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CHOLERA

ITS CAUSE AND INFALLIBLE CURE

AND

ON EPIDEMICS IN GENERAL

BY

J. M. HONIGBERGER

LATE PHYSICIAN TO THE COURT OF LAHORE

PRICE ONE RUPEE

The proceeds of the sale of the first one thousand copies will be divided
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1857.

CH. O. J. H. A.

THE CASE AND INTERESTS OF THE

ON EVIDENCE IN GENERAL

MOTTO:

Try first, then judge.

THE CASE AND INTERESTS OF THE

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THE CASE AND INTERESTS OF THE

THE CASE AND INTERESTS OF THE

THE CASE AND INTERESTS OF THE

QUASSIN—INOCULATION

D E S T R O Y S

THE CHOLERA-FLIES

IN THE

BLOODVESSELS.

TO THE PUBLIC OF INDIA.

THE Governor General in Council having been pleased to consent graciously to my demand in regard to some arrangement or previous agreement, I have now the extreme pleasure to reveal my *secret*—the remedy for cholera—by publishing in these mournful days the present pamphlet for the *benefit of mankind*, a duty which upwards of a year so heavily pressed on my mind, as providence laid in my hands this highly interesting discovery in medicine, a blessing by which the scourge is divested of all its horrors, and no more a dread to the human kind, because *every medical man shall henceforth cure cholera with ease by inoculation* and with more certainty than even a cold. There is no mistake ; considering that since November last, in ten months, I had to attend on nearly 500 cholera patients, and I assure that I have not lost one of such, where I arrived in time, and no irreparable mischief had been done ; besides, I have saved many of those severe cases which were given up by their medical attendants. Facts speak for themselves, and I trust that the committee of medical men,—Drs. A. Grant, A. Eatwell, E. Goodeve, and H. Halleur—appointed by Government for the investigation, examination, and report on the nature of my discovery, will soon agree that my statement is quite correct, and the decision of my deserving the laurels I now justly claim for my labours will soon be accorded to

Yours obediently,

J. M. H.

Calcutta, 1st September, 1857.

QUASSIN—inoculation destroys the cholera-flies in the bloodvessels ; in these few words, we have the cause of cholera, and the remedy, together with its *modus operandi*.

Quassite or quassine is the bitter principle of the quassia amara wood.

The choleraflies are infusoria, *i. e.* microscopic organic matter, which, when diffused through the atmosphere, enters the system as an aërial poison, by absorbtion, either through the mucous membranes of the eyes, ears, nares or mouth, on which it attacks itself ; or, more probably, that these minims of animalcules, by our breathing, find their way through the capillaries of the lungs to the bloodvessels, where they, whenever a certain choleraic predisposition exist, produce the malady in question.

The *predisposition* or *diathesis* to any one of the epidemics seems to be a certain distemper of the blood, what they call a *dyscrasy* ; adding to the susceptibility for the malady a disorder of the digestive organs, even a slight indigestion may be sufficient to produce that relaxed state of the lungs, which, deprived as they are of their vitality, suffer the entrance and passage of any virulent, aëriform infusoria, which cause the decomposition of the constituent parts of that life—spreading, nourishing fluid, the blood, and so various are the phenomena, according to the nature of those inhaled animal-

cules, each kind a *sui generis* cause the plague, the cholera, and the febrile *exanthemata* as measles, scarlatina, small-pox, &c.

The proof, that really such infusoria entered the circulation, by one or the other way, and cause the mischief, is, that when the well-known fly-poison, quassite, is inoculated, or applied to any sore or denuded part of the body, and being absorbed, effects immediately their destruction, in consequence of which health is soon restored.

Long before I made this observation, many physicians have asserted, that cholera-flies were the primary cause of the malady, and Hahneman gave them the name of *choleraides*; others however preferred to call them *choleramias* (the derivation from the Greek word *myga*, *myges*; the fly, the flies), those doctors, however, as all other practitioners being misled by the vomitings and purgings, supposed that the morbid virus entered directly to the stomach, by means of food or impure water, their treatment accordingly could not be otherwise than irrational. Besides these flies, various unsatisfactory suggestions were given from time to time about the cause of cholera, viz: a scarcity of electricity; an absence of ozone from the atmosphere; a sulphuretted, carburetted, phosphuretted hydrogen, which causes the irrespirable mephitic air; as well as lately the zymotic doctrine.

No doubt, that the seat of the malady is in the bloodvessels, the blood being contaminated, vitiated, in fact carbonized by those virulent infusoria; the

red corpuscles are decomposed, the serosity acting by absorbtion as an irritans on the nerves *vagus* and *sympathicus* affecting the *ganglion* system, that causes the centrifugal action, namely the abnormal discharges up-and down-wards, therefore the loss of the endosmotic faculty, the impaired circulation, chymification, chyfication, sanguinification, nutrition, &c., in fact the anomalism or symptoms so well known, as : *vox cholericæ*, or a lispering slow voice, laborious breathing, eager thirst, nausea, vomiting, purging of a rice water like fluid, sensation of an internal burning heat, pulselessness, suppression of bile and urine, clammy surface, and coldness of the extremities, painful cramps, an extreme nervous depression, or drowsiness, prostration of strength, *collapse*, *cyanose*, &c. who so often terminate fatally.

It is however most gratifying to learn from experience, that there is also a remedy, which, when applied in time, it never fails to check the progress of the malady, and in this respect it is indeed infallible and a wonderful, true *specific* to cholera, and perhaps to the other epidemics also ?

No doubt, that masses of such infusoria enter to our stomachs too, by means of food or water, but there they cannot cause any mischief, as they are soon decomposed by the gastric juice of our laboratory the stomach, similar to the other animal or organic poisons, viz :—those of snakes, scorpions, mad-dogs, or the blistering fly, &c.

In proof, that the morbidic *virus* is not conveyed by means of food or water to the stomach, I

may adduce the cases of three babies, each of them of the tender age of five months only, who were severely attacked by cholera and recovered by inoculation ; these three cases were out of 250 cholera patients, I had to attend on from the first of January to the end of April last, *i. e.* in four months ; in these three instances no food nor water has been given except the milk of their nursing mothers, two of whom were healthy looking persons.

As another positive proof that the *epidemic virus* really enters through the lungs to the bloodvessels, I may refer to cases, in which pregnant women, who have had the small-pox, and are proof against infection, but on being exposed to the *virus*, convey the disease to the *fœtus* in *utero*. Here the blood of the mother must be the medium of communication between the *virus* of small-pox, and the *ovum* hidden in the womb, and the lungs of the mother must be the channel by which the poison enters the circulation : Granting the truth of this statement, we have reason to suppose, that a similar law of nature exists also in all the other epidemics, as they are produced by *malaria*, be it in man, or in the lower animals, viz. in measles, scarlatina, influenza, catarrhal or febrile affections, typhus, plague, cholera, yellow fever, the murrain or epizootie of cattle, the pestilence of goats, sheep, fowls, &c., and that each of them is caused by its own species of infusoria, a kind *sui generis*, commonly called *malaria*, and we have so many examples, that good noses have perceived one or the other of such *malarias* by a *peculiar* odor ;

perhaps that the quassia destroys all the different kind of *infusoria*, together with their *ova*, whoever they may be, either in the circulation of humours, as well as in the excrements, in dirty linen, in foul tanks, or in bad drainages, &c.

Most probably it is in the shape of swarms, like bees, that such minute flies, who are invisible to our naked eyes, make their imperceptible attacks and wander about from one place or from one country to another, similar to locusts, either driven by winds, or by their natural instinct following people and cattle, on whom they deposit their *ova*. We know from experience, that they prefer some localities to others, and that they endure heat and cold to a certain degree only, in consequence whoever human beings breathe, they may be, in low as well as in high situations.

The virulency of epidemics seems to depend on an ozonic or electric state of the atmosphere.

To give some idea of the minuteness of which organised matter is susceptible, I refer to the recent microscopic researches of Prof. Ehrenberg who showed that many species of infusoria exist, which are so small that millions of them collected into one mass, would not exceed the bulk of a grain of sand, and a thousand might swim side by side through the eye of a needle. The result of my own microscopic researches about the cholera infusoria, and the pathology or the diseased state of the blood of cholera patients shall be published as soon as I arrive to a satisfactory decision, with the aid of my

compound microscope I but lately received. No doubt, as we have now in Europe so many microscopical societies, provided with the best instruments, they soon will find out the seat, shape, and form of the different kind of *infusoria*, called *malaria*, which causes the epidemics !

As regards the application of this wonderful remedy, the *quassite*, nothing is more easy than that, and may be performed in any sore or denuded part of the body. I ordinarily perform in slight cases only a slight incision with a lancet, as in vaccination, where I apply some drop of the remedy ; sometimes I inoculate at once on both arms, or on the thighs, or calves, in most of the severe cases, however, on the back, near the *colona vertebralis* or on the musculous, *i. e.* fleshy parts of the shoulders, repeating the operations according to the circumstances and severity of the case. The operation is performed by cutting from half an inch, to two or three inches in length ; the depth of the incision is to be regulated according to the severity of the case ; in the beginning of the malady, when the pulsations on the wrists are still perceptible, the blood in a liquid state, a very superficial incision is enough to show a trace of blood ; in the course of the disorder, however, when no pulsations at the wrists, the blood scarce, thick and scarcely able to circulate, a deeper incision is necessary, in order to show a little blood, where the remedy is to be applied. For this purpose I dip the lancet in the *tincture* before and after each cut, so as to

ensure the application of some of the remedy in the wound, which should be kept open for a few minutes to dry. Slight incisions scarcely want any bandaging, and they heal soon by themselves, without any such unpleasant consequences, as irritation or eruption of pimples and pustules, or fever, &c., and health is restored gradually.

Cold extremities should be warmed by the application of hot-water bottles, or by rubbing them with warmed rags, this will materially assist the absorption of the remedy and the circulation of the blood. In slight cases such is instantly effected by nature, not so easy however in the course of the malady ; therefore the difficulty of recovery from an advanced stage of the disorder.

Sometimes vomitings and purgings continue for some hours after the *inoculation*, as noxious substances which predisposed to the malady, must come out by one or the other way ; therefore to be cautious, and not to stop them ; dangerous are those nasty, dry reachings of short intervals, when they continue, accompanied by restlessness ; as also the involuntary watery motions, and the severe abdominal pains.

No use of any kind of medicine should be made, neither before nor after the *innoculation*. Blisters and mustard poultices, so much abused in cholera, are horrid things in reality, they only irritate and increase the pains and sufferings of the poor patient ; oily and greasy inunctions with or without nutmeg or ginger, &c. close the pores of the skin, and do no

good ; spirituous, ammoniacal, terebinthinate and camphorate embrocations, as also powdered ginger dry up the blood and natural heat of the patient ; the rubbing however with warmed, or cold and wet rags, if the patient prefers such, even cold shower-baths, if asked for, do good and are often the means, principally during the hot season which give immediate relief from the internal burning heat. The application of cold wet rags to the forehead ; as also leeches to the abdominal pains, sometimes enemata are necessary. A cup of warm tea often does good. Nature calls for cold and cooling draughts, such should be given freely and not with the spoon, viz.—cold and iced-water, soda-water, Seidlitz powders in solution, toast-water, barley decoction, orgeat, ginger-beer, as also weak-acidulated beverages, as lemonades and fresh butter-milk, or weak-tea with or without milk and sugar, are good, and on no account brandy, rum, gin or wines, except those who are accustomed to wines, and can afford a glass of iced-champagne, may have it. Stimulants, as ether, ammonia, camphor and eau-de-cologne, or laudanum and opium, so much abused in cholera, do more harm than good ; persons however accustomed to opium, may continue their bad habit, and take daily a little less of their stupifying drug. Port-wine, with or without sago, cannot strengthen a cholera patient, it strengthens his malady, and should cautiously be avoided. The so-called cholera-mixtures and cholera-pills are humbug and dangerous, as I daily see mischief from them, and in several instances, I re-

marked that "one pill can kill."—I therefore heartily wish, that those druggists, who use to deal in such nostrums, may in future prepare small phials of *quassite tincture* for sale at a reasonable price to enable poor people also to provide themselves with such a necessary for health.

The preparation of *quassite* is very easy : To a concentrate aqueous decoction of quassia is added some fresh prepared lime-water, stirring occasionally during the twenty-four hours, in order to separate the *pectin* and other substances, strained and evaporated to the consistency of an extract, some boiling alcohol is added, which takes up the *quassite*, a brown colouring matter and some salts ; by repeated solutions in hot alcohol with a little ether and evaporation, the *quassite* may be obtained pure in small and white crystals. I, however, often used the impure alcoholic solution of this article, namely, the *tincture* of *quassite*, and found that it acts perfectly in most of the slight cholera cases ; even a simple, but concentrate *tincture* of quassia, easy to be prepared by every one, and who cost a trifle, is often sufficient to effect a cure of cholera in its beginning, and such should be in the possession of every house-keeper and traveller, may he be a rich or a poor man, principally here in India, where no one can be sure not to have an attack of cholera by night time, when immediate medical assistance is difficult, and why to call a medical man to do what every one can do by himself ? Besides, physicians are accustomed to prescribe and to drug their pati-

ents, and such is an extremely dangerous practice in cholera ; but those who are blinded by some prejudice, will even now after the publication of the remedy for cholera, have some difficulty to abstain from their dangerous habitude ; this being the reason why so many strong persons die of cholera, in less than twelve-hours.

In fact, I know no disease, which can be cured more easy and with more certainty than cholera, and no disease, which is more difficult, often unmanageable than cholera. Easy in its beginning and simple state, difficult when irritated by an improper treatment, and the case a complicate and malignant one. I regard cholera similar to a fire : suppose a dress catches fire, if we can extinguish the flame in the beginning, all will be right ; if contrary, we blow there, or allow the fire to consume the dress, the consequence will be a fearful one, the same is with cholera ; very few escape with their lives from severe attacks, and that more by chance than by medicines ; for, I believe, greater is the number of those, who recovered without having used any medicine, than those who had been drugged ; the reason is simple, that in the former instances nature has done her work unrestrained, whereas in the latter cases the improper treatment was the impediment of the recovery. Cholera has but *one* remedy, the *quassite*, which must be applied to the blood !

The above recommended concentrate quassia tincture may be prepared as follows : Take one drachm of quassia chips from the druggist's shop, cut them

finely or file them with a rasp, and pound them in an iron mortar, adding from time to time a few drops of alcohol or eau-de-cologne to keep the dust down, coarsely powdered, put it into one ounce phial, and fill it with the same alcohol or eau-de-cologne, shake and keep well closed, either with a cork or with a glass stopple, and some bees-wax tied over it, so as to prevent the evaporation of the spirits, which, however, should it be the case with time, can be restored by an addition of the same ; such a *tincture* keeps well for any length of time, and is always ready for use ; care should be taken to have a second phial for the lower animals, or not to dip the lancet in the phial, when used for cattle, in order to avoid any possibility of an infection or contamination of their diseases to man ; such precautions are necessary by using the phial even for man alone, and the lancet must be perfectly clean and dry before dipping the same in the tincture. To this tincture, as well as to the former of quassite, I use to add another preparation, namely, *daturia martis*, very easy to be prepared ; if however such an addition is really necessary ? and which of both, the datura with the iron, or the quassia does the best ? I am unable just now to decide, but the fact is, that this strange mixture has proved admirably in so many cases of fresh, as well as in advanced stages of the malady of every age and sex, babies of five months, pregnant women, and persons of upwards of sixty years, have been restored by its inoculation, and I never

saw any harm from them, so that I even now make use of such a mixture in every case with success, whenever recovery possible.

The preparation of this article, the daturia of iron, is as follows :—Take half an ounce of datura seeds, pound them coarsely in an iron mortar, and throw over them six ounces of boiling water, stir and allow to cool, then strain and add to the infusion a solution of sulphate of iron, by degree as long as any precipitate is formed, allow to settle, decant the supernatant liquor, and wash the precipitate with some cold water ; throw it on a filter of bibulous paper, and when dry, pulverize and add the whole product to the contents of your ounce phial, shake well, and preserve for use. Before dipping the lancet in it, I shake the phial and wait a few seconds until the coarser part of the powder has been settled, then I apply it either with a lancet, or by dropping it in the wound, if it is a considerable one.

In purchasing quassia wood, care should be taken to have a genuine article, which is easy to be known by its extreme bitterness ; on account of its scarcity, there were formerly so many surrogates in commerce, and now as this drug has acquired such a famous reputation and will be much in request, we have reason to be more cautious about its genuineness, as a spurious article cannot have the same effect as the genuine. I tried this remedy also internally, as well as in different ways, besides so many other medicines, viz. : astringents, cooling and stomachic

drugs, &c., with and without the inoculation, and found that they were not only useless, but often noxious ; especially brandy, ammonia and camphor, counteracting sometimes the inoculated remedy, which indeed is the only safe thing we can rely on.

This important discovery however being in its infancy, is subject as all other new inventions to some perfection, as regards the proper administration of the remedy ; perhaps a decoction of the wood, or the solution of the extract, or the diluted tincture may be used as an *infusorium*, i. e. as injection in the veins, in severe and malignant cases ; or as an impalpable powder, prepared from the gentle roasted chips, with or without the addition of some of the daturia, to be applied on extensive blistered or ulcerated surfaces, as well as in deep incisions ?

Somewhat analagous to the bitter, poisonous principle of quassia is regarded Welther's *amer* (the *picric* or *carbazotic acid*) I tried this, as so many other powerful medicines, namely, *absyntine*, *aconitine*, *emetine*, *picrotoxine*, *strychnine* and *veratrine* ; as well as the *antimonialia*, *arseniates*, *cyanates*, *iodates*, *mercurialia*, &c., but they all failed, and I found only an *adjuvans*, the above-mentioned *daturia martis*, which in combination with the bitter principle of quassia seems likely to be useful in cholera. The above-related experiments and failures prove that after all, nothing is equal to quassia in cholera ; this not only being a poison to flies and to other insects too, but its narcotic principle possesses a specific influence over the *cerebro-spinal* system ;

thereto its salutary effects in the advanced stage of this malady, as well as in the very beginning of it.

In these trials, I discovered some remarkable symptoms, produced by one and the other of those medicines I inoculated, which I think to publish next year, in London, in my intended work, the "Forty Years in the East."

Considering the nature of those minims of infusoria which entered the blood vessels, and cause the mischief, we may not be at a loss to conceive how so small a quantity of the remedy, as one-tenth part of a drop, or less, of the tinctura quassiæ which might have been absorbed, effects a cure of cholera, by the annihilation of those virulent animalcules.

At the end of last year, I tried on upwards of 100 healthy persons of every age and sex the inoculation of the quassite tincture as a prevention to cholera, I myself was then inoculated at Mr. E. Delanougerede's house, where I inoculated at one sitting not less than eighty persons. A bad drainage is close to the wall, on the southern side of that house, in which so many more or less, were attacked by cholera. Every one knows, that during the past four months, viz. January, February, March and April, besides cholera, the measles and small-pox raged all over Calcutta, and I have not heard that any one of those I previously had inoculated with the cholera-remedy as a prophylactic, has been affected by one or the other of these epidemics, except after three months elapse, when some slight attacks of cholera came to my notice ; one of these was my own case, which I shall narrate

merely as an illustration. It was on the first of April last, when I awoke as ordinary at 6 o'clock in the morning, and felt an unusual call to stool, I had a free and copious watery motion, five minutes afterwards another similar, and so on every five to ten minutes one, accompanied by thirst and somewhat exhaustion. No doubt, that it was cholera; but far from being afraid, I was very glad indeed, that I had an occasion to try my remedy on myself, a remedy in which I had the utmost confidence, and so many proofs of its infallibility; therefore I did not hasten at all to inoculate myself at the very beginning of the malady; seeing that all was going on passable, and no bad symptoms with the diarrhoea, neither nausea, nor vomiting, nor cramps or pain of any kind, and the pulsations tolerably well, I resolved to wait, and to watch the progress of the malady. At eight o'clock A. M., a somewhat unpleasant sounding in my left ear made its appearance, then I wetted the little finger of my left hand with some quassia tincture, and applied the same in the inner-side of the ear, by holding the finger close to the affected part so long as the sounding continued; the same noise however re-appeared in short intervals, notwithstanding the repetitions of the application of the remedy. At nine o'clock, perceiving that the diarrhoea continued at the same rate as before, and the pulsations were sinking, the exhaustion increasing, and the nasty soundings in the ear often re-appearing, I thought to begin in time, when I was

as before, and merely playing with the lancet I inoculated some of the quassia tincture below the nail of the small finger I formerly used to wet, and to apply to the ear. I moved the wet lancet about puncturing below the nail, until I felt a slight and burning pain, then I desisted ; no blood was to be seen. The consequence of this little operation *a la chinese* was, that after ten o'clock (four hours from the commencement) I had no more stool, neither soundings in the ear, less thirst and felt myself improving. At two o'clock in the afternoon, I had some appetite and took sweetened sago with some drops of rose-water merely for a scent. At four o'clock, I was able to attend on two new cholera patients, to whom I repeated the visits at nine o'clock ; one of them was at a distance of two miles in the native quarters ; afterwards I had a good night's rest, and the following morning, I felt a little weaker as usually, but the day after, I was as well as ever. It is perhaps not unnecessary to mention that I never smoke tobacco, nor do I drink any spirits, wine and beer seldom and moderately, as they do not agree with my nature, my ordinary beverage is a syrup of vinegar prepared with some mint or peppermint ; such I use to drink in India from many years, of course diluted with water, and I find this the *skenjebil* of the Hakeems a palatable, cooling and wholesome beverage, principally when cooled with saltpetre or ice, such I had four large tumblers full during the four hours of eager thirst. As I am a friend of milk and

sweetmeats, I had on the eve before the attack perhaps too much enjoyed in a kind of milk—pudding, and as I went two hours later as usual, namely, at midnight to bed, it may be that this contributed to the predisposition to the attack I had. If the mildness of it was owing to my former being inoculated with the remedy, or perhaps that the galvanic rings, composed of zinc and silver I use to wear, has the supposed effect of a prevention ? (See the “Thirty-five years in the East. vol. I. p. 145.”) I may also mention, that the son of Monsieur E. Delanougerede, who, November last, so miraculously escaped from a severe attack of cholera, and that on being inoculated repeatedly with the tinctures of quassia and quassite, had another slight attack of the same malady after four months ; this was caused, they say, by an indigestion from *kechowree*, a native *patti* from the bazar, the boy had eaten the eve before the vomitings and purgings, which as usually began early in the morning, and ceased soon after a slight inoculation of the compound quassia tincture, containing the daturia of iron.

In another instance cucumbers were said to have caused the fatal attack which finished in ten hours.

The use of this remedy, the quassite, as a preventive in epidemics, I would recommend to be tried as inoculation, slightly to be performed in any part of the arm, hand or finger, I think a slight scratch with a penknife will do, and to have the sore part

with a penknife will do, and to have the sore part wetted with some of the simple quassia tincture ; such an easy operation which may be performed even by a child, should be repeated every month once, as long as the epidemic rages, and there be a reason to fear infection.

A good plan is the removal of the patient, as also the inmates of the house or place, where the attack had been made to an healthy locality.

The convalescence after the inoculation is very short, in comparison of those of other improper treatments.

In order to warm a cold cholera patient, I used sometimes with a good success the *carbonic acid gas-bath*, by bringing the patient in a large bag of water proof cloth, fastened to his neck by an elastic ribband, the gas being introduced below, the patient should be in an upright position, say in an easy chair, so as to prevent any accident from the escaping deleterious gas, which is apt to produce suffocation ; therefore it is necessary to have a draft of air to carry the gas away, as it is heavier than the atmospheric air, and occupies the lower part of a room. The patient remains in the bath so long as he can endure it, and when the pricking and burning sensation he feels, is insupportable, then he may be taken out, and put to bed. Such a bath acts quick as a *rube-faciens*, better than mustard poultices, and by the restoration of the superficial natural heat drawn away from the inner parts of the body, the patient

generally feels comfortable. The inoculation of the remedy should be performed soon afterwards.

Sago, arrow root, tapioca or pearl-barley decoction, sweetened, acidulated, scented with some rose-water, or with milk and cinnamon-water, as also weak-tea with toast, according to the taste and desire of the patient, should be given as food, when there is any appetite, and not before.

Fruits unripe or overripe, as Cabul grapes, should be cautiously avoided during the epidemic, other good and ripe fruits, however, principally backed, preserved or candied, as also jams, jellies, marmalades, raisins, pomegranates and sugar-canes are good; the natives like much the cocoanut-water which by no means is bad, it is a cooling sweet and wholesome draught.

It was said that copper-smiths in Europe, remained free from cholera, I, however, had this year, copper-smiths, coach-builders, joiners and potters.

On board of ships loaden with salt, others with coal, I had also to attend cholera patients.

I often remarked by these natives that their cholera patients were affected by a kind of itch, or pustulous ring-worms, a certain dyscrasy or impurity of the blood, which most probably is a predisposing cause of epidemic diseases. In some instances, I observed also, that convalescentes of measles or of small-pox had slight attacks of cholera. I saw this year in two instances, that in one corner of a room, a hopeless cholera patient was lying, and in another corner of the same room,

a case of the worst kind of confluent small-pox, as if they both came from the same battle field, mortally wounded.

The great mortality amongst the poorer class of these natives who indeed are more subject to the epidemic than the wealthier people, is in consequence of their unhealthy habitations, their low, dark, wet, and badly ventilated small rooms, with one opening only, namely, the entrance and very seldom a small window besides ; often situated in the proximity of offensive, putrid tanks, wherein they bath ; or on pools, ditches and bad drainages, the very nest and teeming womb of the infusoria which raise with the effluvia, and produces the malaria, the cause of the epidemics.

Their patients usually lie naked on a mat, spread on the ground of the floor, which they soil with their vomitings and purgings, and to prevent vomiting, which they regard as dangerous, they give to their helpless, thirsty patients, the water in very small quantities with a shell, they call *jīnok*, containing about one table-spoonful, and they rub oily and greasy substances in the bodies of their patients.

A number of curious spectators from the neighbourhood, as also friends and relatives are generally assembled in those small rooms, of which they spoil the air by their breathing, and with their chattering, and questioning, they indeed give very little rest to their patient, and when they have no more hopes for his recovery, they convey him to the bank of the Ganges, where they have some buildings for the pur-

pose ; there he soon expires, or he has to suffer the privation of necessaries, until he at last dies, and very seldom that there one or the other recovers.

Considering the real cause of the epidemics, we may easily understand, in how far they may be contagious or rather infectious, as a great deal *pro* and *con* has been said about. It is well known that an excess of heat or cold destroys every miasma, *i. e.* the morbidic germ, the infusoria together with their ova, such means should then be used as security to the disease, and all the foolish quarantine laws of civilized countries abolished, as they are only impediments to commerce.

The transplantation of this wonderful tree, the quassia, from Japan, &c. to our warm meridional parts of Europe, may perhaps be possible ; but as it drives so well here in the botanical gardens, it should be propagated all over Bengal, Madras and Bombay.

It is highly probable that the efficacy of this remedy, the quassite, as an anti-epidemic, is not confined to the epidemics of the animal kingdom, but that it equally is a specific in those also of the vegetable kingdom, as for the disease of the vine, of the potatoes, of the mulberry-leaves, &c., which in fact are produced by the puncture or sting of certain microscopic insects ; therefore quassia will be a great remedy, indeed, so indispensable to the agriculturists and to gardeners, as it is to the medical men.

To prevent seeds to be sown from an attack of insects, it should be tried to steep them in some

decoction of quassia or to springle the powder of the drug over them.

I refer for details on "Natural influence of cholera on plants and on the lower animals," (Association Medical Journal, December, 15, 1854,) and "Suggestions for observations on the influence of the poison of epidemic cholera on vegetation." (Proceedings of Botanical Society of Edinburgh for 1856, p. 25) further, Prof. Daubeny of Oxford, "on the influence of the lower vegetable organisms in the production of Epidemic diseases" (Edinburgh New Philosophical Journal, July, 1855). See also on the cattle murrain (The Lancet, May 16, 1857.)

In conclusion I fervently trust, that this my interesting discovery of inoculation may lead to a cultivation of such highly a neglected branch of medical science !



