by reddening of the skin, more especially of that of the face, and may be so copious that the patients may lose 505-750 grammes of water. Almost simultaneously with the outbreak of this sweating, sometimes a little later, the temperature begins to decline, the gradual fall lasting much longer than the perspiration. Nor is there, indeed, any constant relation between the fall of temperature and the amount of sweating, there being in many cases great reduction of temperature with little or no sweating. Generally the pulse and respiration are not at all affected, though the pulse may become a little slower. Where the pure acid, or the sodium salt are employed, the intestinal tract does not appear to be at all affected. The recorded accounts of irritant effects on the mucous membrane of the œsophagus, stomach, or intestines, even of erosions and hemorrhages, are due to admixture of irritant substances, such as carbolic acid, with the salicylic acid. This is shown by a comparison between my earlier experience with my later, as I have not met with any such results since using the pure drug. The evacuations, on the other hand, become more frequent and fluid. The salicylic acid appears in the urine, which is otherwise unaltered, as salicyluric acid. The cerebral functions appear little or not at all interfered with for, so far as my own experience goes, only three patients have complained of buzzing in the ears and dizziness, and only one of hallucinations. Nor does such a collapse occur as one might have expected from the great fall of temperature. I have not, nor, indeed, have any others, ever seen a fatal case of collapse and, although several patients, especially such as have sweated profusely, appear during the fall of temperature, or shortly afterwards, much exhausted, and very pale, this condition is at most rare and transitory.

As it is quite possible that, owing to so great a reduction of the heat of the body, a fatal collapse may occur, I have not been in the habit of giving the acid to very debilitated patients; or, when I have done so, I have, at the same time, administered analeptic and stimulating remedies.

Salicylic Acid produces, then, a reduction of temperature, a slowing of the pulse, frequent and fluid evacuations from the bowels, and, if the dose be pushed farther still, fatal collapse—on the whole, a pretty fair pathological picture of what occurs in a cholera patient; in other words, the toxic action of Salicylic Acid on the human frame is, in its main features, homœopathic to the action of cholera poison. Now, I do not wish to be polemic, or sectarian, in this letter, and I shall, therefore, not enter into the question as to how far the good effects of Salicylic Acid in cholera are owing to the drug being homœopathic to the disease—as I should certainly feel inclined to think—or in how far, on the other hand, those good effects may be ascribable to the antiseptic properties of Salicylic Acid—an opinion evidently held by Dr. Boustead. What I wish to bring prominently to the notice of all those whom it may concern, is the fact that Salicylic Acid does produce a state strikingly similar to the last stage of cholera, and that, consequently, by pushing the administration of the drug beyond a certain limit, what has been intended to be a remedial agent must necessarily turn into a sure agent of death. If I understand Dr. Boustead's instructions aright, a man of thirty years of age may take 15 grains of Salicylic Acid every hour. Now, this is a most dangerous way of dosing for a homœopathically acting drug, especially so, if we remember that the acid is eliminated with the urine, and that this excretion is entirely arrested in cholera—a fact which must lead to a gradual accumulation of the drug within the system. Let us at the same time remember that in being eliminated, it

acts injuriously on the kidneys. I have seen cases treated by the acid and also by salol going through the whole cholera process, till they passed water, then the urine stopped after two or three days and they died of uræmia. It would appear as if the Salicylic acid remained unobserved, or at least partly, during the cholera process, but as soon as assimilation began, the drug being carried into the organism, began its toxic mischief.

It is greatly to be feared that, whatever good reputation the acid has acquired in the treatment of cholera, it owes to such cases where the first few doses had brought on a change for the better. Should, however, such few doses have failed to effect any good, then it is high time to remember that, however desirable it may be to neutralise the miasmatic cholera poison, Salicylic Acid is, of all anitiseptic agents, the least suitable to do so; for it could only do it by aggravating the case, and extinguishing the patient altogether. At any rate, it appears to me of the highest importance that the world—professional as well as non-professional—should know that, in administering Salicylic Acid to a cholera patient, they deal, I shall not say with a homœopathic remedy, but, at any rate, with a homœopathically acting drug. India, as far as I can see, is in a fair way of having her cholera patients slain by the thousand, on account of the comparatively little, though undoubted, benefit some have derived from Salicylic Acid.—

Cholera patients, have, I am happy to say, not been slain by the thousand; but salicylic acid has come and gone, to be heard of no more, as a cholera remedy. Salicylic acid has however a specific action on the pancreatic juice, and most likely also on the pancreas in preventing the formation of Indol and Skatol. This has been physiologically demonstrated (see Brunton's Pharmacopia—Article salicylic acid). Now for reasons evident from the following extracts, and for other

reasons given in detail in a second extract (British Medical Journal March 30. 1889) it would appear that the pancreas is the hearth of the action of the cholera poison. The absence of fecal matter, characterised by indol and skatol must be ascribed to the deficient action of the pancreas, and so must (according to the 2nd extract before mentioned) the colorlessness of the cholera stools, and their deficiency in bile, be ascribed to the faulty action of the pancreas. Salicylic acid may therefore homœopathically have an action for good in cholera. The matter should be reconsidered by homœopaths. Moreover, instead of Arsenic we might do better to apply *Ars.-iod.* or *Calc. Ars.*

1ST EXTRACT :—THE CHEMISTRY OF CHOLERA.

At last it would seem that a cure for cholera is really on its trial which is based on more rational methods than the various specifics which have from time to time been proclaimed by enthusiastic philanthropists and empirical advertisers. In this case the first step towards what is believed to be a valuable discovery was made by a quiet worker in the laboratory, Professor Lowenthal of Lausanne, who had never had the opportunity of clinical experience, nor, it is believed, ever witnessed an actual case of cholera. Like all truly scientific investigators, he aimed first at ascertaining facts. Taking for granted that Koch's bacillus was the true bacillus of cholera, he set to work to find out what was its food or, to use medical language, in what nutrient media the inactive bacillus would acquire activity: would in fact thrive and become poisonous. He made of course many fruitless and disappointing experiments. At length his patience was rewarded by discovering, to use the words of Surgeon-Major Nicholson of Patna, who communicates the information to the *Indian Medical Gazette*, that " if the cholera bacillus were cultivated in a paste containing fresh pancreaticine, it begins to secrete its virulent ptomaine

which when inoculated in mice either killed them or made them intensely sick. By varying the elements of his culture mixture Lowenthal fully satisfied himself that it is the pancreatic juice which in presence of albuminoid and peptonised substances determines the poison secreting action of the bacillus." This discovery at once localised the seat of activity and pointed to the place in which the initial mischief would be brought by any bacilli which might enter the human frame. They must—some of them at least, writes the Patna doctor—escape through the stomach into the intestine where they would find the pancreatic juice necessary to develop their poison. The great step had thus been gained. The camp of the enemy and the method of his operations had been explored: the point now was to ascertain how to countermine the attack. The laboratory was again set to work. Only this time, instead of trying to find out what would bestow active life upon the bacillus, the experiments were directed to the discovery of what would condemn him to death and destruction. The problem was in fact to ascertain what substance mixed with the pancreatic paste "would prevent the active functional operations of the bacilli and the genesis of the toxic ptomaine." Various antiseptic agents were tried, and again perseverance guided by scientific skill met with its reward. After many failures the patient Professor hit upon salol or the salicyate of phenol. Salol passes through the stomach unchanged and is split up in the duodenum, writes Dr. Nicholson, into carbolic and salicylic acids by the action of the pancreatic juice. It is death to the bacillus. Such at least was the claim of Professor Lowenthal. But as cholera subjects are happily rare at Lausanne he had no opportunity of trying his suggested remedy on a real patient. Dr. Nicholson, however, has had less difficulty in finding cholera victims at Patna, in which neighbourhood, when the proper time of year comes round, a crop of cholera cases is

produced as regularly as a harvest of mangoes or Indian-corn. As soon as the cholera season commenced, writes Dr. Nicholson, he instructed his assistants to try salol, administering it every three or four hours. His orders were carried out. In all eighteen patients were treated with this drug and every one recovered. Of these eleven had been admitted to hospital in the state of collapse and in many of them the symptoms were so severe as to justify a belief that under the usual treatment they would have succumbed to the disease. These facts combined with a knowledge of the scientific basis on which the remedy is supported, afford at least a gleam of hope that something like a specific against cholera may possibly have been found. Though the real merit of the discovery rests with Professor Lowenthal, Dr. Nicholson appears to deserve every credit for having appreciated its significance and for the exertions he has used to bring it into practical use and under prominent attention. If further results are equally successful the Government of India should feel encouraged to devote a little more of its money and attention to the importation of scientific workers and the establishment of laboratory investigation.—As appeared in *Pioneer*, 1890.

2ND EXTRACT :—ON THE CLINICAL SIGNIFICANCE OF
CLAY-COLOURED STOOLS UNACCOMPANIED BY
JAUNDICE.

At a meeting of the Royal Medical and Surgical Society, Dr. T. J. Walker read a paper on the above subject. After referring to the accepted views on the significance of clay-coloured stools, he gave two cases in which, during life, a persistent symptom was the absence of color in the *fæces*, and in which the diagnosis made of obstruction of the pancreatic duct, with a healthy condition of the bile-duct, was confirmed at the necropsy. From these cases Dr. Walker concluded, first, that the formation of hydrobilirubin, the

coloring matter of the fæces, depended upon the mutual reaction of the bile and pancreatic fluid, under the influences met with in the intestinal tract; secondly, that in disease a deficiency of the pancreatic fluid would, equally with a deficiency of bile, cause the pathological condition of colorless or clay-colored stools; thirdly that according to the most recent physiological researches, that portion only of the colored constituents of the bile which had been converted into hydrobilirubin was excreted in the fæces, while the unchanged bilirubin, bilifuscin and biliverdin, were absorbed, it followed that, if hydrobilirubin could not be produced without the aid of the pancreas, that organ must have an important rôle in regulating what portion of the bile entering the intestines should be absorbed, and what thrown off with the fæces. Dr. Walker then pointed out that these conclusions received confirmation of other published cases, that Clause Bernard recognised that the pancreas had a part in producing the color of the fæces, and that the state in which the bile pigments were found in the meconium of the fœtus, while the pancreatic function was in abeyance, also accorded with these conclusions. He further pointed out the fact of the pancreas influencing the excretion of the bile in the fæces would, if accepted, reconcile the discrepancy between the clinical observation that certain drugs produced copious bilious stools, and the physiological observation that these drugs had little or no influence on the secretion of bile by the liver, and that the same fact would explain these hitherto inexplicable cases in which, with no evidence of arrest of the bile-secreting functions of the liver, or of obstruction of its ducts, the symptom of white or clay-colored stools was persistently present.—*British Medical Journal, March 30, 1889.*

3RD EXTRACT:—CHOLERA TREATED BY SALOL.

Dr. F. C. Nicholson, for many years the popular Senior Resident Surgeon of the Presidency General Hospital and

now Civil Surgeon of Patna, after commenting on the successful use for eight years of hypodermic injections of morphia in the first stage of cholera, reports 18 cases of cholera in all its stages treated by Salol without a single fatal issue. Dr. Nicholson based his treatment on the laboratory experiments of Professor Lowenthal of Lusanne, and though he had no clinical experience of this drug, had formulated certain deductions from chemical practice which he anticipated, if given a trial, would prove an antidote to this fatal scourge. Lowenthal maintains that the cholera virus is a ptomaine resulting from the presence of Koch's bacillus in the system. He discovered that this ptomaine is not produced in the ordinary nutrient media, but is freely propagated in a paste with fresh pancreatine in it, thus proving that the pancreatic juice is the determining medium of the toxic power of Koch's bacillus when present in nitrogenised substances. Thus, then, the morbid germs of cholera assume their potency in the alimentary canal at a point where pancreatic digestion begins.

Lowenthal also maintains that salol which is a salicylate of phenol, is by the action of the pancreatic juice in the deodenum broken up into salicylic and carbolic acids which, according to his experiments with salol in the manner described, always destroyed the cholera bacillus. Dr. Nicholson has put Professor Lowenthal's deductions to the test, and reports a uniform success in 18 cases, which he, with his assistants, Drs. R. K. Gupta and Asdar Ali Khan, treated at Patna. Dr. Nicholson used this formula :—

Salol grs : XV, spts. chloroform m XX, mucilage 1 drachm, water one ounce, given every 4 hours, with ice to suck, and thin sago gruel prepared in water and flavoured with salt as diet.

Dr. Nicholson sums up his careful report with the following remarks :— " I think the treatment of these 18 cases

affords strong clinical testimony in favour of salol in the prevention and cure of cholera, though not sufficiently numerous to prove it a specific for this dread disease." We would be glad to receive reports of an extended trial of salol in cholera.— As appeared in *The Medical Record* January 1st 1890.

COBRA VENUM FOR CHOLERA.

The letter I addressed on the above subject to the "Statesman" may be read with advantage:—

TO THE EDITOR OF THE "STATESMAN."

SIR,—With reference to a paragraph which appeared in your issue of this day, headed "Cobra Venum for cholera," an observation made by the late Dr. Vincent Richards may be of interest to the reader in general, and to Dr. Haffkine in particular. In his "Landmarks of Snake Poison Literature" (p. 132), Dr. Richards states, that the ptomaines generated in the bowels of choleraic patients injected in animals produce results startlingly similar to those produced by Cobra bites. In connexion with the above, it is worth noticing that ptomaines are not, as generally believed, mere *postmortem* products of putrefaction, but that such products may, and do often, arise during the lifetime of patients, so that their disease, and eventually their death, may be owing to a kind of self-poisoning (See Professor Lander Burnton's *Pharmacology*, London 1885, p. 350). Now we have heard a good deal during the last few years about the cholera bacilli and the pathogenic action of their ptomaines, to the entire neglect of the choleraic ptomaines. May it not be that in many, if not in most, fatal cases of cholera, there have been, properly speaking, two agencies at work, the pathogenic ptomaines of the cholera bacilli, the toxic action of which generates the disease in man; and secondly, the choleraic ptomaines to which the fatal issue of the disease is due.

Plausible as this hypothesis appears to me as it stands, I should say it derives a considerable support from the statements of Mr. Perroux concerning the antidotal virtue of cobra poison in cases of cholera, when read in connexion with the before-mentioned statements of the late Dr. Vincent Richards. In the official report of Dr. Edward C. Shakespeare, United States Commissioner on cholera in Europe and Asia, issued at the Government Printing office, Washington, in the year 1890, mention is made of Mr. Perroux who relates "the successful employment (intravenous) of the venom of the *cobra di capella* by some tribes in the north of India as an antidote, *in the lethal stage of cholera* of the poison of that disease." The *italics* are mine.—In the lethal stage of cholera ! It would then appear that cobra poison is by no means an antidote to cholera, in other words, to the pathological process as generated by the ptomaines of the cholera bâcilli ; it has proved itself to be an antidote to the lethal stage, when we deal no longer with the former ptomaines but with those generated by cholera. And it acts here antidotically in its quality of a similar, or if any allusion to Homœopathy is to be avoided in a question which is already complicated enough as it is, in its quality as—an analogue.

One suggestion more before closing this letter. May not cobra poison find its best antidote in choleraic ptomaines ? What are the toxic qualities of the ptomaines of cobra-victims ? It is easy of course to ask questions but it would require another Haffkine amongst us to solve them.

Calcutta, Mar. 28, 1893.

L. Salzer.

IX.

This is, gentlemen, the last lecture I am going to deliver on cholera and its homœopathic treatment. It is the last, not because the subject has been exhausted, and there is nothing left any more to say, but because I have exhausted all the knowledge on the subject, that is in me. We approach now the considerations referring to the treatment of the stage of cholera collapse; a most serious, complicated stage. Serious, inasmuch as only ten per cent. of patients spontaneously recover, if we are to believe Dr. Macnamarra's statement on the subject; complicated, because we deal here with a pathological state, the symptoms of which may be either spasmodic, or paralytic in their nature, or a combination of both. All this is so much the more true, the farther the stage of collapse is advanced.

Properly speaking, it is difficult to say, where the stage of collapse begins. It is a stage which is easier recognised as such, than defined by so many words. A low temperature 3 to 4 or 5 and even 6° F., below the normal standard, coldness all over, distinct signs of an impeded circulation and respiration, with or without purging or vomiting, constitute the chief characteristics of that stage. As a rule the evacuations are not considerable, the patient being exhausted, or emptied; nausea, retching, and now and then a small discharge of a rice water fluid from the rectum continue, however, often to the last.

That our best remedies will here often fail, is easy to see; we deal here no more with a morbid process; we deal, with an organism injured by a preceding morbid process—and nobody

can tell, in how far the injury inflicted is within, or beyond possible repair.

I shall first speak of the condition of the blood. Physically it has become so far altered, as to have greatly lost its fluidity; it has become thickened, tarry, unfit for easy circulation through the minute capillaries of the organism. Physiologically it has experienced another great injury; it has been to a large extent deprived of its vivifying element, of its oxygen. With the serous dejection a considerable quantity of saline matter passes out of the body; another morbid alteration in the chemical constituents of the blood as a whole; although according to Dr. Garrod* it would appear, that the proportion of water discharged is so much the greater, that the percentage of salts in the blood is rather increased than decreased.

However urgent the indications may be to minister to the functions of the organs of respiration and circulation, we must never, for a moment, lose sight of the grave condition of the blood itself, upon which after all the sustenance of the organs themselves depends. The calming of the irritation of the digestive organs will therefore engage our first attention. So long as the patient is not able to take, or to retain when taken, any liquid, so long must he be considered not to be out of danger, however distinctly some signs of reaction may have made their appearance. We have seen in a previous lecture, what great advantage we may derive in such a state, from *Ricinus* and *cuprum*. Should ever *arsenic* be called for in a similar condition, you will find that dilutions between the 12. and the 30. far superior than the lower dilutions. Constant nausea indicates *Ipecacuanha*, *tart. emet. Tobac.* or *Nicotine* at any rate in the case of individuals not given to smoking tobacco. The nausea of *Tobac.* or *Nicotine* is accompanied by burning heat about the abdomen, the rest of the

* *London Journal of Medicine*, May, 1849.

body being cold and clammy patient persists in uncovering the abdomen—Total indifference to nakedness. *Carbolic acid* has done me good service in cases occurring in filthy quarters, infected by bad drainage ; I gave the 6.

I must confess I do not like to see carbolic acid used, as it is done in many houses, as a disinfectant of the choleraic stools. The carbolic acid smell is sickening to me, and I believe the patient is similarly affected, although he may not be aware of it.

In all cases where the state of the digestive organs engage our attention on the one side, and the state of some other important organ on the other, I propose that, in order not to neglect either the one or the other, to alternate our remedies, provided we cannot lay hold upon one drug which satisfies all the exigencies of the state present. Or, what I would consider still preferable is this : Let the water the patient is to drink, be medicated by such of our medicines, which we consider best calculated, to enable him to retain his drink, and to combat at the same time the nausea and inclination to vomit, if there be any. Again vomiting, and gastric irritations in general might disappear first. The patient might even manifest some desire for some food, while the choleraic discharges are still going on. In such a case, we should not hesitate to allow the patient some barley or arrowroot, salted, cautiously to take ; while we might administer *veratrum*, *Crot. tigl.*, *Ricinus* in order to control the stools. In most cases we shall find that the stools are not strictly choleraic under the conditions above mentioned. Sometimes they are watery and colourless, yet no more rice-watery ; they appear to be watery mixed up with flocks of mucus. Here we might sometimes substitute with advantage *ol. Ricini* 3 to 6 instead of *Ricinus*.

For the restoration of the function of the blood, as far as its oxygen carrying capacity is concerned, we have or at least

we believe to have, one drug in our materia medica, of which clinical experience has spoken in very laudable terms. I speak here of *carbo vegetabilis*. It is supposed to act, both upon the blood and the various tissues of system, especially upon those portions of nervous system, presiding over nutrition; it devitalizes the blood and exhausts the nerves, at least this is the explanation given of the various phenomena of depression which its provers have shown to be produced, under its influence, on the organism. These symptoms of depression, let it be understood, have been obtained from experiments made with carbo-triturations. Charcoal in its crude state is an inert substance, void of any pharmacodynamic action. Triturated, it has however been shown by Hahnemann and his disciples to have pharmacodynamic powers in the direction mentioned. This is a matter of fact, and all what a priori-argument can ever say against it, will not affect us, who know, from other instances, that carbo does not stand alone in this respect.—Vegetable charcoal, in triturated form, has been used in our school against complaints connected with old age, with low fevers, and all such disorders, where the oxydation of the blood is known to be faulty. I cannot tell you who first hinted, that it should be tried in the stage of cholera collapse; but it was a very happy hit indeed. Both Bæhr and Kafka speak highly in its favour, and I may as well contribute my own small share to the statements of others. "*Carbo vegetabilis*," says Dr. Bæhr, "has done us not infrequently good service at a period of the cholera process, where most of us are at a loss how to lay hold upon an effective remedial agent. It is indicated at the asphyctic stage, when vomiting and purging have ceased, when there are no cramps any more, the patient lying moreover extremely prostrated—corpse-like. Carbo follows often well after arsenic; more frequently, however, it suits *in cases void of reactionary signs from the very beginning.*"

It is worth while noticing, that the effects of carburetted hydrogen closely resemble the asphyctic stage of cholera. In *Allen's Encyclopædia*, article *Carboneum Hydrogenisatum*, we read actually that it has produced in one man exposed to the gas : rice-water stools, for sometime after the attack.—

Carbo vegetabilis produces hæmorrhage from the bowels—a conditon not very rare in far advanced cholera patients, the intestinal mucous membrane of such patients being in a congested state. We have seen the benefit we may derive in such a contingency from *Mercurius corrosivus*, or *Ricinus* when the discharge is more or less like bloody serum ; *Phosphorus* should here be remembered and in connexion with typhoid symptoms—*Rhustox* ; a discharge of a brown fluid would indicate *Phosphorus*. Similar good results may be expected from *carbo vegetabilis* when the discharge consists of pure blood, oozing out of the rectum. Fetid discharges from rectum would also point to *carbo. veget.* Bloody-serous evacuations during the reactionery fever point to *Rhustox*. It may be that it is in cases where there is internal hæmorrhage that we derive most benefit from the administration of the drug in the stage of collapse.

I see Dr. Raue recommends *Argentum Nitricum* amongst other remedies in the stage of collapse, when dyspnœa is excessive “owing to spasms of the respiratory muscles”—a sort of dyspnœa the drug never produces, and a dyspnœa which is not frequent in the last stage of cholera ; should it occur, then we have in *hydrocyanic acid* a far more reliable, and by far more promptly acting remedy, than in the nitrate of silver. This drug has been shown by the late Dr. V. Grauvogl to deprive the blood of its oxygen carrying capacities ; and Dr. Boglowsky's subsequent experiments on animals fully confirm Dr. Grauvogl's assertions. The salt has a direct and primary action on the red blood-corpuscles, causing their colouring matter to escape into the plasma. This is just what

is taking place in cholera ; and It is owing to this process that the blood of cholera subjects is found to be black, tarry. I should strongly recommend *Argentum nitricum* in a low dilution, say the 3 decimal, wherever the dyspnœa is by far greater, than the state of the heart and the lungs could justify us to expect ; in other words whenever we have ground to believe that the respiratory function of the blood is more damaged, than that of the respiratory organs themselves. This may however remind us of Hydrocyanic acid or its salts (Kali Cyanot. or Sulphocyanide of Potas) ; or again of the snake poisons.

As to the action of remedies in the state of collapse, it is often surprising with what promptness they do act. It might almost be said, no stage is too far advanced as to be pronounced entirely hopeless. But rarely do we find more than a transient benefit as the result of our therapeutic efforts, in advanced stages. To the gravity of the situation there is superadded another difficulty with regard to medical treatment—the difficulty how to select the right remedy. During the progress of a disease the symptoms characterising the pathological condition of the patient are of a positive order ; while in the stage of collapse most of the symptoms are negative in their character ; and even these negative symptoms are by no means easy to interpret.

Having already spoken in former lectures of the various remedies which may be particularly called for in the cholera-collapse, very little remains for me to say regarding their respective indications beyond reminding you that we meet sometimes with cases where after the choleraic discharges are suspended there is a passive, involuntary oozing out from the rectum of a watery fluid of brownish or pale yellow colour, for which case *Phosphorus* will be found most useful.—I distinguish before all between such cases where respiration is carried on with effort, however ineffectual those efforts may be ;

and between such others, where the respiratory act is carried on, in a more or less slovenly indifferent manner.—In the first case the respiratory centres and the pneumogastric nerves are still in full vigor. The dyspnœa arises then, either from the incapacity of the blood to benefit by the act of inspiration ; or from the heart being too weak and inefficient in its action, to keep up the pulmonary and systemic circulation ; or, finally from some spasmodic interference with the act of respiration.

Suppose, the heart still to be in a comparatively efficient state of action ; suppose, at the same time, there is no ground to attribute the dyspnœa to spasmodic disturbances, (the respiration being simply superficial without being laboured) then we are entitled to conclude that the respiratory troubles are solely owing to the incapacity of the blood to assimilate the oxygen supplied. In this case we shall prescribe *argent. nitr.* ; reserving *corbo veget.* for such conditions where no respiratory efforts are made by the patients in which case we might also think of *ether*.

But suppose we find the heart's action altogether weak, unequal to its task, then we shall resort to *aconite* ; a drop of the mother tincture (some would insist that the tincture of the aconite root should be used) in about three ounces of water, of which a teaspoonful is to be taken, every five to thirty minutes, according to the circumstances of the case.—

We administer *aconite* when the beats of the heart are regular ; it is most suitable in the case of young people of robust constitution. There is anxiety, fear of death, a stupid childish expression of the face, much talking and lamenting, although the case on the whole does by no means look so desperate as patient thinks.

Under similar conditions we may use *camphor*, should we be called to see the patient after he had been drugged by allopathic medicines. There is less anxiety about the patient,

although the struggle for breath may be more pronounced.— Presence of spasms, trismus ; cold, clammy sweat all over the body ; no vomiting, no purging. Spasmodic cholera variety prevalent.

Arsenic is called for in any cholera variety, characterised by great anxiety, constant restlessness ; great oppression of the chest.—Paralysis of the heart, even in animals poisoned by arsenic, is preceded, according to Lesser, by slight and transient increased irritability, accelerating the heart's beats. The irritability plus depression is certainly very prominent in arsenic poison, and hence served as clinical indication. We should, however, not forget, as our school seems to have done, that want of irritability is no counter indication should *arsenic* otherwise be indicated. Hahnemann in his lesser writings points to arsenic and the calmness of the victim. Oxylozon cases given above point to the same direction. Great irritability associated with extreme prostration, distinguishes arsenic from any of our drugs. Cardiac action is accordingly found to be more or less irregular.

Hydrocyanic acid, or *cyanide of potassium* does not yield to arsenic as far as the great struggle for breath is concerned. In *arsenic* it is the inspiration which is impeded, in *Hydrocyanic acid* it is particularly the expiration which is spasmodically obstructed. In arsenic difficulty of breathing—there is spasm of the bronchial tubes—consequently difficulty of inhaling. *Hydrocyanic acid* has generally been used as a last resource, when the patient had not benefited by the usual remedies ; in this way, the drug was reserved for such advanced cases where the patient is pulseless ; altogether more dead than alive. Strange to say, even then a man would now and then actually be taken out of the jaws of death by the administration of *hydrocyanic acid*. By means of the before-mentioned characteristic of the *hydrocyanic acid*—dyspœa, you will know

how to make use of the drug in an earlier stage of collapse, and have therefore more chance of saving your patient.—The respiratory centres under the action of the drug under consideration, are fully active to the last ; there are deep inspirations, far deeper than is ever the case under the action of arsenic, where all functions at the last moments are carried on under the impulse of an inefficient excitement. In hydrocyanic acid it is especially the expiration that is labored and inefficient.—Breathing is altogether slow. This slowing of the respiration is also a characteristic of *Secale corn.* The spasm of the diaphragm seems to be the chief cause of the slow respiration. Anxious breath, *sighing and hiccough*, points to *Secale*. The excitement *hydrocyanic acid* produces on the spinal cord causes often tetanus—a state we seldom meet with in the last stage of cholera. But there is a certain spinal excitement, because of the spasm of the rima glottidis, similar to what occurs in chlorine inhalation, often manifest at that very last stage, which takes us by surprise. I have already spoken at a previous occasion of the attempt on the part of such patients to leave their bed and move about, in spite of their extreme prostration. Whenever such an attempt arises from a mere excitement of the motor centres, then the determination to move about is likely to be by far stronger, than the actual capacity to carry it out. It is in such cases that I recommended *cuprum*. But we often find such patients actually gathering strength, getting up, and aimlessly walking about, stopping only short every time they want to take a deep breath. The irritation in their case is spinal ; and *hydrocyanic acid* will often subdue both the irritation of the cord and the spasmodic oppression of the chest. There is however yet another sort of restlessness to be mentioned that has often, in the hands of unobserving practitioners, caused them to administer arsenic, while arsenic was in reality not called for. I allude here to that restlessness and tossing about of a patient

caused by a choleraic stool being retained for a time within the intestinal canal, owing to paresis of the intestinal muscular coat to some spasms of the *sphincter ani*, or to some deficient sensibility on the part of the large intestines towards the accumulated rice-water secretions. Such patients are quiet after the stool is passed. It is not anxiety, but inconvenience that makes them restless for a time and arsenic has nothing to do with the case. The remedies recommended for diarrhœic cholera should in such cases be adhered to. Paresis of the intestinal muscular coat points to nicotine, but nicotine has no restlessness, rather indifference and total depression. Again it may happen that vomiting and purging suddenly cease, when sudden collapse makes its appearance, instead of the hoped-for improvement. In such a case give *hydrocyanic acid*.

I should like very much to see in such cases *muscarin* tried. Restlessness and constant desire to get out of bed, we all know, is a characteristic of *Agaricus Muscarius*; it is owing to excitement of the motor nerves, and is accompanied by increased muscular force. It produces besides great constriction of the chest. But the analogy between it and cholera does not stop there. Let us hear what Lauder Brunton has to say about *Muscarin*. "*Muscarin* affects especially the heart and intestinal canal; it produces uneasiness in the stomach, vomiting, purging, a feeling of constriction in the neck, want of breath, giddiness, fainting, prostration and stupor. . . . respiration is depressed in proportion to depression of the pulse. . . It lessens urinary secretion, even to the point of suppression; it contracts the pupils. . . Muscarin has a singular effect on the pulmonary vessels. Schmiedberg had noticed that muscarin produces intense dyspnœa. A condition in which the arteries contain very little blood, scarcely bleeding when cut across. This dyspnœa has been shown by experiments on rabbits to be due to the *muscarin* causing

strong contraction of the pulmonary blood vessels, so strong that the lungs become blanched, and, owing to the contracted state of the pulmonary blood vessels, the right side of the heart becomes greatly distended."*—Now this is just a state as Dr. Goodeve found to be characteristic of cholera, and by which the asphyctic stage of cholera is marked and distinguished from the usual, gaseous asphyxia. I am not aware of any drug of which we could positively say that the dyspnoea it produces is due to contraction of the pulmonary vessels, with the exception of muscarin and nicotine. Concerning the latter drug we have the testimony of Dr. Richardson in his book on Modern Diseases, a book I have not just before me.

Muscarin has a second stage which may not less find its counterpart in some modes of Cholera-collapse. In the fifteenth volume of Ziemssen's *Cyclopædia*, Dr. Von Bœck writes concerning this drug: "The action of this poison generally sets in with more or less violent colic, accompanied with vomiting and subsequent diarrhoea. It is left to clinical experience to decide in how far this succession of symptoms may serve as a guide in the *treatment* of cholera cases. To these symptoms are added arterial disturbances: the patients think they are drunk, become violently excited. . . Then a state of sopor gradually sets in, in which the excitability of the sensory and reflex nerves is more or less lowered and quite destroyed. The pulse is as a rule retarded, the arteries are constricted, the pulse becomes threadlike, the respiration is generally short and stertorous, the pupils are dilated, the extremities and the features are cold, and death may supervene from progressive loss of cardiac power."

Muscarin should certainly prove a great remedy in the cold delirium occurring sometimes in cholera collapse. Carbolic acid produces *collapse* with *delirium* (see Burnton's Pharmacology).

* Dr. Ringer's *Handbook of Therapeutics*.

logy p. 737) and should have the first trial in all such cases, where *delirium* and not motor excitement is the chief symptom accompanying the collapse. *Arsenic*, *Camphor*, *Cantharides* are, each of them in their own way, homœopathic to cold delirium. As to arsenic it need only be mentioned here that delirium is one of the symptoms which we find often mentioned by Allen in cases of poisoning. Clinically I should advise Calc. ars. where cold sweat on the forehead is prominent; *antim ars.* when the delirium is associated with dyspnoea. Camphor is characterised by clammy sweat all over. Canthar. if the delirium either is quiet bordering on coma, or that there is a sign of setting in or having set in of uræmia. On the whole I think we should not leave *muscarin* untried in some of the phases of collapse to which it is undoubtedly homœopathic. Remembering that Agar. Musc. is homœopathically indicated and has clinically proved useful in various disorders affecting drunkards, we should think of *muscarin* in cholera cases of habitual drunkards. It is so difficult to break through routine practice. Muscarin deserves a place next to Veratr. alb. I should say, in diarrhœic cholera. It is worth noticing as an indication of our toxicological ignorance, that Atropine antidotes Muscarin, while it does not "antidote" cholera.

The restlessness in the cold or reactionary stage of cholera is however not always of spinal origin; often it is reflex, proceeding from intestinal irritation; in such cases may even be accompanied by cerebral symptoms. This state is often met with in children. *Cina* is here the great calmer, may there be a history of worms connected with the case or not.

And there is one other drug worth mentioning in connexion with general restlessness; it is a drug rarely called for so long as the choleraic state with its grave symptoms is prevalent, but so much the more indispensable at the stage of partial reaction. I speak of *Cina*. The restlessness in such cases is owing to reflex irritability, starting from the abdominal

viscera and spreading over the cerebro spinal system. Children are most liable to this sort of irritability resembling meningites. They toss and roll about—either the whole body rolling from one side to the other, or the head only—; are exceedingly peevish ; do not want to be touched or spoken to nor to be approached even ; they cry out in sleep and awaken every now and then from a short slumber in a state of anxiety ; feel nauseous or vomit slimy matter, pass watery or slimy stools, often accompanied by profuse irritation, and are cold in the face after the body has already resumed its natural temperature ; to judge from the touch—all *Cina* symptoms. And this is often a group of symptoms we meet with after the choleraic attack is over and reaction is expected. A history of worms is so much the more pointing.

We administer *Lachesis* or *Naja Tripudiana* (*cobra*) when respiration quickens, becoming at the same time more and more superficial, while the heart's action is normal, and still comparatively vigorous. This sort of respiration is a sure sign of impending paralysis of the respiratory centre, and coincides in so far exactly with what occurs under the venomous influence of snake poison. Sometimes it may not be the centre that is affected, but the laryngeal nerve may become paralysed (comp. note p. 3.) in which case *Naya* should have the preference, as it has a specific paralyzing action on the larynx. Dr. Sircar on the strength of some faulty theories, asserted some years ago (see my *Medical Controversy* 1869) that he has seen good results in some cases from the administration of *Cobra* in the algid stage of cholera. The patients in his cases may have been suffering from laryngeal paralysis. Difficulty of swallowing, as a sign of setting glosso-pharyngeal paralysis, may perhaps give us the first warning of a threatening laryngeal paralysis (see p. 3).

Whenever there is dyspnoea without any proportionate efforts of respiration, there we may be sure, that the respiratory

centres are involved in a state of impending paralysis. Usually we find at the same time the brain similarly affected. *Tartar emetic* is here clearly indicated, as I have fully explained in the previous lecture.—On how far *Antimonium Arsenicosum* may be of use in some undefined cases, standing between *Ars.* and *Tart. emet.* experience alone can teach. Ether should in such a case be thought of, not as a stimulant but as a homœopathically acting agent (see note p. 225). I can give no particular indications for nicotine; it appears to me to be in many respect a similar to the paralytic stage of cholera collapse; taking especially into consideration what I mentioned before with regard to Dr. Richardson's remarks. I should administer it whenever tartar emetic fails; especially if the comatose state is not associated with cerebral paralysis.—Tympanites would be an additional indication. I believe I have already stated, that it is Dr. Buchner who pointed to nicotine in the so-called paralytic stage of collapse.

The administration of Ammonia by old school practitioners is an unconscious piece of homœopathic practice, as I have pointed out some years ago.

“The stimulant property of this drug is so well established, and so often made use of in practice, that the rationale of its physiological action on men and animals, is quite put out of view, and entirely left to works on toxicology. When we, however, refer to these works, we come to learn quite a different tale about the heart-stimulating power of ammonia. The experiments of Mr. Blake as quoted by Christison, show that ammonia introduced in large doses into the veins, acts by suddenly *extinguishing* the irritability of the heart. Small doses first *lower* arterial pressure from debility of the heart's action, and then increase it by obstructing the systemic capillaries. When injected into the aorta from the axillary artery, it causes great increase of arterial pressure, owing to the latter cause, and then *arrests the heart while respiration goes on.*”

Ammonia might then be of service to us, homœopaths, in cases where the heart's action begins to fail, while respiration is still, comparatively speaking, in tolerable order. Its indications are in this respect the opposite of those of *Lachesis* or *Naja*.

In impending cardiac paralysis with great somnolency—in the pure type of paralytic cholera collapse—we may find, besides *tart. emet.* and *nicotine* another suitable remedy in *choloral*. I can give no special indications.

Concerning the various cerebral symptoms during the state of collapse some of them may be owing to localised hyperœmia, others to localised or general anœmia, others again to impending paralysis. The absence of urinary secretion and the consequent uræmic poisoning is however by far the most important factor in the cerebral disturbances as seen in cholera patients. It is generally supposed that uræmic symptoms are likely to set in during the stage of reaction; but in grave cases there is no saying where collapse ceases and reaction begins. The thermometer might show a rise of temperature; but yet, if we look upon the patient as a whole, we could hardly say, he is so much the better for it. In fact a rise of temperature may often be a forerunner of that post-mortem rise of temperature of which mention has been made in the second lecture. But even where this is not the case the rise of temperature may be a mere depression of an attempt towards reaction, than a wholesome reaction; the gradual return towards an equable circulation being interfered with by congestions in different vital organs: the brains, the lungs, the abdominal viscera, the kidneys. The secretion of urea which had been in abeyance during the purging and vomiting period, is beginning to be re-established, but there is yet no outlet for it, for the urinary organs have not yet adequately taken up their suspended function, and so it may come that, instead of gradually improving, the patient

sinks again in a comatose state, with delirium and even convulsions. Vomiting may set in afresh under such circumstances. Now the gravest mistake you can ever make in such cases is, to recur to such remedies as *Opium*, *Belladonna*, *Hyoscyannus*, *Stramonium* and I add, without hesitation: *Cantharis*. None of these remedies has any direct action on the blood; they have each of them a specific local action, and may as such prove useful as auxiliary remedies, but are unable as such to cope with a disorder that is the expression of general exhaustion and impaired organic nutrition.

I must refer you for all further considerations on the subject to Dr. Buchner's essay on Bright's disease, and shall content myself to say that he considers arsenic as the foremost remedy in the comatose, *cuprum* in the convulsive, and *hydrocyanic acid* and *nicotine* in the asphyctic form of uræmia. Cuprum arsenicosum 2nd or 3rd decimal trituration has shown most favourable results in convulsive uræmia. Ammon. Carb. is another remedy to be remembered. There is drowsiness, large rales in the lungs, cyanosis. All this apparently reminds of Tart. Emetic but this drug is no hæmatic poison, and should give place to Ammon. Carb., which has a decided action on the blood, over and above the symptoms it shares with Tart. Emetic. To this I would only add *Carbolic acid*. According to Dr. Brunton Carbolic acid appears to be a powerful poison to all the tissues, paralysing both muscle and nerve, without previously stimulating them. It should therefore be our great remedy *in the collapse of paralytic cholera*. I cannot speak from experience, but I venture to predict that it will, clinically, prove useful, where aconite and its before-mentioned congeneries fail. After death, the blood of carbolic acid victims is found to be very dark, and its coagulibility greatly diminished. A study of the Carbolic acid in the *Cyclopædia of Drug Pathogenesis*,

will persuade every one that we ought to have made better use of the drug than we have hitherto done. Even in the collapse of diarrhœic cholera I should say Carbolic acid should prove useful where Carbo. vegetabilis fails. It should however not be administered in the collapse of spasmodic cholera, unless such remedies as *Camphor*, *Tartar emetic*, *Cuprum* and *Cuprum Arsenic* or *Hydro. Acid* have failed. And this should even be the case with regard to Carbo. veg. From the aforementioned *Cyclopædia* it is to be seen that Carbolic acid has the great centre of organic action: the brain, the lungs and the kidneys. It has altogether a great resemblance to Tart Emet. and should be a helpful complement to the latter drug. Antipyrine and Antifebrine look, both of them most temptingly as claimants for the treatment of choleraic collapse; but neither of them has any directly injurious action on the blood. They act on the calonic and respiratory centres, and should therefore clinically stand far below Carbolic acid or Tart. Emet. if they are entitled at all to a place amongst choleraic remedies. I have tried Antipyrine twice with no result. In some malarial fever cases where the temperature varied every day between 92°F. and 105.6° the administration of Antifeber 3X gradually regulated the temperature on both sides, while Carbo. veg. did nothing. Knowing this, there is hardly any ground for us to drop our cholera remedies just at the most critical moment, and to run off with such symptomatic drugs—I cannot call them remedies in our present case—as I have enumerated above. The difference between *Arsenic* and *Cuprum* is clearly understood by the very statement that the one is useful in the comatose, the other in the convulsive form. With regard to the two other drugs mentioned, I quote here from Dr. Buchner:

Nicotine and prussic acid are very nearly alike in their asphyxiating power, suspending the oxygenation of the blood; but the result of this inanition of oxygen differs according to

the organs homologous to each of them. The want of oxygen expresses itself first, and especially with *Hydrocyanic acid* in diminished energy of the activity of the heart. The beat of the heart is accelerated with a full and soft pulse, with a gradually slower and weaker motion of the blood, stagnation of blood follows in the heart and lungs, palpitation with indescribable anguish and oppression of the chest, venous accumulation of the blood in the abdomen and liver, depression of sensibility of the irritable organs, manifestation of the greatest relaxation of the nerves, first convulsion, then paralysis of the muscles, extreme apathy, also thick fluid, oily, blue-black blood, anxious, labored respiration, slow moaning breathing, tracheal rattling, laryngeal paralysis or sudden paralysis of the heart. It is here where *Naya* may be of great use. Homologous to nicotine are the abdominal portion of the sympathetic and ganglia of the base of the brain with the medulla oblongata. Nicotine uræmia is therefore distinguished next to its asphyxia, which is of double origin (cardiac paresis from weakened function of the vagus from the medulla oblongata, and paralysis of the blood-globules from carbonate of ammonia), especially by torpor of abdominal ganglia, or paralysis of some plexus of the sympathetic, e. g. of the diaphragm, and we find therefore as the most prominent phenomena of *nicotine*—uræmia, thirstlessness, absence of all reaction, indifference to everything even to death, cold forehead, absence of vomiting and of diarrhœa in spite of copious transudation masses in the abdominal tract, more or less total paralysis of the intestinal coats and of the muscular coats of the arteries, absence of all secretion from liver and kidney and death, far quicker than in any other form of uræmia. On another line it is under such and similar conditions that I cannot too strongly protest against abandoning our cholera remedies. *Camphor*, *Secale cornutum*., *Tartar Emetic*—they have all an obstructing action on the urinary organs, and make by

far better auxiliary remedies, than *cantharides*, *terebinthina*, &c. which remedies should only be used after the chief danger has been subdued; although it is more than likely that, should we have succeeded in accomplishing this task, then the function of the kidneys will manifest itself, without any further medication. Again, remedies like opium, hyosciamus &c. may have their place when reaction is properly established, when urine has been passed, yet there is some cerebral congestion, with more or less pronounced febrile symptoms—a condition chiefly concerning the cerebral blood-vessels—Often we find, especially in children, symptoms of stupor, even after urine has been passed. In such cases it may be owing to hydrocephaloid; the pupils are dilated.—Helleb. Nig., Sulphur, Calc. phosph. (vide Korndorfer's clinical Materia Medica) and perhaps Apocyn. Cannab. may then be called for; and so may *Zinc. China*, to be followed by Calc. Phosph. if the first is insufficient or inactive, which might represent the general plan of treatment provided none of the other drugs just mentioned, are distinctly called for.—*Idoform* (see Burt's Physiological Materia Medica) should not be forgotten in Hydrocephal. The indications for Sulph. and Helleb. are given in Korndorfer's Clinical Materia Medica. *Cina* is another remedy which deserves study in connexion with the above. In typhoid symptoms accompanied with tympanitis and absence of urine, we may however fairly think of *Terebenth.*

In the torpor ensuing after the Choleraic stage has passed, we should be careful to distinguish between a possible state of hydrocephalus and hydrocephaloid. In the first there is serous effusion, in the second the symptoms are owing to cerebral anæmy. It is especially in children where we meet with such cases. Concerning the treatment of Hydrocephalus, a number of remedies has been mentioned before. Hydrocephaloid begins with excessive restlessness and ends with torpor and exhaustion.

This excessive restlessness may be owing, as far as I understand it, either to an unequal distribution of the blood that is still left in the patient—the chord being congested (and consequently irritated) at the cost of the circulation of blood in the cerebral region; or the restless twitchings and actual convulsions may be owing to a deficient inhibitory action on the part of the anæmic brain. The decision between the two possible causes is not easy. So much I may say: *Cicuta virosa* should be administered where there is suspicion of spinal congestion, while muscarine is an excellent remedy when the restlessness is owing to insufficient cerebral inhibition. Again if the case is diagonised as hydrocephalus our attention should be directed to stop the effusion by such remedies as Calc. phosph., Helleb., Apis, &c. While in the case we have to deal with—Hydrocephaloid—the application of such remedies would be a mere loss of time: we cannot give blood to the patient by administering a drug. Our *Materia Medica* has no such drug which may be transformed into flesh and blood. All we have to do is to remove such conditions which interfere with nutrition; to promote the voiding of the urine when the bladder is found to contain urine; and to spare the patient's strength by administering such remedies which prevent the nervous waste manifested by a state of utter restlessness. If we succeed in all this, the cerebral anæmy will gradually disappear.

As a rule the discharge of urine on the part of a cholera patient is to be taken as a sign that the cholera process is at an end, that metabolism of the organism has set in in a normal manner. Amongst the many vagaries of cholera I had however occasion to observe, especially in the winter season of 1889-90, cases where the excretion of urine was, if anything, rather a foreboding of death. In fact one of my patients died immediately after passing water. They died all with unmistakable symptoms of uræmia. Dr. Kany Lall Dey, former Chemical

Examiner to the Government of Bengal, analysed a few specimens of urine, passed by patients, who sooner or later died of uræmia, and compared it with the first urine of such other patients who survived the attack, the passage of urine having shown the first sign of improvement. He found that the specimens of urine of the former class were of a specific gravity = 1,000, without any salts or coloring matter ; it was to all intents and purposes simple water, while the specimen of the other class showed to have a specific gravity of about 1,020 and contained the usual elements of urine with excess of oxalic acid and epithelial cells.

I have been particularly requested to give ample indications for the treatment of hiccough, a disorder of a most troublesome nature, and by no means insignificant, liable to occur with more or less severity and presistency, at the time when reaction is about to set in, or has already set in. My impression is that when practitioners do not succeed, they have to ascribe the failure to themselves. As a rule the patient is altogether forgotten in such cases, and the hiccough alone is treated. Why run after such remedies as *Ignatia*, *Nux Vom.*, *Cicuta*, *Belladonna*, which have no relation whatever to choleraic patients ?—But the patient, it might be said, is in a state of reaction, he is no more a cholera patient.—Well, is the physiological action of our cholera remedies not also followed by a reaction ?—Do you think that a man who has been poisoned by *veratrum*, and has been actually brought thereby to a state of collapse—do you think that such a subject recovers without any transitory reaction ?—Just look at our *Materia Medica*, please, and you will see there all the phenomena of a reaction clearly depicted under each drug's pathogenesis. Why then run off the line in search after new therapeutic agents ?—*Veratrum*, *Cuprum*, *secale*, *carbo vegetabilis*, *arsenic*, *cuprum* and *strychn. ars* ; also *Ars. Iod.* when there is much wind, *tabacum* and its alkaloid *Nicotine* and *hydrocyanic acid*, also

Agaricus and its alkaloid *Muscarine*, they have all hiccough amongst their pathogenesis, and succeed far better—I speak from experience—than such far fetched drugs, that may have beneficial effects in hiccough occurring in common disorders of indigestion, or spasms, but that have for all that not the slightest relation to the case before us. Hiccough may either be centric in its origin, in which case the seat of irritation is either at the base of the brain or in the cerebral portion of the spinal cord ; or, secondly, the seat of the irritation may be somewhere along the course of the phrenic nerve, or at its peripheral extremity ; or, thirdly, the irritation may be reflex. Besides this hiccough has often been observed in protracted cases of anæmia ; the irritation, in such cases, is supposed to be central, brought about either by insufficient nutrition (*Cuprum. Veratr.*) by the retention of impurities in the blood owing to a defective tissue metamorphosis, such instance as is met in the last stage of Bright's disease where the blood is surcharged with urea. This will explain the frequent occurrence of hiccough in cholera. Two drugs particularly known to give rise to hiccough are : *Tabacum* and *Alcohol*. Amongst those who first try to smoke tobacco hiccough is a troublesome symptom.—The drunken man is so well known as afflicted by hiccough, that he is never caricatured without his companion.—We should certainly first of all try in cases of hiccough a few drops of rectified spirit often repeated. *Sulph. acid* prominently produces hiccough and should be remembered. *Oxalic acid* should certainly find a place as a hiccough remedy in cholera collapse.

Similar remarks apply to treatment of the reactionary fever.—There was a time when a cholera patient was looked upon as three quarters saved when he had once reached the stage of reaction. Not so, since a few years ; even in these matters the type of the disease has changed of late, at least in Bengal. In fact, people have learnt to dread the stage of reaction

almost more than the stage of collapse.—What lessons are we to learn from this, concerning our therapeutic proceedings?—It appears to me, that we must begin to look upon these fevers, as they occur after the cold stage of cholera, as a part and parcel of the cholera attack itself, and arrange our treatment accordingly. Of all the drugs, *Belladonna* is the most misused on such occasions. Let us use *Veratrum* instead or, better yet, *Euphorbium* which acts similar to *Veratrum* on the digestive organ and, at the same time, similar to *Belladonna* in regard to cerebral congestion. The late lamented Dr. Hering, who had felt years ago, the ill use *Belladonna* is put to by practitioners of our school, says: “Both (*Belladonna* and *Veratrum album*) are often indicated in typhoid fevers, it is true, in widely different cases, but sometimes the choice is difficult, particularly as *Belladonna* is equally applicable in apparently opposite states. Both have apathy, stupor, unconsciousness or great sensibility to noise and also to light; dislike to talk, except in delirium; (the latter sometimes is furious); great fearfulness; eyes dim and glazy, face pale or by turns red and hot, distorted features, sudden startings in sleep, grinding of teeth; both have much thirst, frequent drinking, but only little at a time; the mouth dry, saliva lessened; diarrhoea; involuntary discharge of the fæces and the urine; both have nymphomania and other uterine affections in common. With both the head is often turning hot, while the limbs are cold; both have an aversion to being covered, both indicated particularly in children and women &c. *Veratrum* has a great similarity with *Lycopodium* in typhoid complaints of children; *Belladonna* with *Rhus* or *Calcarea*.”—Where there is so much similarity, I should say the decision should in most cases fall on the side of *Veratrum*, in post-choleraic fevers; especially as the signs of cerebral inflammation, so characteristic of *Belladonna*, are entirely absent in this class of fevers. In fact this characteristic absence of inflammation by

itself, should suffice to determine our choice in favour of veratrum ; but we cling to routine and prescribe Belladonna.

The febrile symptoms brought on during a camphor reaction are very marked, and typhoid in appearance ; and so are the cerebral symptoms occurring at the stage of camphor-reaction. Hahnemann actually has put on record the great benefit he derived from the administration of camphor, in a prevailing type of intermittent fever. Yet who ever thinks of administering camphor at the febrile cholera reaction.—I have shown before, that cuprum has no less typhoid fever amongst its pathogenesis ; the cerebral irritation it causes, is well known in our school, not to be attended by *any traces of inflammation* but it seems that there prevails a common and most erroneous impression, that remedies suited for the cold stage of cholera could no more be suitable to the opposite stage of febrile reaction.—So long as the reactionary fever was in itself a sort of salutary transition from disease to health, it did not matter much how the patient was treated at that stage. When the fever constitutes, however, as it has been of late the case, a pathological disorder of its own—in fact the final issue of cholera ; then none but the properly selected homœopathic remedies can be of any help, and they can certainly not lie far away from the range of cholera similars. Again some wisecracks of practitioners would fly to the administration of *Cina*, never mind what may be the matter with the patient, as soon as they discover that the patient bores at his nose. Let them remember that veratrum has also that symptom.

Of non-choleraic fever remedies, *Rhus toxicodendron* and *phosphoric acid* have always maintained a reputation as beneficial in the reactionary fever. *Bryonia* and *Baptisia* are very rarely of much use ; there is however no saying what may or may not be indicated in a certain case or epidemic, for each

such case or epidemic must be treated on its individual merits. —The febrile condition calling for *Rhus* is usually associated with restlessness, while dullness and apathy characterise the phosphoric acid patient. The indications for *veratrum*, *cuprum*, *secale* and *camphor* have been given in the course of these lectures. Colchicum may be called for in typhoid conditions with great tympany, body hot, extremities cold, stools flaky.

Local complications require specific organic remedies. *Phosphorus*, *Tartar emet.*, *Carbolic acid*, in congestion of the lungs. *Cuprum*, *Nux Vomica*, *Arsenic* (high dilution), *Ipecac.*, in gastric irritation. Excessive acidity we try to combat by *Nux Vom.*, *Calc. carb.*, *Calc. ars.*, *Robinia*, *Pseudo*, *Rubra*, *Iris vers.*, or *Eupatorium Perfol.* And last, though by no means least, *Strychnos Arsenicosum* should be thought of in all cases of extreme gastric irritation and rejection of anything taken, during the reactionary stage. I have found it successful when all other remedies failed. This excessive acidity is the consequence of a reactionary process. The choleraic evacuations being alkaline we may consider cholera at an end with the advent of acidity, in the stools or in the vomit. Nevertheless it would be unwise to leave the patient without further medical assistance the moment such acidity makes itself felt, subjectively or objectively. Experience teaches that reaction in excess is just as dangerous to life as the original disease. If my plan, as suggested before, is to be carried out in practice and *Kali Ars.* is to be given during the whole cholera process, where we now are in the habit of giving Arsenic, then Arsenic (which means *Arsenious acid*) might be given from the moment acidity makes itself felt, I say again, subjectively or objectively, as shown by test-paper (Comp. pp. 122-123.) *Cantharides*, *Terebinthina*, *Carbolic acid* and last, but by no means least, *Camphor*, in congestions of the urinary apparatus, nausea after drinking water with or without sour vomiting reminds one of *Natr. cores.* which

should be superior to *N. com.* usually given in such cases, fetid stools often call for *Psorinum*, and so on. Retention of urine with a full bladder causes often great restlessness. The Catheter may be applied in such cases: Camphor externally and internally: Cantharides and, last but not least, *Petroselin.* Cerebral congestion may require *Hysciam., Cuprum, Camphor, Cantharides.* Cerebral paralysis, not associated with Coma: *Lycop., Zinc, Zincum phosph.* and *Baryta Mur.* when associated with Coma: Arsenic, Opium, Chloral. With hydrocephaloid symptoms: *Helleb., Calc. Phos. and China.* For all particular indications for the right and proper use of these medicines I must refer you to our standard works on *Materia Medica* and *Pharmacodynamics.* For the diarrhoea occurring at the febrile stage I have found either *china, phosphorus, croton tiglium, podophyl., mercury or Merc. sulph.* most frequently indicated.

China: more or less flatulence or extreme tympanitic extension of the abdomen; stools painless, yellow, liquid, sometimes fetid, liable to come on after eating or drinking; tongue coated, white or yellow, bitter taste: extreme weakness; coldness of the prominent parts of the face, nose, ears, cheeks.

The diarrhoeic stools of *phosphorus* and *croton* have been described before.

Mercurius. Stools green, watery, slimy, with or without blood streaks. (Let it be remembered that *Tereb.* has watery slimy stools.) Bad smell from the mouth; region of liver painful to contact; presence or absence of tenesmus.

Mercurius Sulph. Stools of the same consistency as the cholera stools (rice-water stools) but yellow.

Gratiola. Yellow stools persisting yellow vomiting, excessive thirst, which appears to complicate the gastric disorders.

Lastly I would remind you of *oleum ricini* which might find a place in some cases of diarrhœa, not coming under the above designations.

It is bad practice to alternate remedies in this stage. The remedy should be so selected that it suits both the fever and the diarrhœa.

Stools resembling bloody serum, point to *Rhus tox.*, *Ricinus.*, *Phosphorus*; dysenteric stools, to *Cantharis*, *Merc. corrosivus*; hæmorrhage from the bowels to *carbo veget*; discharge of black, liquid blood to *Elaps.*, *Arsen. Hydrogenis*. This latter drug has bloody stools with scrapings, or stools like flesh water, with scrapings. Such stools occur often at the end of the rice-water stools, just about the time when reaction is to set in; there is congestion towards the pelvic region with burning in the urethra and tenesmus—all this points to *Cantharis*; the *scrapings* distinguish the cantharides from the *Merc. cor.* stools.

I would particularly draw your attention to the following statement of Dr. Macnamarra which has but too frequently been verified in practice.* "Another complication incident to the stage of reaction, which seems to me more common amongst the natives of this country than among Europeans, is the formation of a clot in the right side of the heart, usually extending into the pulmonary arteries. The patient seems to be doing well, when, suddenly, difficulty of breathing comes on, followed by collapse and death. I have seen more instances of this kind during the present season (1869) than I remember on any former occasion, and they render one extremely cautious in giving a prognosis, even in cases which, to all appearance, are doing remarkably well."

The nature of this most unpleasant incidence is so, that we can hardly provide against it. Dr. Buchner states that

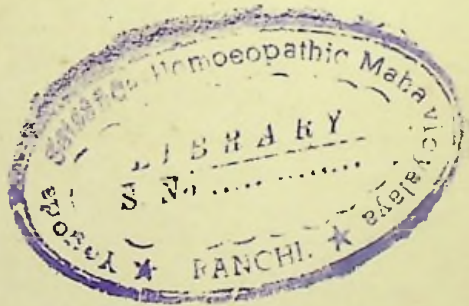
* *Treatise on Asiatic cholera*, P. 450.

calcareo arsenicosa prevents the formation of coagula, I cannot say by what mode of reasoning, or by what sort of clinical experience he arrived at that conclusion. The formation of a clot in cases of cholera is not owing to formation of coagula, the fibrin being in all cholera cases conspicuous by their absence ; it is owing to a fusing together of the red blood corpuscles, because they have lost their corpuscular structure and power of coagulation. I have however taken the hint, and found that *calcareo arsenicosa* 6th to 12th is certainly an excellent restorative in the asthenic sequelæ of cholera.

In this season (1886-87) death in consequence of embolism is very frequent : formerly we heard it exceedingly seldom that a cholera patient died suddenly, now half of them, I should say, *die in this manner*. The patient is apparently doing well, vomiting and purging have just ceased, or are about to cease ; he gets somewhat warmer and is quiet ; we should expect a gradual reaction, while all of a sudden the patient gasps his last. Or he turns to his right or left side, and is thought to fall asleep. While he is, to the surprise of those around him, found dead.—Are we, at such a season, to administer *Calc. ars.* when the urgent symptoms of vomiting and purging subside, as a sort of prophylactic ?—Are we to pin our faith to *Calc. ars.* to the exclusion of all other remedies, along the whole cholera treatment.—These are two important questions, which can only be answered by a third one ; what has clinical experience to say to all these suggestions ?
—15th January 1887.

Teribenthina is said to be a coagulator of blood, so are the salts of iron. Should we employ *Ferrum arsenicosum* ? Should we administer *Tercb.* in cases where it is considered advisable to do something to bring on the secretion of wine ? Lastly we should not forget *Ammon. Carb.* which is said in Allen's Hand Book of Materia Medica and Therapeutics to

be useful in cases of a threatening clot forming at the heart. *Ammon Carb.* is however known to be a solvent of fibrine at least in its primary action. Are we then to apply it in large doses on allopathic principles ?



APPENDIX I.

FEEDING OF CHOLERA PATIENTS.

THE Third Meeting of 1883 was held at the Medical College on Wednesday, the 14th March ; Dr. Coates presiding.

The Secretary read a paper by Baboo Brajendra Nath Banerjee, L. M. S., on the Feeding of cholera patients.

The whole world is no doubt thankful to Dr. Graves because "he fed fevers" but now-a-days many medical men have gone to the very extreme of this maxim of feeding patients suffering from all kinds of diseases. It is true that the more extensive and precise knowledge of pathology of certain diseases has enabled us to estimate the amount of waste that takes place in such diseases and the amount of nutriment required to build up the consumed tissues, but it is a bad practice to push this maxim in all diseases.

In our country the *kobirajes* still fast patients throughout the course of their diseases. I know a case fasting for 26 days. I can with great satisfaction recount scores of cases under the treatment of the *kobirajes* in which only the water of the holy Ganges was allowed as a drink, and which were afterwards saved by judicious feeding. As in the case of stimulants so in the case of nourishment we are apt to go to the opposite extreme. Many practitioners boast that in 24 hours they have been able to administer so much brandy and so much soup without ever thinking how much of these are actually necessary to support the patient and how much of them can be tolerated and digested by the diseased persons. In many cases delirium and diarrhoea are the result of over-feeding—rather of over-loading the stomach. But in no case does food produce so much harm as in the collapse stage of cholera.

Surgeon-Major T. M. Lownds, in his notes on cholera feeding in the *Edinburgh Medical Journal* (reprinted in the *Indian Medical Gazette*,) says that cholera patients must be fed in the collapse stage.

He enumerates several instances in which he saved the lives of patients suffering from the collapse stage of cholera simply by judicious feeding in the shape of soup, &c. He asks, how is it possible that in the circulatory system can be replaced the vast amount of fluid holding albumen, extractives and salts in solution, poured out from the blood? In support of his views he quotes several authorities, more especially Lebert. Before accepting Dr. Lownds' recommendation I shall first very briefly examine the pathological condition of the collapse stage of cholera, and then try to show that it is injudicious to feed cholera patient in this stage. My opinion is based both on theoretical and practical grounds. Many cholera patients recover without getting the collapse stage; few get into it and recover, but most of them never rally from this stage if the doctrine of feeding is carried out. Now in this stage, the alimentary canal is denuded of its epithelial covering. On account of this denudation the functions of absorption and exudation are disturbed. In health there is a standard relation between this absorption and exudation. In cholera this relation is disturbed partly on account of the denudation of the epithelial lining and partly through the nervous shock. As I have already stated, that only a few cholera patient recover from the collapse stage if they are fed, let me now ascertain why such is the case. Why such patient sometimes recover is known to those who have taken pains to study this stage. If we all agree that the serous discharge in cholera is due to the denudation of the epithelial lining and the alteration of the standard relation between the function of absorption and exudation (whatever may be the proximate cause of all this), then we can explain why in partial collapse judicious feeding may sometimes not do any harm. It is agreed by many pathologists that the wholesale denudation or destruction of epithelium does not occur in all cases, nor does the standard relation between absorption and exudation change altogether. These are then the cases which may recover when judiciously fed. But such cases recover as well when not fed at all. The amount of nutrition required in these cases is very difficult to determine, partly because it is impossible during life to guess the amount of absorbing surface

still intact and partly because of our ignorance of the amount of digestive fluid available at this time.

In feeding this class of cholera patients we incur two kinds of danger :—

1st.—We may further destroy or injure the epithelial lining.

2nd.—By irritating or rather stimulating the already irritated lining we may bring on a relapse either of all the symptoms or only of nausea and vomiting.

The possibility of these two kinds of danger has been verified by many eminent physicians. Some of the authorities which I shall quote presently do not advise feeding in any form of the collapse stage, simply because of this reason I believe.

Dr. Lownds quotes Lebert to support his statements, but I think the quotations from Lebert in his paper are rather against his theory.

Lebert in Ziemssen's Cyclopædia says that feeding must be resorted to gradually when the temperature begins to rise gradually. Mr. Macnamara gives no direction for food during collapse. He waits for reaction and gives arrowroot or sago, for the first two days after reaction. He gives soup on the 3rd day and directs avoidance of alcohol. Dr. Aitken says nothing about dietetic support during collapse stage of cholera.

Lebert says *1st*—that the rice water discharges from the stomach and intestinal canal have carried off a large amount of water, albumen and extractives from the blood; *2nd*, that the blood is so much inspissated that it circulates with difficulty, and this causes at least in preventing its due and accustomed aeration in the lungs; *3rd*, that the stomach in collapse is commonly, or not infrequently, contracted, and cannot perform its mechanical part in digestion, that it has no epithelial lining or covering to elaborate gastric juice so as to form peptones; *4th*, that the secretions of all the glands of the intestinal canal are in a state of entire abeyance, or at least so much so that none of the ordinary glandular products are available for the selection or change of ordinary articles of food; *5th*, that the state of collapse is in a great or perhaps the greatest measure due to thickened state of the blood, and that in all probability the muscular cramp is due

to the same cause. It must be evident (putting aside all question of the vital action of cells) that osmosis will take place more rapidly in cholera than usual, as the density of the blood is so much increased—the solid constituents of cholera blood being 34 per cent. as the average of the 5 analyses recorded by Simon; the solids of healthy blood being 20 or 24 per cent. by the estimation of the same author.

Now in the 3rd and 5th places what Lebert says is exactly the state to be found in the collapse condition of cholera. Then how it is possible for the contracted, irritated, and raw stomach denuded of its epithelial covering to undergo processes of elaboration and absorption when any food is introduced into it? Is it possible then that any food ingredient will undergo the necessary changes to be assimilated into the blood? Lebert argues that osmosis will take place more rapidly in cholera than usual, as the density of serum of the blood is so much increased. I admit that osmosis is very rapid in cholera, inasmuch as we evidently see that all the moisture of the body is being absorbed by the blood vessels and secreted by the intestinal vessels with the cholera dejecta. But Lebert has not shown that any fluid from the alimentary canal of cholera patients can be absorbed rapidly. Here I believe that the laws of osmosis do not hold good, because the normal conditions favourable to osmosis have been changed on account of the pathological lesions. I therefore argue that, in order to absorb from the stomach, its epithelial lining must remain unirritated and intact. All physicians know that in cases of severe cholera when the whole tract of the epithelial lining of the alimentary canal has been destroyed, all food and medicines administered appear in the stools unchanged. It is for this reason also that the medicines do not prove of any avail. Again for the same reason stimulants fail to stimulate the patients. It is for this reason too medicines, stimulants and food instead of proving beneficial, actually cause or increase the mischief by becoming irritants. Cases in which the absorbing surface is destroyed partially are those which are amenable to medicinal and dietetic treatment.

It is in the stage of reaction that feeding is to be resorted to gradually. Even in this stage if stimulating food or food in large quantity be given injudiciously, either relapse or congestion of the brain takes place. I have seen cases ending fatally simply because of injudicious feeding in the reaction stage. We should in the first place see that though food is absolutely required to support cholera patients, it is still inadmissible simply on account of the peculiar pathological condition of the alimentary canal. Though cholera is essentially a blood disease, it affects and upsets the alimentary canal more than any other organ. How is it then possible for a deranged and upset organ to perform its legitimate function until it is repaired and given time to regulate its machinery? To summarise:—

1stly.—The feeding of cholera patients must be carried on gradually and carefully.

2ndly.—No food is to be given in the 1st and 2nd stages, because in the former food is apt to irritate and thus to increase the suffering, and in the latter or collapse stage the stomach remains contracted, irritated and denuded of its epithelial lining, and therefore unable to elaborate gastric juice for the purposes of digestion and assimilation.

3rdly.—Food is to be given in the shape of bland and unirritating sago or arrowroot cooked in water. When we will find that the light diet is assimilated and digested; then and then only, we should gradually introduce thin soup into the stomach. We should bear in mind that in this stage relapse may occur if the stomach is unnecessarily irritated.

Dr. Cayley observed that he agreed with a good deal of what had been written in this paper, but not all. The author, for example, did not discriminate water as food. The bulk of the body was mainly constituted of water and as this element was being constantly removed along with the secretions and excretions, it had to be replaced. Water required no digestion and was more likely to find its way into the blood by osmosis than any other material. The ingestion of water in some shape or other seemed to him to be the main therapeutic problem in cholera. Again it was not at all certain that

detachment of epithelium occurred during life to anything like the extent represented by the author. No doubt the intestinal mucous membrane appeared to be denuded when looked at *post-mortem* but that was a very different thing. He quite agreed that it was wrong to give cholera patients irritating foods and alcoholics; but such materials as barley water, milk and water, and pure water were not irritating and did good. He also doubted whether the majority of cholera cases died of and in collapse. His own experience was, that in fatal cases collapse generally passes off, the temperature rises, and symptoms of uræmia set in. It is in this stage that most deaths from cholera take place.

As regards alcohol, Dr. Cayley was certain that it did harm. It increased that burning of the stomach and restlessness, and as the drug attracts water, it is also more likely to draw water from the circulation, than to supply the fluid to the blood of which it stands in such great need.

Concentrated hydrocarbons also added to the difficulty of oxidation, the function of respiration being in cholera already more than sufficiently taxed.

Baboo Rakhai Dass Ghose remarked that great differences existed in regard to the medical treatment of cases of cholera.

His own opinion was that the less we interfered in the first and second stages the better. Active treatment in these stages was apt to tell unfavourably on the stage of reaction. He was in the habit of giving ice and water in this stage, and in the stage of reaction he gave equal parts of milk and water. This acted as a diuretic, and no other diuretic was needed.

Baboo Kanai Lal Dey, M. B., had seen a patient in a state of apparent collapse with a temperature of 107° . This patient died in a few minutes. He had dissected a case of cholera within an hour of death. This case had run a very rapid course. There was tarry blood on both sides of the heart—more on the right side. There was venous congestion throughout the body, and the whole length of the ileum was purple. The gut contained a red creamy material. The gall bladder was not quite full. The bile was very thick. There was no denudation of the epithelium.

Dr. McLeod observed that the degree of collapse was not measured by the thermometer. It might be so as far as the surface and axilla were concerned ; but at the time that the thermometer in the axilla indicated 95° or 96° , an instrument placed in the rectum might read 104° or 105° . Observations to this effect had been made in the General Hospital and Dr. Nicholson had told him that a falling axillary temperature and rising rectal temperature were a sure prognostic of a fatal event. The thermometry of cholera had still to be worked out. He well remembered the case of the late Dr. Gayer which he had attended along with Dr. Harvey. Shortly before death while every sign of collapse existed—clammy sweat, earthy pinched complexion, feeble fluttering pulse, and insensibility—the temperature in the axilla was found to be 96° and in the rectum 104° . He died soon after this observation had been taken.

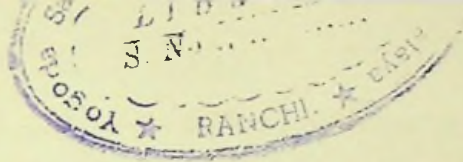
Dr. Coates said, that in cholera the arterial system was empty, and the veins surcharged, especially the veins of the portal system. No secretion took place from the arterial side, but abundant transudation occurred from the veins. This was the anatomical condition in collapse—arterial spasm and venous engorgement. Introducing fluid into the stomach did not cause irritation. No doubt vomiting of the ingested fluid sometimes took place, but this was due to vomiting being a symptom or feature of the disease. When patients were dying from want of fluid, should we withhold it? He thought not. He remembered that when he was in charge of the Hazareebaugh jails, Dr. D. B. Smith, then on tour as Sanitary Commissioner, had told him that Dr. Faucus was of opinion that the empty condition of the left heart was a *post-mortem* occurrence, and that if an examination were made immediately after death this cavity would be found to contain blood. He had then from 100 to 150 cases of cholera lodged in huts which had been erected close to his house, and as soon as a patient died he made a *post-mortem* examination. He found that the emptiness of the left heart was not a *post* but an *ante-mortem* condition. He also tested the effect of feeding in these cases. He administered food prepared in his own house, and found that in cases where no food had been given

or retained, the gall bladder was full of bile ; when food had passed into the duodenum bile was found to have been expelled from its bladder and entered the gut. If bile has any digestive power the value of this observation is obvious. He had tried the subcutaneous injection of artificial serum, but it is extremely difficult to get fluid to flow into the circulation in cases of cholera. He was certainly in favour of giving non-irritating food in cases of cholera. He was in the habit of giving milk and a weak mixture of ipecacuanha and aromatic spirits of ammonia. He had noticed that a sudden copious discharge at the outset of a case of cholera often gave rise to sudden and fatal sinking. In more protracted cases he had seen when the intestinal contents had been expelled a discharge of sanguineous serum mixed withropy mucus. He was not in favour of strong diuretics in cholera. It was impossible to get urine out of a contracted renal artery. He had also tested the effect of giving 20 grains of calomel every hour, and had found that the gall bladder was as full in these cases as in those in which no calomel had been given. He had found opium fatal in the later stages of cholera. As regards the temperature, he had studied it carefully in the case of children, taking simultaneous observations in the axilla and under the tongue. He had always found the latter 1° to 3° higher than the former. If the thermometer is kept for 10 minutes in the axilla beyond the initial 10 minutes, it generally registers another degree. In collapse the axillary temperature may remain for days at 94° , as he had seen in the case of a child which he had recently attended.

Baboo Bolai Chunder Sen believed that the use of ice and iced water was useful. He also considered a mild stimulant of some kind necessary,

Dr. Jones had seen the discharges tinged with blood at the commencement of cholera.

The Indian Medical Gazette, April 1883.



APPENDIX II.

STATISTICS OF THE HOMŒOPATHIC TREATMENT OF CHOLERA.

What to do, supposing cholera does come in spite of their perfect drainage and incessant scrubbing, is what most interests them, and they turn with anxiety to the great medical authorities for instruction. But they find nothing to enlighten them, as to the treatment of cholera should it actually seize upon them. They are only told what to do to prevent cholera coming to them; but supposing cholera is so unreasonable as to pursue it westward coast to our shores without heeding our sanitary authorities, as the tide would come in notwithstanding King Canute's orders to the contrary, and as the Atlantic showed no respect for Mrs. Partington's mop, our medical advisers have apparently no advice to offer as to how it is to be treated, we see indeed an occasional prescription of chalk mixture, or other time-honored remedy for diarrhœa, recommended (generally by an amateur) in the papers but for a precise and rational treatment of the disease by an experienced doctor we look in vain. The reason of this is not far to seek. The dominant school of medicine stand helpless before the disease. They have no confidence in any mode of treatment, for they have found by multiplied experience that under all their methods—and these are legion—the mortality of cholera remains pretty steadily at from half to two thirds of those attacked. They could not, therefore, with any sense of decency, recommend their treatment in face of the established fact that it is invariably attended by a mortality of from 50 to 75 out of every 100 patients.

As, then, the oracles of the dominant sect which loves to call itself established legitimate, regular, rational and scientific, are dumb in the presence of cholera, are the anxious public to be left to draw the melancholy conclusion that medicine is altogether

powerless, that they are to be left unaided in the presence of the pestilence or at best to content themselves with the meagre advice to look to their water-closets and dustbins? Not so, for precisely when the arrogant medicine of the schools throws up the sponge and wrings its hands in hopeless impotence, the despised followers of Hahnemann step into the place, vacated by it, and offer to the threatened sufferers from the pestilence a method which a multiplied experience has shown to be of wonderful efficacy in the cure of this most terrible and fatal of maladies.

Proofs of the vast superiority of the homœopathic over other methods of treating cholera exist in published and authoritative documents which we may briefly recall to the memory of our readers.

When cholera raged in Vienna in 1836, the Hospital of the Sisters of Mercy in the Gumpendorf suburb of that city was ordered by the Government to be devoted to the reception of cholera patients, Dr. Fleischmann, the physician of the hospital, expressed his willingness to receive cases of cholera, but stipulated that he should treat them according to the method he had most confidence in, viz. the homœopathic. Though homœopathy was then under a ban in Vienna, his conditions were agreed to. Two allopathic physicians were appointed by Government as inspectors to report on the nature of the cases admitted into the hospital and the results of the treatment. The total number of cases received was 732, and of these 488 recovered and 244 died, a little more than 33 per cent. Sir William Wilde, an allopathic writer, in his work on *Austria and its Institutions* (P. 275), makes the following statement regarding this trial of the homœopathic treatment of cholera in Vienna.

“Upon comparing the report of the treatment of cholera in this hospital with that of the same disease in the other hospitals in Vienna during the same period. It appeared that while two thirds of the cases treated by Dr. Fleischmann recovered, two thirds of those treated by the ordinary methods in the other hospitals died.”

This immense superiority of the homœopathic over the ordinary treatment of cholera led the Government to remove the obstacles and repeal the ordinances that had hitherto prevented the free practice

of homœopathy in Austria, and gave a great impetus to the spread of Hahnemann's system throughout the empire.

On the appearance of cholera in Edinburgh in 1848 the medical officers of the Homœopathic Dispensary of that town at once made arrangements for the treatment of the disease by homœopathic remedies. Placards were posted about the town announcing that medical aid could be had by sending to the dispensary where six medical men, *viz.* Drs. Russell, Wielobycki, Lyschinski, Sutherland, Atkin and Cockburn arranged among themselves to be in readiness to go to the houses of those attacked at any hour of the day or night. This system they kept up during the whole prevalence of the epidemic. They treated in all 236 cases, of whom 57 died, showing a mortality of 24.15 per cent. The returns of the Board of Health show that there were 640 cases treated during the same period in Edinburgh and Leith otherwise than homœopathically, of whom 435 died, showing a mortality of nearly 68 per cent. (*vide A Treatise of Epidemic Cholera* by J. Rutherford Russell, M. D., P. 285.)

This epidemic of cholera reached Liverpool in 1849, and the same measures were adopted by the medical officers of the Homœopathic Dispensary there to encounter the pestilence. Dr. Drysdale, Dr. Hilbers, Mr. Moore and Mr. Stewart arranged among them to attend at the dispensary day and night in order to supply attendance and medicine to those needing them. Hand bills were distributed far and wide containing plain directions for the treatment of the early stages of the disease, and small bottles of spirits of camphor (1 to 6) were given to all applicants. The total numbers of cases of fully-developed cholera treated by the medical officers of the dispensary was 175, of whom forty five died, showing a mortality of 25.7 per cent. The general mortality from that epidemic of cholera in Liverpool, under all treatments, including the homœopathic, was, according to the returns of the Medical Officer of Health, 46 per cent. of those attacked (*vide British Journal of Homœopathy*, Vol. VIII, P. 92).

When the cholera epidemic visited London in 1854, the Board of Management of the London Homœopathic Hospital then located in Golden Square, which happened to be the centre of the most severely affected part of the metropolis, cleared out the hospital for the reception of cholera patients only. The Medical Inspector appointed by the Board of Health, Dr. Macloughlin, was requested to put the London Homœopathic Hospital on the list of institutions for the treat-

ment of cholera, which he was to inspect and report on. This he willingly did, after thoroughly inspecting the arrangements. He also paid a daily visit of inspection to the hospital during the whole of the time it was engaged in receiving cases of cholera. The Board of Health had appointed a committee of medical men, presided over by Dr. Paris, the President of the College of Physicians, to collect the reports of the treatment of cholera in London and to report to Parliament on the results of the various methods pursued in all the different institutions. When the report of this Treatment Committee appeared, it was observed that the returns of the London Homœopathic Hospital were altogether ignored. Some stir was made in the House of Commons by Lord R. Grosvenor—now Lord Ebury—about this omission, and this led to a separate Parliamentary paper being issued containing the omitted returns of the London Homœopathic Hospital. From these returns it appeared that the number of cases treated in the Homœopathic Hospital was sixty one, of whom ten died, giving a mortality of 16.4 per cent. From the other Parliamentary paper, issued under the editorship of the Treatment Committee, it appeared that the average mortality under the mode of treatment pursued in the other metropolitan hospital was 51.8 per cent.* The reason for the suppression of the returns from the Homœopathic Hospital by the Treatment Committee was therefore pretty obvious. It would have been decidedly awkward for an allopathic committee to have recorded that the despised homœopaths were able to cure 83.6 per cent. of the cases attacked, while the professors of scientific medicine could only manage to save 48.2 per cent., so they preferred rather to disobey the order of Parliament than to register their own inferiority.† The Government Inspector, Dr. Macloughlin, though himself belonging to the dominant sect, testified most handsomely to the severity of the cases treated in the London Homœopathic Hospital, and to the success of the treatment. He writes to Mr. Cameron, one of the medical officers of the hospital: "All I saw were true cases of cholera, in the various stages of the disease; and I saw several cases which did well under your treatment which I have no hesitation in saying would have sunk under any other." An interesting account of this little episode

* This percentage agrees with what Lebert says concerning the mortality of cholera under the ordinary treatment: "In the distinctly pronounced form of cholera the average mortality rate may be put down as 50 per cent. of all cases attacked, with a tendency towards a higher rather than lower proportion" (*Ziemssen's Cyclop.*, vol. i, p. 430).

† The report of the Treatment Committee is one of the most remarkable documents that was ever issued by a body of learned men. From it we learn in one place that the number of cholera patients treated in the metropolitan hospitals was 1,100; in another the number is given as 1,104. Here is some of the valuable information it gives us.

illustrative of allopathic unfairness towards homœopathy will be found in our vol. XIII, pp. 457, 594, and 674.

Of 1,100 cases treated in the metropolitan hospitals :

643 had emetics, and of these 344 died = 53.4 per cent.
457 had no emetics " 226 " = 49.4 "

1,100	570
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Again :

Of 1,100 cases treated in the metropolitan hospitals :

102 had turpentine enemata, and of these 59 died = 57.8 per cent.
998 had no turpentine enemata " 511 " = 51.2 "

1,100	570
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and as if this valuable information was not sufficient, we have it put in still another form, thus

Of 1,100 cases treated in the metropolitan hospitals ;

496 had iced water, and of these 248 died = 50 per cent.
604 had no iced water " 322 " = 53.3 "

1,100	570
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In another place we have an analysis of 1,104 cases treated in the metropolitan hospitals, without a hint as to where the additional 4 came from, or any reason assigned for this omission in the other tables.

Of 1,104 cases treated in metropolitan hospitals :

689 were treated by alteratives :

52 had small doses of calomel, of these 26 died = 50 per cent.
381 had large doses of calomel " 184 " = 48.2 "
105 had calomel and opium " 44 " = 62.8 "
20 had other mercurials " 13 " = 92.8 "
131 had saïnes " 66 " = 64 "

231 were treated by astringents :

170 had sulphuric acid of these 98 died = 79.6 per cent.
36 had chalk and opium " 11 " = 64.7 "
9 had iron, alum and alum mixture.. 4 "
9 had acetate of lead and opium " 5 "
6 had cinchona and quinine " 0 "
1 had gallic acid " 1 "

84 were treated by stimulants :

8 had amonia " 6 "
39 had brandy " 25 "
4 had ether " 3 "
3 had camphor and chloroform " 0 "
5 had cordial tonic mixture " 3 "
7 had cajeput oil " 4 "
18 had internal stimulants (sic!) " 6 "

100 cases were treated by eliminants :

78 had castor oil " 57 " = 73 per cent.
21 had emetics " 17 " = 80 "
1 had olive oil " 0 "

1,104	573 "
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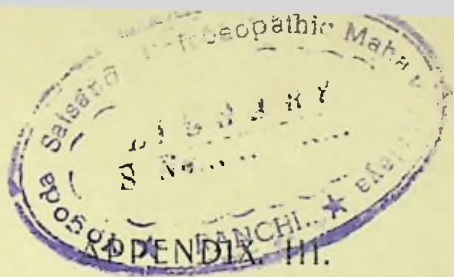
We learn from this table that of the 4 patients omitted from the other list 3 died. We are not responsible for the extraordinary percentages given above ; they are of a piece with the slipshod incorrectness of the whole report. It is significant that the treatment by camphor and chloroform was followed by no deaths, but then there were only 3 cases so treated. We cannot wonder that the Treatment Committee objected to introduce the statistics of the London Homœopathic Hospital's cholera treatment, its mortality of 16.4 per cent., among their 48 to 80 percentages of mortality from their own cherished methods.

We could, from the records of homœopathy, adduce a large number of cases treated, some in hospitals some in their own homes, showing the great superiority of the homœopathic treatment of cholera, but we have resolved to confine ourselves to such statistics as were authenticated by competent and known authorities. Enough has been here adduced to prove that homœopaths are entitled to claim for their treatment a real curative power over cholera, while, on the other hand, the partisans of the old school can make no such claim for any of their many modes of treatment.

We know that we may search in vain the cholera literature of past epidemics for any rational or moderately successful treatment of the disease. Nor is the most recent literature of allopathic medicine more suggestive of remedies for the fully developed disease. "If," says Lebert in Ziemssen's magnificent *Cyclopædia*, the latest outcome of German allopathic science "the prodromic diarrhœa has resisted our efforts to check it or if it has not existed at all, and the violent discharges have already set in, neither *Opium* nor *Nitrate of Silver*, nor any other remedy will be of any avail" (vol. i, p. 458). On the other hand, Macnamara in Quain's bulky *Dictionary*, the oracle of modern British allopathic science, recommends a pill of *Opium* and *Acetate of Lead*, and a mustard plaster over the abdomen, but the futility of this treatment has been sufficiently proved by the sad mortality that has always attended it.

In bright contrast to the allopathic treatment, which can offer either no remedy at all or only such as have been again and again proved to be useless or even injurious, homœopathy offers a mode of treatment which has in every epidemic been crowned with the most gratifying success.

Dr. Dudgeon. British Journal of Homœopathy, October 1883.



ORIGIN OF CHOLERA.

DR. Khastgir has addressed to the *Indian Mirror* one or two letters on the subject of Cholera which have not received the attention they deserve. Having regard to the devastating effects of the disease, we need offer no apology for dealing popularly with the subject of its prevention and cure. There is no time to think when a friend or a relation has actually been attacked; and the wisest course is to reflect on the subject and come to sound conclusions when our minds are not yet embarrassed. With reference to two telegrams from Cairo in which it is stated that a certain German commission has traced the origin of cholera to living organism, Dr. Khastgir observes that some years ago he wrote an article in the *Indian Annals of Medical Science* in which he traced the origin of epidemic fever as well as of cholera to living organism, or "germs generated from earth, under the varying influence of solar heat." Subsequently he "read a paper entitled *The Relation between Fever and Cholera* before the Calcutta Medical Society which was afterwards published in No. 9, Vol. I, of the Journal of the society." In this also he traced the origin of both these diseases to organic emanations of the soil under solar heat.

We fully sympathize with Dr. Khastgir's regret and disappointment on finding the results of his research ignored by the public generally and even by the Medical profession. His regret is enhanced, though it is not wholly unmixed with joy, when he finds that a German commission has practically endorsed his conclusions. But we can offer him one consolation, and that is by reminding him that he has got a partner in his woe. More than half a century ago, in the year 1831, when Asiatic cholera first invaded Europe a poor, obscure German physician who had startled the Medical profession

by his heterodoxy came to the same conclusion that Dr. Khastgir has done, and like him, had the results of his research ignored and neglected by the majority of his profession. That physician is Samuel Hahnemann. In a paper on "The Mode of Propagation of the Asiatic cholera" published in his "Lesser Writings," Hahnemann says : " On board ships—in whose confined spaces, filled with mouldy watery vapours, the Choleramiasm finds a favourable element for its multiplication and *grows into an enormously increased brood of those excessively minute, invisible, living creatures, so inimical to human life, of which the contagious matter of the cholera most probably consists*—on board these ships, I say, this concentrated aggravated miasm kills several of the crew." Then again : "The cause of this [the propagation] is undoubtedly the invisible cloud that hovers closely around the sailors who have remained free from the disease, and which is composed of probably *millions of these miasmatic animated beings*, which at first developed on the broad marshy banks of the tepid Ganges, always searching out in preference the human being to his destruction and attaching themselves closely to him, when transferred to distant and even colder regions become habituated to these also, without any diminution either of their unhappy fertility or their fatal destructiveness." We do not want to deny Dr. Khastgir or the German commission the credit of the discovery which they say they have made independently ; but we state it as a historical fact that Hahnemann had suggested the organic theory long ago and his disciples working on the lines indicated have discovered facts which corroborate that theory. One of the corroborative circumstances is that some of the most powerful remedies for cholera are precisely the drugs remarkable for their power of killing minute living organisms.

Indian Nation, 5th November 1883.

I.

LIST OF REMEDIES.

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II.

LIST OF REMEDIES
 OF MINOR IMPORTANCE.
 (6. attentuation).

Ammonia	Lachesis
Asarum Europ	Mercurius Corrosivus
Bryonia	Muscarin
Calcarea Arsenicosa	Naja
Cantharis	Nux Vomica
Carbolic Acid	Oleum Ricini
Chamomilla	Opium
China	Phosphoric Acid
Chloral	Phosphorus
Croton Tiglium	Pulsatilla
Euphorbia	Rhus Toxicodendron
Elaps	Sulphur
Jatropha Curcas	Terebinthina
Ipecacuanha	

