Fox (J.)

CHOLERA PROSPECTS:

COMPILED FROM

PERSONAL OBSERVATION IN THE EAST,

FOR THE INFORMATION AND GUIDANCE OF INDIVIDUALS AND GOVERNMENTS.

BY

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PREFACE.

THE following pages present some facts which, I trust, may be deemed important and novel, concerning the epidemic with which we are threatened, and our behaviour, internationally, socially, medically, in relation therewith. My information, self-sought and self-obtained in the East, shows — (*a*) how untenable is the theory of spontaneous development; (*b*) that the source of cholera-poison is India; (*c*) the influence and great power of the transporting agencies: man, ships, and currents of air; (*d*) the line of investigation required of the International Sanitary Commission; (*e*) the action of good food as a preventive, — a word for the poor, and a warning to ourselves; and lastly, (*f*) the plan of prevention and treatment found to be the most successful, of late. All these points directly concern each one of us.

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CHOLERA.

THE Profession is anxious enough as to the probability of its being called upon to do battle on behalf of the public, with the most terrible of all diseases—cholera, which is stealthily approaching the metropolis. The most recent report warns us that there is more than the average amount of severe diarrhœa amongst us, and that spots about which we were congratulating ourselves as to the disappearance of the disease have been revisited by the thing we dread. This is the case near Epping. Perhaps the fact of my having recently passed through almost all the localities in the East where the ravages of the disease occurred, and observed during a period of several months the attendant circumstances, of manner, climate, and hygiene, which are peculiarly appreciable to the eye of the medical man, has impressed me vividly, giving me especial concern

for my own country. I believe I am correct in saying that I am the only English physician who has come into close contact with the facts and details of the late outbreak; hence I shall not be blamed for having introduced the subject to the Harveian Society, in order that its members might have the opportunity, by discussion, of ventilating their several views, solving points of doubt perhaps, and possibly of arriving at some definite conclusion as to the line of action they would adopt should an epidemic unhappily seize on us. The preventive measures in regard to cholera are the chief reliances upon which we build our hopes of escape from pestilence; it is well, therefore, that we lose no opportunity of being beforehand with the enemy.

Dr. Jules Guérin, one of the most eminent of the French physicians, has well said, in the *Gazette Médicale de Paris,* October 14th, 1865, in reference to our neglecting to look matters fairly in the face, "Now we know that cholera gives warning several days before its attack, more attention is paid to prodromata (early symptoms); they are treated, and the patient is cured." When, on the contrary, there is false confidence, the early stages of disease pass unperceived, and the aggravation of the malady soon dissipates the deceitful security. It is better to warn the public frankly, to tell them exactly

how matters stand, especially when we can temper the alarm arising from a knowledge of the danger by indicating the means of avoiding it.

My line of tour comprised Alexandria, Cairo, the Nile country, as far up as the second cataract; from Cairo to Suez; thence to Mount Sinai, across the Tih to Nakhl, Hebron, Jerusalem, Jericho, the Jordan valley, Nazareth, Mount Carmel, Acre, Tiberias, Safed, Banias, Hermon, Damascus, Baaelbec, the Lebanon range, and Beyrout.

It may be as well to observe that, as regards Egypt, Syria, and Arabia, the information received from time to time has not altogether been trustworthy. The panic which seized the populations was most terrible, and the best possible face was given to matters: without avail, however. The climax came, and the people simply ran away, doctors and all. Alexandria, Jaffa, and Beyrout were literally deserted. Here was number one of a variety of influences which played detrimentally upon what the French have happily termed *the epidemic constitution*. This was unquestionably very much lowered in its degree of vigour and resistant power, below a healthy standard.

On my return to Alexandria from Syria, the place was a paradise to what it was when I first landed; so much so that I positively did not recognise many

of the streets. On my first arrival, without a vestige of sanitary measures, — dirty, dingy, unswept, ill-drained, ill-ventilated, and densely populated, — it offered a ready reception for the cholera, which first appeared in the wretched quarter near the railway. Cairo was not very much better.

I do not know a better index of the quality of things than is afforded by the condition of the numerous masterless dogs which are noticed in every direction. Ill-fed does not suffice as a description; they are mangy to the worst degree, sore-eyed, scabby, and ulcerous. True, they are the natural scavengers of the towns; but what a wretched state of concomitants must co-exist herewith. The ophthalmic eye and strumous aspect of the lower orders is but in harmony also. It is no very uncommon thing—indeed, it is usual—to see putrefying carcasses of dead animals lying in the most frequented parts of the towns and villages. No one dreams of removing them. I have seen in Cairo a dead dog lying in the same place day after day, until at last the carcass was actually devoured by the living of its own species, and apparently refused until it was in a condition to satisfy the acquired taste for actual putridity.

Hot winds (*chamseens*) have prevailed very frequently in Egypt during this year; they are peculiarly oppres-

sive. The *murrain* amongst the cattle has now done its very worst. The people are debarred in the Upper Nile region from killing bullocks: everything in the shape of animal food is scanty and dear. A large importation of cattle has been going on for some time, but this is conducted in the most objectionable way. I have myself known over 2,000 sheep stowed away, after several days' march from the mountains, on board ship, and sent by a two or three days' sea passage to Alexandria without the vestige of food or water being supplied them. No wonder that a large proportion die before the anchor is weighed, in addition to many on the way, and more after they are landed. In the sultry summer-time the mouth of the Nile abounded with the putrid carcasses of these dead sheep, which were thrown there out of the way.

The general *heat* of the last season has been special. I have noticed the thermometer, in the shade, on board our dahabeëh, on the Nile, rise to 115° F., and descend at night through some 60° to 55° F. The water-supply is not only as bad as it can be anywhere; but it has been very much less than usual throughout the East. At Cairo the Nile is but one large cesspool, and the water which is used by the natives is obtained direct from the river, in the immediate neighbourhood

of large barracks, and the assemblage of all the grain, country, and pleasure boats, which give their refuse to it. In addition, the drainage of the towns higher up stagnates here to some degree in time of low-water, when the current is slow, and (as was the case with the present year), the banks are more than usually exposed. The water in the leading hotel at Cairo was very bad. High up, above the first cataract, the Nile water is delicious and sparkling to a marked degree. The Nile at Cairo is in the same relation with that city as is the Thames to London, except in so far that we do not drink Thames water. At Suez, the water-supply was deficient, and in consequence the fresh-water canal was specially guarded, that not the slightest disturbance of its contents should be occasioned. Between Suez and Mount Sinai not a drop of drinkable water was to be got. At Moses's Well (the first halt) it was offensive, flocculent, and brackish, and this may be taken as a sample of what we found elsewhere. At Beersheba, at Damascus, at Lebanon, and Mount Sinai alone was it at all passable. At Nakhl, the halting-spot of the Cairo caravan, the water was undrinkable. At Jerusalem, where fevers were prevalent, it was full of vegetable impurities, dark and foul. Here are no springs; all the water they have is rain-water,

which is collected into tanks. At Damascus, the waters of the renowned Abanar and Pharpar are naturally good, but polluted, of course, artificially. The vegetation of the country was devoured by locusts, which filled the air from north to south of the land—from Sinai to Beyrout; *ergo* the oxidation of the atmosphere must assuredly have suffered, and ozone have been deficient enough.

The drought and intense heat rendered the intestinal tract peculiarly liable to disorder, and this was only the more favoured by the kind, quantity, and state of fruit eaten at large by the inhabitants. When ripe, fruit is regarded as insipid; when unripe, as piquante and possessing flavour. Cucumbers, rind and all; huge water-melons, with stringy fibre; hard, dry, shrivelled figs; and blighted apricots are enjoyed. Then uncleanliness, rather than cleanliness, is the religion of the people, whether in regard to the doings to, or the doings of, the body. Another thing worth mentioning is the singular humidity which prevails at night. These form a combination favourable to the development of cholera.

Now pilgrims on the way to Meccah,—the would-be Hadjis,—were acted upon, not only by the above-named conditions, but new influences; and, in years of *ordinary* occurrences, it must be remembered, a large number die in an early stage of their journey,

the remainder persevering on under the action of everything that can depress and destroy. At Meccah, about 700,000 pilgrims,—many of whom reduced to the lowest ebb of life, and placed under the worst possible hygiene, surrounded by an atmosphere tainted to an unimaginable degree with the pollution of their own bodies, and played upon by the exhalations from the decomposition of the remains of some 700,000 animals (for each pilgrim is required to sacrifice one animal at the shrine of Mohammed), were congregated. Cholera now appeared.

I would direct the attention of the Society first of all,—and this is the chief aim of my remarks,—to the exact origin of the cholera poison. Was cholera generated *de novo* at Meccah, or rather introduced or transported thither, did not its poison find the very best possible conditions for its full development? All recent research tends to prove that the doctrine of spontaneous generation is false and untenable. Crowd your population, vitiate every possible sanitary measure, and the kind of pest which follows will vary much. Thus we hear and read of men on a voyage who, in the absence of nutritious food, had scurvy or dysentery "break out" amongst them; of others who, living in crowded, badly-drained houses, have taken typhoid, scarlet fever, or typhus. Now, it is clear that, without the crowding, the famine, or

the bad drainage, we should in the above cases have scarcely had typhus, or scarlet fever, or typhoid. The *very same agencies* in full play may be followed by the appearance of cholera. In other words, the same hygienic conditions may be alike in several instances, and yet a different result follow.

We conclude that there is a special and peculiar poison of cholera, and that it is generated independently of the hygienic influences that immediately surround the individual; that it speedily developes when the latter are in such a condition as to deteriorate the health. We have had our fill of semi-scientific talk about epidemics and cholera poison, and are told to look to a deficiency or absolute want of ozone (which has been shown to be erroneous in the recent attack on Egypt) or some other atmospheric constituent, and are apt to argue from this that as there is a coincidence in the peculiarity of the atmosphere and the prevalence of epidemics, therefore the one is necessarily the cause of the other. Do we not jumble together the influences which affect the individual as rendering him a fitting soil for poisons, and those which are specially concerned in generating the poisons themselves? The very agencies which are said to generate cholera *de novo* may be entirely absent. In India it is well known that at certain seasons,

a man has only to march through a certain jungle to get cholera. Where is the effect of overcrowding and bad hygiene as a generative agency here, or on board a well-appointed and well cared-for vessel away at sea? If the same conditions which existed at Meccah always led to the same result, it would be an argument in favour of the development of the cholera there. The cholera poison was clearly brought to Europe from the East, and in the East from Meccah to Jiddah, thence to Alexandria, Cairo, and other parts; and there is sufficient reason to warrant us in concluding that *the cholera poison was transported to Meccah from India.* I learned, as an indisputable fact, that before any cholera appeared at Meccah, several vessels,—and British vessels, too,—originally from Singapore, which arrived at Jiddah in the beginning of last March, had lost a frightful number by cholera. These vessels touched at Mokullah, on the south coast of Arabia, and must have been three weeks or a month on their voyage from that place to Jiddah. I am correct in saying that eighty alone died in one ship somewhere off Mokullah. The disease subsequently appeared at Meccah, and was afterwards brought back again to Jiddah, where it was at its height about the 15th of May, and then rapidly decreased, owing to the embarcation of the pilgrims. The disease at

Mokullah is supposed to have been brought from Java. Cholera was raging in the Bombay presidency and in Java long before it showed its appearance at Mokullah and other parts of the Arabian coast; and I am positively informed by the learned Secretary to the Epidemiological Society, that it was rife at Aden at the same time; that is, before and in the line of the arrival of pilgrims on their way to Meccah. Attention was first called to these facts in a letter addressed to the *Lancet*. And here I cannot but pay a tribute to the admirable report which has appeared weekly in its columns. It is the most trustworthy source of information, and the comments and inferences made from time to time have exhibited an accuracy of truth and a clearness of judgment most remarkably confirmed by the knowledge which has recently come to light. The guidance of the *Lancet* has unquestionably kept us from a considerable degree of error and confusion. Now it is no more difficult to account for the conveyance of the cholera poison from India to Mokullah, and thence to Meccah *viâ* Jiddah, than from Meccah to Alexandria, and thence to Malta and Europe, or from Meccah to Damascus.

If cholera had become *naturalized* at Meccah, or in any part of the East, then the evidences of the presence of its poison in the air or elsewhere would

be seen the moment such poison fell upon a suitable soil for its development. But this is not the case, though there is some good reason to think ere long it will be so; and certainly when we come to discuss the question of preventive measures, there can be no doubt how dangerous is the doctrine of the development *de novo* of cholera poison at Meccah; and how much more safe it is to believe that the peculiar conditions under which the virus is produced or propagated, are at present peculiarly prepared in India. The transference of the disease from India to Arabia illustrates the law of action in regard to acute septic disease, which requires a threefold condition, viz., a poison, a means of transference, and a suitable soil; and in estimating the cause of cholera, we must ever remember that the first and last co-exist together. The poison *per se*, the nidus *per se*, avail little; it is the joint influence of the two that leads to cholera. A man may get a dose of poison as he walks through a cholera district, and it may fell him, and kill him in a very short space of time: this is quite feasible. On the other hand, where the nidus exists in a perfect degree, the dose of poison need be little to produce marked results.

We know that India is the nursery, the breeding-place of cholera; and it is possible to trace cholera always from India originally, as in the recent out-

break: we have no evidence to show that it can be generated spontaneously elsewhere. I do not like the idea of a "something," electrical or terrestrial, when we know exactly where to find the manufactory of the mischief. Within the last few days our great daily authority has again argued in favour of the theory of spontaneous generation, in regard to both the cattle plague and cholera. "We know that many diseases, originally of a purely local character, have in the end become naturalized in all countries alike. This very year we have had a forcible example of the phenomenon. If there was any disease in the world believed to be strictly local in origin, it was cholera. Cholera, we thought, came uniformly from India, and could come from no other country. . . . Yet we have strong reason to presume that it can be *spontaneously* generated elsewhere, provided only the conditions of production be present in force." I hope I have proved the three points involved, first, that cholera still comes from India, and recently was not generated at Meccah; secondly, that the conditions under which cholera poison is produced, and those which induce in the individual a ready reception, are different, but mostly confused; and, thirdly, that cholera is as yet not naturalized at Meccah, but can be traced as to its source to India.

The theory of the development *de novo* of cholera has been used by analogy to explain the case of the cattle plague. "Why may not the *rinderpest* obey the law of the cholera and small-pox?" The actual facts of the cholera case clearly tend to prove that the *rinderpest* is an importation, and all Austrian authorities agree that it is "peculiar to the Russian steppes, not being spontaneously generated elsewhere." It has become *naturalized* in Russia, being originally brought from Central Asia. "Even," continues the *Times*, "if it can be taken as certain that the *rinderpest* has never yet been spontaneously generated anywhere but in Russia, it will remain still to be shown that it never could be so produced." True, and the same may be said of cholera. Both may become *naturalized* in various parts other than Russia or India respectively, as has already happened in the case of the *rinderpest*. They will scarcely *spring up de novo*, but rather be *transported* to *settling at* other than present endemic parts. Diseases are migratory, and obey this law in the change. We dare not act upon any other than the theory of transportation.

Denying, then, any other theory of the origin of cholera at Meccah, and parts intermediate between Meccah and England, except that of transportation, and omitting any discussion of the conditions under

which in India, its endemic habitat, the poison of cholera is produced, let me ask you to look at a single specimen, if not of the cholera-producer, at any rate the cholera-conductor. I would call this man a cholera-conductor, as I would call a rod of iron a lightning-conductor. I know him and his companions but too well: a capital type of an unwholesome existence, his cadaverous face wrinkled like an old man, though then in his prime,—if indeed, such can have a prime,—a pilgrim from a cholera hotbed to holy Arafat; he has just landed, after a three weeks' voyage, in a stuffy and uncleanly ship, wherein he has been huddled with a host of others, without the least attempt at ventilation, cleanliness, change of clothes, good food, or water. Arriving half-starved, but quieted by tobacco, and ill-conditioned by an attack of diarrhœa, or semi-fever, at Jiddah, he begins his Desert journey. Many of his companions die off from sheer fatigue and heat, but he gets on.

Now, a journey through the Desert, with all the appliances that the wealth of some of these people might procure, is by no means a clean, much less luxurious, enjoyment. Buoyed up by the artificial stimulus of religious enthusiasm, he starts, after a grand parade, more or less debauch, and general saluting, in company with a little army of others

like himself. Externally he is subject to perhaps the greatest vicissitudes of climate it is possible to imagine,—parched with thirst under a burning sun by day, and chilled to the very marrow by the cold of midnight and early morn, or perhaps drenched even by the rain-like dew which, as a "presence," pervades all places, and penetrates everything of a porous nature; fed on insufficient, innutritious, and even unwholesome food, a few lentils, sour milk, sour bread, and bad rice, a little coffee, much tobacco, with a spice of hasheesh; ill supplied with what is by courtesy called water, but which is a brackish fluid, carried in a filthy skin, churned day by day under a broiling sun, emitting a horrible odour, and having for condiments all sorts of abominations in the form of animalcules, sulphuretted hydrogen gas and dirt in solution;—clad in garments most showy, but most filthy, which are never taken, but often actually worn, off, with a skin enamelled with filth and burrowed with parasites,—foul enough to himself and offensive to those around,—with low instincts brutalised by neglect, he lives a hot-bed for any virus, to contaminate his fellows around him, and perhaps dying at last, and half-buried in the sand, to poison the air the more effectually. May I ask if such a wretch would not surely carry most religiously the

germs of cholera, if they once came near him? He would offer, too, a ready reception to disease; but I deny his ability to generate cholera poison. As there was a greater than usual assembly together of Mohammedans this year at the feast Kurban Beiram, it may account, upon the theory of concentration, for special features in the recent pestilence, which has been more extensive than usual; not only has it travelled farther along the sea-board, but actually inland to Jerusalem, and, what is of more import, Damascus, which has up to the present time been considered proof against cholera. Aleppo, too, has been frightfully afflicted, and Medinah also, but not for the first time in the latter place; for Burton, in his "Pilgrimage," vol. ii., p. 174, mentions it having visited Medinah four times before his visit in 1853. The conveyance of poison seemed to be so much more perfect this year; those pilgrims who returned to Damascus had been forty days on the march, and this was thought sufficient quarantine, whilst the people felt themselves quite secure. It must be noticed, however, that certain pilgrims died on the road, and it could scarcely be said that there was any quarantine action, or that there was any absolute certainty that the seeds of disease were not in the midst of the remainder, the remnant that reached Damascus. Of

160 who left the caravan, chiefly in search of water, and made for Safed, only one arrived to tell the tale of 159 dead out of 160. This fact bears strongly on the question of quarantine, and the account one should take in these days of rapid travelling and free intercommunication, of the two different instances; the one a ship free from disease during the voyage; and the other, affected more or less, but at the time of observation, convalescent or free from ailment.

We cannot refuse to see that the tendency of every succeeding epidemic is to affect more widely the range of country around, and that in any future outbreak we in England may anticipate a greater likelihood of our own country becoming affected, if we are disposed (as it appears we are) to place less reliance than usual on quarantine.

But besides the influence of individuals, or collections of individual ships and the like, there is another agency at work, by which cholera poison is transmitted, viz., currents of wind. Cholera, it is true, may travel in the teeth of the wind; but this is very exceptional; and such instances may be explained by the existence of such a conductor as has already been noticed. Clearly, winds have a great influence. In the former attacks on Malta, some very strange facts were noticed, as showing that ships cruising

in a certain direction were attacked by cholera, and that the latter ceased at once on changing entirely the course of the vessel,—thus avoiding the line of cholera poison and the line of wind. At Alexandria a change in the direction of the wind when it blew away out to sea was followed by a diminution of the death-rate. These are only one or two of many such-like facts. Now, the greatest argument against the transportation theory is one based upon the fact that cholera may break out where there is not a tithe of proof of transportation, and where the distance from infected places is too great to allow of any such explanation. But let us see what winds really can do. The wind can carry the ashes of a volcano for forty or fifty leagues. The ashes of Vesuvius have been carried to Venice and to Greece. It is affirmed that in 1766 the ashes of Hecla were carried to Glaumbo, some fifty leagues away, producing, according to Oloffen, perceptible darkness. It is certain that the ashes of the volcano Consiguina, in Guatemala, in 1835, were transported to Jamaica, 800 miles away. My friend Dr. Sedgwick, who is one of the most accurate and trustworthy observers of facts I know, tells me that on his return from India, after rounding the Cape, when at least 500 miles from land, the sails were covered by the fine sand blown from the desert of Africa. Why may not cholera travel in

the same manner? To a certain extent it may; but the sand suffers no diminution nor extinction. The subtle poison of cholera does; and, therefore, unless there are special conditions, you would not expect such a result. Under ordinary circumstances, the poison of cholera is not *held together* by the air; it becomes *diffused*, and is acted upon and destroyed by Nature's own disinfectant,—probably ozone. Depend upon it, Nature does not teach us the use of antiseptics, and neglect them herself, though we seem to fancy so.

If the quantity of poison be large, carbonic acid be present, and there be any means by which diffusion is prevented, then the wind may carry the cholera or any other virus. Now, such a condition of things is presented by a humid cloud. We often hear that cholera breaks out in places after a storm, or in a ship in mid-ocean after a "stinking cloud" has passed over it. In this way cholera may be transported a long way, and apparently be spontaneously generated; though this is not frequent. Certainly, the means of transportation are most usually man himself, and not the wind and a humid cloud. We notice, as confirmatory of this action, that attacks are more frequent in marshy districts, and at night, when the air is, of course, damp and heavy. Cholera, too, is not known in situations of great altitude, where the

air is rarefied and free from carbonic acid. The fact, then, that cholera "breaks out suddenly" at long distances from parts actually affected, is no proof in favour of the theory of spontaneous generation.

We see by the various papers, that a commission has been sent to Meccah, to inquire into the matter; and this idea, seconded cordially by the French Government, has also resulted in the determination to appoint an International Sanitary Conference to meet at Constantinople, for the discussion of the best means to be adopted, with the view of preventing any spread of pest in the future from Meccah.

The Viceroy has actually already established a hospital at Suez, for the use of pilgrims on their way home again. This latter measure is an impotent one; its action really is a *curative,* not a *preventive* one, and the disease may be introduced to Egypt through many other lines of travel, for Suez is only one road of ingress. With regard to operations directly carried on at Meccah, much good certainly can be effected; for, by the adoption of proper hygienic means, the state of the community might be rendered less apt to favour an outburst of disease, but they are not calculated to effect the greatest amount of benefit.

The true and most effectual check by which the

epidemic might be strangled in its very beginning must be given before the pilgrims reach Meccah; the cholera-conductors should be thoroughly overhauled and placed under strict observation, especially such as make their way from known infected spots, or others where the poison is known to be endemic; and especially is it necessary that the southern and eastern shores of Arabia be placed under strict surveillance *quoad* cholera. All the more success would be attained by being forewarned, as regards the condition of all districts in and about India, and keeping a watchful eye over the shipping, both before its departure to and arrival at Jiddah. The feeding of the pilgrims, too, should be remembered. If we stopped the yearly festival, we should, I believe, scarcely see cholera again,—that is impossible, however. Carry out every conceivable sanitary means you may at Meccah, and still the open door is left for the *entrée* of the transported cholera poison; but in addition, pass every person coming from infected places through some ordeal of disinfection, and you reduce the chance of the development of the malady to its smallest possible point.

I fear that the various Governments and their advisers are strongly guided by that theory which looks upon cholera as having been generated *de novo* at Meccah. It would result in gravest disappointment

if it were acted upon. Not only does the transportation theory explain the whole progress of cholera from Meccah to England, but it is illustrated to a remarkable degree in the exemption during the present year of Sicily, Greece, and Barbary, the authorities of which adopted *a rigorous and efficient quarantine.* How much is it the duty of England to take most urgent steps in the matter, seeing that the starting-point of the whole mischief is that of her own dominions,—India,—and the means of conveyance her own ships.

What is required of our Government is the appointment of some one to go out and collect trustworthy observation, especially at the ports on the Arabian coasts and India. Any international commission must necessarily be at a loss without the information this would afford, and it is highly necessary that some of the members should be well acquainted with the life and habits of the people, and the peculiarities of the climate of the East. Presently, cholera will become fairly naturalized in Arabia, and be gradually established in localities nearer and nearer to England.

Very much may be learned in reference to our own country from the occurrences in the East. We must remember well the threefold composition of a cholera epidemic; viz., the poison, the means of

transference, and the soil. Space compels me to omit further comment upon the two former. We may reckon the probability of the occurrence of cholera. It appears to be decreasing in France; but it may hover about the Continent, and visit the Tyne by-and-by, reaching that locality *viâ* Russia or Denmark. We must be upon our guard in the early part of the year. Diarrhœa, even now, is too prevalent. Should the poison be introduced, in what condition will it find the "epidemic constitution" of our people? We know too well what has happened in the East, in India, and in the various parts of Europe already visited by the plague. This: the poor people were the first to suffer,—those whose hygiene and nutrition were faulty. Dr. Maurin, of Marseilles, has published a very interesting account of the disease in the *Gazette des Hôpitaux*, in which he shows it not only attacked those of the lower orders, but especially such as committed excesses. Meat was dear, fruit abundant, business stagnated, and living bad. The Italian colony of Marseilles, about 25,000, crowded in unhealthy dwellings, lived upon all manner of trashy food; and several special circumstances favoured the close aggregation and collection together of the poorer classes. First came the national *fête* of August 15; then a public execution; and, lastly, the Fair of St. Lazarus, which

lasted fourteen days from the 1st of September. Two days after the fair had closed, cholera appeared.

Now, if the scientific authority of our land advise the Government lightly in the matter of quarantine, then all the more desirable is it that our efforts be vigorously directed to render the constitution of the community as good and resistant as possible. A very remarkable fact came under my notice in Egypt, in the marvellous exemption to the ravages of cholera which occurred in the case of the railway labourers: out of 8,000 only eight died. It turns out on careful examination, that the men were not allowed to over-fatigue themselves (not to work between eleven and two), and were supplied with good and wholesome food, soups, rice, meat, &c. The credit of this sensible and humane act is due to the excellent Minister of Public Works, Nubar Pasha. It may be the fashion to pooh-pooh common influences, but the stake is tremendous in the present case, and the evidence without a doubt: it teaches in strong terms the lesson, which needs more application, that the *entrée* of cholera poison is to be prevented in a great degree by the use of those means which directly minister to the nourishment of the body, and so tone up the resistant power of the individual.

I am anxious to re-excite attention to what I consider a matter of first importance. It is the influence

of bad rice upon the production of cholera; the condition of rice produced by a fungus growth producing a sort of ergotized condition of the grain. Perhaps there is no subject which is exciting so much attention amongst medical men as the influence of fungi in the production of disease, and in this matter I must again demand the greatest praise for the *Lancet*. In its columns, in opposition to many leading men, the vital importance of the matter was portrayed, and encouragement given to the gentleman who brought the matter forward. In the *Lancet*, vol. i., 1833-4, Dr. Tytler, before the Medical Society of London, stated "that he was prepared to submit to the members a statement of facts of the utmost importance in proof of an opinion which he entertained, that the disease which has been described under the name of the Asiatic cholera, and which is said to have arisen in Jessore in 1817, was occasioned or kept up in India by the consumption of unsound rice as an article of food." The disease in India was produced by the deterioration of the rice crops of the country, and Dr. Tytler found in London the same kind of rice as that consumed in India. Morbus oryzeus was the name given to cholera by Dr. Tytler. He exhibited various examples of what he called "ergoted" rice. The tunic of rice, between the husk and the grain, is regarded by natives as

very poisonous, but no attention is paid to this in England, though the object of the natives in India is to separate it away, as it produces violent effects on the bowels. The yellow and black rice-grains are diseased throughout, the red grains only in their tunics. Bontius ("Diseases of India") wrote his opinion, that dysentery was caused by drinking arrack made from rice. Dr. Lind, Dr. Hunter ("Diseases of Lascars") described "a dropsical disease with putrid sores" as due to bad rice. Grose ("Voyage to India"), Sonnerat (in his "Travels"), Griffith (in his "Memoirs of Capt. Wilson"), mention other cases; and Col. Pearse, Dr. Bernard, Dr. Percival, Count de Manse, Dr. Trotter, Dr. W. Hunter, Dr. Johnson, Dr. Blackall, and others, are also quoted as showing that bad rice gives rise to certain intestinal ailments, especially dropsical symptoms and scurvy.

Dr. Tytler traced apparently many cases to the eating of new rice; its prohibition, when carried out, appeared to exempt from cholera, though the latter raged around. He alluded to the occurrence in India of cholera in districts where bad rice was used; at Charleston, in 1832; at Paris, in 1832, during which time rice was distributed to the poor by the municipal authorities; and in 1833, Dr. Tytler found the cholera in London, and bad

rice selling. He accounted for the diseased rice being brought into this and other countries thus. Previously to 1813, the East-India Company held the trade between Britain and India, and only the best articles were imported, it not being in the interest of the Company to trade in bad produce. But in 1813, the modification of the Company's charter of government threw the whole trade open. The free ships, which arrived in 1814-15-16, were filled with cargoes of rice which had been accumulating from want of sale in the markets of Calcutta. In 1817, the rice crop was specially deteriorated by (1) the unparalleled wetness of the season; (2) by being cut before it was ripe, the crops of the former year being deficient. In 1818, the trade between the ports of the Mediterranean and India was opened, and large quantities of rice were exported, getting to Cadiz, where Ferdinand's army was decimated. Since 1818, a market has been found in Europe for the *refuse* crops of India; prior to this the bad crops were thrown into the rivers. It is important to observe that rice may come to us in the shape of flour. At the time Dr. Tytler made his remarks, it was shown that severe diarrhœa prevailed amongst the boys of the London Orphan Asylum, one of the principal articles of diet being bad rice; and when the latter was discontinued, the diarrhœa ceased.

Nothing has been done since. This is a subject which is wholly open to investigation. I may say, as the result of my own experience in similar matters, that the bad rice probably acts by affording a suitable nidus, rather than by generating the cholera poison: be this as it may, it is clearly an instance of the influence of bad food in favouring the outbreak of cholera, and it concerns the poor of our own land very closely. In Egypt, this year, the rice was very bad and very dirty.

It is of the utmost importance that in all quarantine establishments, besides the utmost ventilation, the bare whitewashed walls, and the simple paillasse, good food be provided. I scarcely know a better way of courting cholera than the opposite course; and I know that this matter is not sufficiently attended to. Bring a crew into a lazaretto, feed them badly on poor or innutritious messes, especially bad bread, and if there be cholera poison near, it will very likely show itself; feed them on good substantial plain food, and you lessen a thousand per cent. the danger of any transference or development of disease. I believe neglect in this respect is why quarantine often fails its intention.

Our winter is coming, and we have every reason to think it will be a severe one; all prognostics hint as much; murrain or cattle disease has attacked

our animals; meat is dear, and will be dearer; coals are now placed entirely beyond the reach of the lower orders, so fabulous in price are they. This is not a cheering prospect for the poor. With winter comes the depressing influence of cold; many a husband will be frozen out or otherwise unable to obtain employment; unwholesome food will be bought because it is cheap; and with poverty comes starvation, and filth is the inevitable companion of both. Of what avail is it that men preach sanitary lessons to the poorest, when they have not the means of keeping life a-going? In advocating the claims of the poor, we are benefiting the rich: the former are the occasion of the latter suffering. Guard the poor, and you guard yourself. I ask for a larger recognition of this principle, from the many experiences I have had in the East in spots impossible to describe for their defilement and poverty. I ask for the encouragement of some philanthropic movement which, carried out through the winter, shall attempt to obtain for every man employment and good food. Public attention and charity need but a hint to set themselves in action, and some guidance to secure economy. In threatened districts, the house-to-house visitation must be careful that in its anxiety to make things look and smell sweet, it catches the first sign of want, and remedies it with wholesome food,

inculcating the all-important lesson that the free use of stimulants is not preventive, but predisponent rather, to an attack. How fully illustrated in the East. Nothing can be more opportune than the establishment of the dining-halls for the industrial classes, at which good food can be obtained at reasonable prices. They should be known. There is one in the New Cut; a second in Market Street, Edgware Road; and a third, the Brougham Dining-Hall, in Fleet Street; the latter is in the neighbourhood of the large printing establishments, and compositors, enginemen, and mechanics can obtain hot soups and such like during the cold night-time.

Some important remarks have been made in Russia by Dr. Pozmanski. This gentleman always found that a very perceptible lowering of the pulse was an early condition in the prior stage of cholera: how much, then, should we try to keep up the animal heat by the free use of good food; and I would advise, according to circumstances, a change of diet in the mass of the people in time of danger, recommending more frequent and more liberal diet, especially making the morning meal substantial, and urging the avoidance of stimulants.

The relation between diarrhœa and cholera deserves attention. Diarrhœa is a symptom of many diseases, and, amongst others, of cholera; but I

would here insist upon that which has been amply proved by Indian physicians, and by the large experience of the recent outbreak, that diarrhœa is not by any means necessarily an early stage of cholera. A patient may die of cholera without having had a particle of diarrhœa. In travelling from the East to Europe cholera lost some of its virulence,—not only because the concentrating influences *quoad* the poison were lessened, but also the epidemic constitution of the people was more that of a healthy standard. The minor states of cholera — cholerine — approach in aspect severe cases of diarrhœa; and clearly the line of demarcation is difficult to be made. The medium class of instances might be called cholerine; and in these instances diarrhœa may be the first symptom. The broad distinction of extremes is clear. Collapse in true cholera is independent of the diarrhœa; but in the latter it is the consequence of, dependent upon, diarrhœa. This distinction is vitally important as regards treatment.

Treatment of Cholera and Diarrhœa.

Among the many measures of prevention, two special ones deserve notice. In the first place, all drains and closets should be religiously disinfected. I doubt if the public quite feel this. Secondly, I

would strongly recommend in time of epidemic a cholera-belt to be worn. I cannot tell the exact way in which it acts, but that it is a safeguard against internal troubles I am convinced, though I at one time regarded the matter amusingly. It is an Eastern fashion, of which I can speak highly from practical knowledge, in threatened dysentery and diarrhœa, or even choleraic symptoms. The mere support, in addition to the warmth, I am convinced, in some way renders the abdominal circulation less liable to become deranged, by favouring the return of the blood.

It is of great importance that all attendants about actual cholera patients should be provided with a respirator. This has been shown to be conducive to immunity from attacks, and it almost negatives what people are so frightened at—contagion. A layer of silk is as good as anything.

I also think that a dose of sulphites, given two or three times a day, does much good, and should be always taken by nurses in attendance on cholera subjects. My experience of the actual treatment of cholera in the East must be unsatisfactory. I believe the medical men who did not play the truant were fairly nonplussed. I am quite sure that in no country are men better prepared to treat cholera

than in England. In the East cherry laurel water, opium, chlorodyne, and especially nux vomica, were employed, the latter being given very largely, and carefully watched. There appeared, however, to be no scientific principle guiding the therapeutical plans. For diarrhœal symptoms, acetate of lead, dilute sulphuric acid, with chloric ether, opium, or kino powder, acted most beneficially. The host of absurd remedies in vogue amongst the ignorant natives was surprising; henna used in various ways, and used freely, being the favourite.

In the treatment of actual cholera, I would pray to be saved from the hands of the man of one idea. Many panaceas have been foolishly lauded, especially by the French; but the most successful plan has been that which has aimed at restoring the force of the circulation by the use of artificial means of heat, of inducing moderate and checking immoderate reaction, controlling too severe diarrhœa, and destroying the virus by special antiseptics. The prognosis as regards a fatal issue depends upon the quality and quantity of the virus taken in connexion with the state of the patient's health and conformation. The virus appears to act peculiarly on the sympathetic nervous system. The details of treatment vary somewhat according to the severity of the case. When the poison acts powerfully, and produces col-

lapse at once, it is necessary to arouse promptly the system by free excitants and stimulants (amongst which the succinated spirits of ammonia deserve notice) in conjunction with nervous sedatives, such as belladonna, to prevent undue reaction. In the medium class, stimulants to any great degree unquestionably may be omitted. How, then, induce moderate reaction and give heat? One plan is to place the patient at once in a very hot mustard bath; transfer him to a warm bed, and follow up with the administration of a hot-air bath, by means of a spirit-lamp. In this way you tend to bring the skin, which is cold and clammy, back to its proper action, and thus relieve the undue congestion of the whole intestinal tract; warm drink will assist the operation, and an emetic often helps.

There is a large amount of experience, however, to show that, in cases of collapse and frequent spasm, the best possible results are to be obtained by the use of strychnine. This has been proved in Japan (especially at Yokohama, by Dr. Hensman) and in Egypt also. In moderate collapse, with cold extremities, rice-water evacuations, and spasms, about one-twelfth of a grain is given each half-hour, until the slightest signs of its therapeutical effects are witnessed. In more severe cases a fourth part of a grain has been given for about two or three

doses, and it is said the spasms become less, the pulse gets up, and the countenance brightens.

There are other examples, in which belladonna given freely internally unquestionably conquers. Ice to the spine also succeeds in other instances. Strychnine, however, in the severest instances, carries off the palm. Can we explain the difference? I think so, easily. In severe cases of collapse, the activity of the spinal cord is very deficient,—partakes of the general collapse, so to speak,—and requires rousing. The spasms are almost similar in nature to those following loss of blood. Here strychnine, be the explanation what it may, acts well. In the minor instances, where collapse is not well marked, the spinal system is rather in a state of irritation, with more or less active congestion; and here belladonna and ice to the spine are best calculated to relieve the spasms. Chloric ether, chlorodyne of known composition, also assist. Locally, to the belly and limbs, frictions with oil of mustard or aconitina and veratrine unguents, cajeput oil and turpentine stupes avail. I protest against the use of ice to the spine *indiscriminately*. It must do good in cholerine, but harm, most likely, in true cholera, with sudden and marked collapse; and I would reiterate again, save me, and science too, from the hands of the man of one idea.

For thirst, ice, and especially the white of egg, in large quantity, or effervescing draughts, to which may be added large doses of carbonate of ammonia if desirable.

For sickness, cherry laurel water. In Egypt, nux vomica was freely exhibited to control the sickness, as well as to check the spasms. So great was the demand in Alexandria, that one chemist alone dispensed his six months' stock of extract in about a fortnight.

As to *Antiseptics,* throughout the treatment from the very first, it is necessary to give plenty of fluid to assuage thirst. I would make this the occasion of the exhibition of the alkaline sulphites in accordance with the results of the remarkable researches of Professor Polli, and the observations and theory of Dr. Snow. There can be no question but that the contents of the intestinal tract hold the means of propagating the disease, hold a large quantity of the cholera poison, and that the sulphites have the power of destroying septic matter. Sulphur has been given upon the same principle, and, no doubt, does some good.

Food is of prime consequence; concentrated broths and soups, given in small quantities, at frequent intervals, may be the vehicle for administering the sulphites.

Calomel, in large doses, as a therapeutic agent, has been lauded; it probably acts locally, and the alkaline sulphites are much preferable, do more good, and no incidental mischief.

The "saline treatment" of cholera, I would observe, in conclusion, finds no favour with those who have had large experience in the most terrible forms of this disease.

We are assured by many that absorption is entirely lost by the mucous surface of the stomach in severe cases. This does not appear to be wholly true. Here, certainly, the hypodermic method of treatment, or injections into the veins, will be demanded, and I should certainly make use of them had I reason to suspect absorption was not going on.

By the attention to early diarrhœal symptoms, depression and perceptible lowering of the pulse, however, the greatest amount of good is effected. At the same time, he who would relinquish the treatment of a case, as long as one breath is left to his patient, is hardly fit to handle the sacred art of medicine.

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