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ON

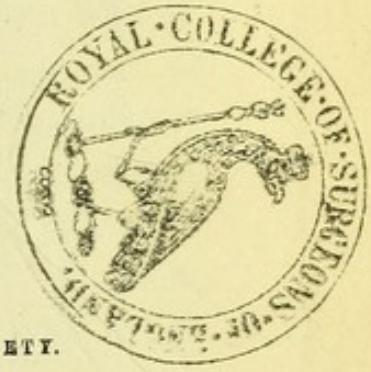
CHOLERA:

ITS

NATURE AND TREATMENT.

BEING THE DEBATE IN THE

HARVEIAN MEDICAL SOCIETY OF LONDON.



EDITED BY

DR. C. DRYSDALE,

HONORARY SECRETARY OF THE SOCIETY.

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PREFACE.

The following debate in the Harveian Medical Society of London is, as far as I am aware, the only one which has taken place on this subject during the past Session in London; and as there is only too much reason to fear that the question of the treatment of Cholera may become, before very long, of paramount importance in this country, it has appeared to me that the opinions of an influential body of medical men, delivered as these were, too, at a time when there was no panic to bias the judgment, might prove of service to all who are anxious to arrive at some definite conclusion as to the nature and treatment of Asiatic Cholera. I have added a few words of practical advice, which may prove of service, perhaps, to the more inexperienced medical practitioner, as well as to the general public.

Public and Private Hygiene in Cholera times.

Seeing that so great a difference of opinion exists as to the contagiousness of cholera, it may seem premature to give any rules as to the quarantine of persons affected. Nevertheless, it is better in this matter to err on the side of safety, and, therefore, it is advisable that Cholera

patients should be isolated as much as possible, and placed in separate apartments or large special wards in hospitals; or, better still, in special hospitals, when these can be procured. Ships with cases of cholera on board should be kept in quarantine. Towns should be carefully cleansed, and overcrowding, as far as possible, prevented. Dead bodies should be quickly removed from hospitals and private houses. Good food, which should be carefully selected, should be partaken of in sufficient quantity; and fermented and alcoholic drinks, especially beer, either abandoned for a period, or used with the greatest moderation.

Sketch of the Disease.

In cholera there is at first usually diarrhœa of serous character, often preceded by considerable colic. The evacuations are abundant, at first slightly coloured, afterwards white. Gurgling is heard in the belly. Vomiting occurs sometimes, though not constantly. In some cases the skin is hot and the pulse rapid. Cramps of various members sometimes occur. The tongue is cold, and there is suppression of urine. Some cases of cholera are slow, others very rapid: both commence with the same diarrhœa. The rapid cases are very common. Blueness, or cyanosis, is common, and sometimes covers a large surface of the body. The tongue is large, pale, moist, white, and covered with a more or less thick mucous secretion. The serous diarrhœa has been called rice-stools, from the fact that it often con-

tains granules, and frequently semi-coagulated masses of albumen. After death the ilio-cœcal valve is found to be swollen, and the small intestine, for about the length of a yard from the valve, infiltrated; whilst Peyer's patches are salient. No other organ requires notice, except the blood, which is usually greatly altered in cholera. There is much loss of water and saline particles, and the remaining portion does not readily form a clot. In the period of reaction, which in recent epidemics has been a very fatal period, the pulse is often as high as in great fevers; and the patients become delirious. In pregnant women the disease is peculiarly dangerous, and the fœtus aborts. Cholera is the most deadly of all epidemics to which the human race is at present liable. In the epidemic of 1854, 250,000 persons died in France and 30,000 in England; and it is said that in Mecca no less than 100,000 persons died of this disease in twenty-four hours.

Treatment.

As a general rule, in cholera, each symptom must be treated as it arises. There are frequently, in periods of cholera, when the weather is sultry, cases of bilious diarrhœa, characterized by dark-coloured stools and gastric derangement. In such cases an emetic, such as a scruple of ipecacuanha-powder in water, or a dose of castor oil, will remove the offending matter from the bowels, and the diarrhœa will soon cease. Notwithstanding

that a great deal has been justly urged against the use of astringents in cholera, by Dr. G. Johnson, Dr. Markham, and other eminent physicians, the majority of practitioners think that, when copious serous diarrhœa has lasted for some time, astringents should be employed. The best astringents are either drachm doses of the aromatic confection of the London Pharmacopœia in a wineglassful of water, or thirty drops of dilute sulphuric acid in a wineglassful of water, every two hours for a grown-up person. M. Velpeau's advice, namely, that five drops of laudanum be taken every two hours on a lump of sugar, has met with much approval. If the tongue is coated, and the patient have nausea and vomiting, then, ipecacuanha and castor-oil may be used; but in hospital or dispensary practice, the patients have almost always been under the influence of diarrhœa for two or three days previously, and in such cases no evacuant is required. As most of such patients are very weak, it is as well to commence by a slight stimulant. This may be followed by a tablespoonful of port wine every two hours, into which five drops of laudanum may be dropped. A little beef-tea or chicken-broth may be taken at the same time; but no solid food should be given. Repose in bed is absolutely necessary. Drinks should be used in moderation. Toast-and-water is a good drink, and cold boiled water is to be preferred to raw water. Rest in bed, I repeat, is the most essential part of the treatment. By the use of means similar to those above detailed, patients who pre-

sented themselves at the hospitals of Paris during the late epidemic of October, 1865, complaining of serous diarrhœa, which dated two or three days back, and not yet presenting any complete choleraic symptoms, when taken in and treated at once, recovered, it is said, without exception.

Treatment during Collapse.

All authors agree in recommending the patient to be plentifully supplied with cold or iced water during this stage. Warmth should be applied to the belly and to the extremities. Hot linseed-meal poultices, sprinkled with oil of turpentine, are to be preferred to mustard poultices, blisters, or friction. Calomel in large doses, and the sub-cutaneous injection of opium have been recommended by some; but most persons who have seen a great deal of the disease, reject all vigorous remedies in this stage, and content themselves with giving plenty of fluids to drink, and doing nothing more.

Treatment during Reaction.

In the third stage of reaction, the most rational treatment consists in supplying the system with light nourishing food, and the application of cooling lotions to the fevered head. Stimulants and opium are not indicated in this stage of the disease.

This Preface is entirely independent of the debate. I have merely desired to give, if possible, a practical form to what I believe to be the general tenour of the majority of the opinions expressed in the course of the debate, and I am entirely responsible for the above most imperfect sketch of the nature and treatment of the disease.

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M.R.C.P.L., F.R.C.S.E.

99, Southampton Row, W.C.
July, 1866.

HARVEIAN SOCIETY.

THURSDAY, NOVEMBER 2, 1865.

DR. J. B. LANGMORE, *President, in the Chair.*

Dr. TILBURY FOX read a paper

ON THE CHOLERA IN EGYPT.

THE author explained that the object of his paper was to prove, (*a*) how untenable was the theory of spontaneous development; (*b*) that the source of cholera poison was India; (*c*) the influence and great transporting power of 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, the plan of prevention and treatment found to be most successsful of late; all of which points directly concerned each member of society.

The author had recently visited Alexandria, Cairo, Jerusalem, Damascus, and other Eastern localities, and had enjoyed admirable opportunity of investigating the circumstances which accompanied the recent outbreak of cholera at Mecca.

Cholera first appeared in Alexandria in a wretched quarter, filthy to the last degree. Hot winds had prevailed in Egypt during this year, and there had been a murrain among the cattle. The heat of the season had been special; 115° Fahr. in the shade in the day, descending to 60° at night. The water supply bad and scanty, even in the best hotels. Pilgrims to Mecca, the would-be Hadjis, 700,000 in number, all of them reduced to the lowest ebb of vitality by hunger, filth, and disease, and acted upon by the exhalations of 700,000 animals (for each pilgrim had to sacrifice one animal at the Prophet's shrine), were congregated at Mecca. Cholera now appeared. Was cholera generated *de novo* at Mecca? No—cholera is a peculiar and special poison, and generated independently of the hygienic influences around the individual, but attacking most those whose health is undermined by bad diet, filth, &c. This cholera poison was clearly brought to Europe from the East, and in the East from Mecca to Jiddah, thence to Alexandria, Cairo, &c.; and there is sufficient reason for concluding that it was brought from India to Mecca; for previous to the outbreak at Mecca, several vessels arriving at Jiddah from India had lost many passengers from the disease: eighty died in one vessel. The transference of the disease from India to Arabia illustrates the law of action of poisonous diseases, which require—(1) a poison, (2) a transference, (3) a suitable soil. India was the nursery of cholera, and although the *Times* newspaper had lately argued in favour of the spontaneous

generation of cholera, he (the author) was persuaded that, like the *rinderpest*, cholera was an importation. The conductor of the plague from India to Mecca was the poor Indian pilgrim, arriving half-starved, with an attack of diarrhœa or semi-fever, at Jiddah, from the cholera hotbed. Burton mentioned that the cholera had visited Medina four times before his visit in 1853. We cannot, therefore, the author observed, refuse to see that the tendency of every succeeding epidemic is to affect more widely the range of country around, and that in any further outbreak, we, in England, may anticipate a greater likelihood of our own country being affected, if we are disposed (as it appears we are) to place less reliance than usual on quarantine. Besides the influence of individuals and ships, currents of wind coming from infected localities would account for sporadic cases occurring at a distance from a focus of infection; winds can carry the ashes of a volcano for forty or fifty leagues. Fine sand had been seen on the sails of ships five hundred miles distant from the coast of Africa, according to Dr. Sedgwick. We often hear that cholera breaks out in places after a storm, or in a ship at sea when a stinking cloud has passed over it. The true and effectual check by which the epidemic might be strangled in its birth must be applied before pilgrims reached Mecca. There should be quarantine of all vessels arriving at Jiddah from India. It was the duty of England to see to this matter, since our India was the nursery of the disease, and English ships brought it to Africa and Europe.

Cholera appeared to be decreasing in France; but it might linger on the continent and enter England through Russia or Denmark in the spring. It is therefore necessary to be on our guard. Persons who committed excesses, whether rich or poor, were most liable to attacks in the late epidemic in Marseilles in August and September. Good food was an important means of keeping the disease at bay. Dr. Tytler had shown that the influence of bad rice had been well marked in the production of the disease in India, probably by affording a suitable nidus for the disease. In quarantine establishments, great care should be taken to give the inmates good food, as, too frequently, diseases of an epidemic character were fanned into flame by the miserable diet allowed on board of quarantine ships. Dr. Fox then called attention to the unfortunate fact, that in case of any epidemic of cholera in the spring, the prospects of the poor in this country for this winter were far from cheering. The price of butchers' meat was high, and so were coals. The care of the poor was a sacred duty, which the rich should not neglect, if merely on selfish grounds; and of what avail was it to preach sanitary views to the poor, when their poverty prevented them from having sufficient food and warmth, &c. He spoke with praise of the dining-halls for the poor established under Lord Brougham's patronage.

Diarrhœa is not by any means necessarily an early stage of cholera. Collapse is independent of the diarrhœa in true cholera, although in cholerine it is not so. All drains and closets should

be disinfected, a cholera belt should be worn, all attendants on cholera patients should wear respirators—a layer of silk is as good as anything—the nurses should also drink alkaline sulphites as antiseptics. In the East, cherry-laurel water, opium, chlorodyne, and especially nux vomica, were used; and also for diarrhœa, acetate of lead, dilute sulphuric acid, with chloric ether, opium, and kino. The most successful plan has been that which aimed at restoring the force of the circulation by artificial heat, and controlling the diarrhœa. When the poison acts powerfully and produces collapse at once, stimulants are indicated, such as succinated spirits of ammonia; in medium cases, stimulants are not required. Hot mustard baths, or hot-air baths, with warm drinks, are then useful. In cases of collapse, one-twelfth of a grain of strychnine has been given with good effect; or even one-fourth of a grain in more severe cases. Belladonna given freely internally is sometimes of use, and ice to the spine sometimes is beneficial. Frictions with oil of mustard, or aconite ointment with cajeput oil and turpentine stupes. He protested against the *indiscriminate* use of ice to the spine. For *thirst*, ice or effervescing draughts may be given. For sickness, cherry-laurel water. As there can be no question that the dejections of cholera patients hold the poison, alkaline sulphites may be administered as antiseptics. Concentrated broths and soups should be given, and the sulphites put into these. Calomel in large doses has been praised; it probably acts locally, and the alkaline sulphites

are much preferable, do more good, and no incidental mischief. *Salines* are not of any use. Although it is by no means certain that absorption is absent in collapse, yet, as it seems sometimes to be lost, the hypodermic treatment by salts of morphia seems indicated. By attention to early diarrhœal symptoms, depression and lowering of the pulse, the greatest benefit is to be attained. We must persevere unto the end in all cases.

Dr. FULLER observed that few of those present were so well qualified as the author of the paper to speak of the origin of the present epidemic of cholera, but for his part he could not believe that the arrival of a ship was necessary for the outbreak of epidemic cholera in any locality. Either the incubation of the disease must be very long, or it might originate through local agency, and migrate independently of transportation. Thus, he had been informed by captains of vessels that weeks after their ships had been at sea, the cholera had broken out suddenly, and had ceased almost as suddenly. After the siege of Bomersund our fleet was perfectly healthy, and no cases of cholera occurred until the second or third day afterwards, when a stinking cloud came over the fleet, and thereupon the disease broke out in all the ships, and within a few hours many men had died of cholera. Again, with regard to the outbreak near Golden Square, which Dr. Snow and others had attributed to the contamination of the Broad Street pump-water by the secretions of cholera patients, he must say that he could not

subscribe to this theory of the causation of the disease. Its appearance was astonishingly rapid; scarcely a case of cholera existed in the district until about six o'clock on the evening of the outbreak, and within the space of twenty-four hours not less than sixty or seventy persons had perished, and scores of others had been attacked with the disease. No drinking of the pump-water could account for such a rapid—nay, almost momentary outbreak of this epidemic; indeed, he did not give credence to the belief that evacuations from the intestines of cholera patients had anything to do with the outbreak; for the pump-water was not suspected until after the disease had begun to subside in that locality, and it had been drunk by the inhabitants not only during the progress of the disease, but before the epidemic showed itself, and also during its subsidence, where the water must have been excessively charged with the cholera secretion. Dr. Fuller went so far as to question whether the rice-water secretions would produce the disease in any person, and expressed a wish that the experiment could be fairly tried. He would not be afraid to drink a pint of them. In fact, he, for his part, did not believe much in the contagious nature of cholera. Again, some persons spoke of a contagion in the air; but the disease not unfrequently progresses from place to place against the wind, and that under circumstances which preclude the idea of the transmission by human agency. To avoid this difficulty, the theory of infusorial animalcules had been used; but glycerine traps had failed to

discover these animalcules. After all sorts of theory, he felt inclined to attribute the disease to some telluric influence—some agency capable, as electricity would be, of being transmitted through land and through water—acting on the organic nervous system, and so affecting it that all secretion ceases. He did not believe in any distinction between cholera and cholerine; the rice stools, and rice-water vomiting, the cramps, the collapse, and the suspension of the urinary and other secretions, were present in the one as in the other, and the cases differed only in their intensity and consequent fatality. He could not understand how bilious diarrhœa could be confounded with cholera, and he thought the word English cholera was a wrong one, since the disease was either cholera or diarrhœa, and could not be both. The term "sporadic" might be applied to cases occurring when the disease was not epidemic, but essentially these cases are identical with cases of epidemic cholera, and are characterized by the same symptoms. Dr. Fuller regarded the practice referred to by the writer, of giving strychnine in quarter-grain doses, or extract of nux vomica almost *ad libitum*, as erroneous in principle, and generally mischievous. So long as the state of collapse continued, it was indeed but of small importance what drug was used, or what quantity of it was given, as no absorption goes on during that stage of the disease; but if the unfortunate patient who had been drugged with large quantities of strychnine or opium, survived this, the function of the stomach

would return, absorption would commence, and he would then inevitably perish by the drugs of the doctor. His own experience of remedies in the collapse was, that they were all in vain, and he would prefer, himself, if he were in this state, to have only an occasional emetic, iced water to drink, rice to suck, a mustard bath, mustard poultices to the epigastrium, and friction with cajeput oil or some stimulating embrocation to the extremities. Hot-air baths had been praised; but the patient came out of them as cold as when he entered, and, as far as he had seen, they were useless. During the early stages he thought much good might be done by dilute sulphuric acid in full doses, calomel and ice, cold water for drink, and mustard hot baths, and mustard poultices to the epigastrium. The application of ice to the spine, which had been much spoken of lately, is not new. In India cold douches to the back have often been tried, and proved very serviceable in allaying cramp, but not in curing the disease. In some cases warm douches proved most grateful to the patient. Neither, however, were of much value in a curative point of view.

Dr. D. Menzies thought that some of the symptoms of cholera might be compared to the action of an acrid mineral poison, such as tartarized antimony. Considering that the coats of the stomach were in an irritable condition, he combined the decoction of bark with almond emulsion in the treatment of the first case coming under his care in 1831-2, when he was employed by government to watch the progress of cholera. The wife

of a fisherman, aged forty-five, residing in an island in the North Sea, at the mouth of the Elbe, had caught the disease from her husband, who had brought it from the mainland, from Hamburg, although the man had only suffered from looseness of the bowels on the voyage. Dr. Menzies found the woman in collapse apparently beyond hope: no pulse at the wrist, with jactitation as if in a case of loss of blood; rice-water stools; she had great desire for cold drinks; surface of the body cold and covered with a clammy sweat; voice gone. Dr. Menzies had recourse to the bark mixture above described, in doses of half an ounce at intervals. The patient gradually recovered her power of retaining food on the stomach. A pill was then given, calomel gr. v; pulv. op. gr. j; aromatic conf. gr. ij, and mustard sinapisms were applied to the epigastrium, with hot-water bottles to the extremities, and frictions, with diffusible stimuli. As the pulse, however, still continued to be absent, he opened a vein in the arm, but scarcely any blood would flow; he repeated the operation in the opposite extremity, and, by placing both arms in warm water, he was enabled to get away five ounces of dark thick blood: about fifteen minutes after this the pulse was felt beating in both wrists. Under gentle mercurial laxatives she came round, and completely recovered. In other cases occurring in the island, he had found the same treatment satisfactory. He had generally observed, when in the tropics, during season of sickness, that thunderstorms were less frequent than usual; the atmosphere was oppressive. H.

thought that the poison of cholera acted upon the economy through the pneumogastric nerve, and the blood, becoming surcharged with carbon, and wanting its serous part, failed to nourish the brain, &c.; hence the symptoms of collapse. Asiatic cholera was essentially a disease of hot climates and endemic in India, and was developed by the conditions of the atmosphere before mentioned. Much depended on the direction of the wind; for he had generally observed, that the disease was most prevalent when the wind was in the east. In 1855, when the disease was at Shorncliffe, having been imported thither by soldiers of the German Legion from Hamburg, he had noticed that the wind was in the east when the disease was imported. Although a non-contagionist, he thought the specific poison was undoubtedly frequently conveyed through individuals arriving from infected places, and that attendants on cholera patients were not unfrequently attacked. Hence, strict quarantine regulations should be enforced on vessels from infected places. Those attacked also should be perfectly isolated, and a *cordon sanitaire* should be kept up. Troops should be removed from the infected district; great attention should be paid to ventilation and cleanliness, and water supply. The treatment of cholera which he had found most successful in India was the administration of small portions of iced water at short intervals. This often relieved the vomiting and thirst. Also a pill containing from five to ten grains of calomel with gr. j of opium, and gr. ij of aromatic confection, was given with effervescing

draughts and diffusible stimuli; sinapisms to the epigastrium, and hot bottles to the feet, with friction to the extremities. When reaction came on, mild mercurial laxatives, nourishing food, &c. Care was taken to keep the patient in the recumbent position, and the bed-pan was used. He (Dr. Menzies) laid great stress upon the quantity of iced water that should be administered. It should *not* be given *ad libitum*, but in quantities of a tablespoonful at a time. This refreshed and gave tone to the stomach. He found this treatment efficacious whether made use of in the earlier or later stages of the disease. In some cases there were no premonitory symptoms; in others there was premonitory diarrhœa. Referring to Dr. Chapman's views, as to ice to the spine being of service, he thought these were somewhat analogous to his own views, and he thought well of the practice, since its object evidently was to stimulate the nervous centres, to relieve congestion, and impart tone to the nervous system.

Mr. Sedgwick could not fully agree with the author's opinion respecting the transportation of cholera. He had himself had extensive opportunities of seeing the disease in India, and of hearing the opinions of Indian medical officers on the subject, and, whilst he agreed with the author of the paper, that India might be referred to as specially connected with the source of the disease, yet it was impossible to account for its diffusion by the contagion theory alone, or to admit that the late epidemic in Arabia, Egypt, Syria, and elsewhere, could be satisfactorily explained in

the manner suggested by Dr. Fox. The contagion theory of cholera was, to say the least, doubtful; and as an argument against it, Mr. Sedgwick mentioned a case in which four members of a family residing in a model lodging-house, consisting of eighteen sets of rooms, died from cholera excited by eating roast mutton in an almost putrid state. There were seventeen other families in the same building at the time, all of whom remained free from the disease. The rooms occupied by the cholera patients were thoroughly cleansed with chloride of lime, fresh whitewashed, and repapered, and left unoccupied for four or five weeks; but, notwithstanding these precautions, two members of the next family who came to live in them, were attacked by cholera in a mild form, and recovered. The disease showed no tendency to spread, although there was but one staircase common to all the inmates, and no quarantine regulations were observed. Mr. Sedgwick agreed with Dr. Fuller that no internal administration of drugs was of use in the advanced stage of collapse. He thought that the hypodermic method of treatment might, to some extent, be available, and ought to be fully tried in the expected epidemic of cholera. Ice-bags along the spine would no doubt often succeed in producing reaction, but they might also do much harm, by inducing the secondary fever, which had been far more destructive than collapse in the late epidemics of the disease. Mr. Sedgwick referred to the absence of secondary fever in the first epidemic in India, and the almost universal treat-

ment of cholera by bleeding at that period. Although there was now a prejudice against bleeding, yet it had been found extensively useful in this disease. He had often bled patients in the early stage of collapse with good results, the most urgent symptoms being relieved by it; and if this practice were revived, it would probably serve to lessen the tendency to excessive reaction, which had been the chief cause of death in the last two epidemics of cholera.

Dr. BROADBENT expressed his astonishment at the opinions advanced by Dr. Fuller, and especially with the grounds on which he had arrived at them. There was the fact, first, that in all the epidemics of cholera it had travelled from India westward in the track of trade; and, against this, which so clearly pointed to human intercourse as the means of its transmission, he adduced a number of individual cases of its apparently unaccountable appearances, as at sea, its simultaneous development in certain districts of London, &c. Equally remarkable exceptions could be brought forward with respect to disease of the most markedly contagious character, such as small-pox or typhus. In his opinion, when all possible allowance had been made for local causes and atmospheric influences, there was in the history of cholera epidemics something which could only be accounted for on the supposition of a specific poison transported by human agency. Dr. Fox had done great service by tracing cholera from India to Mecca in the present epidemic. The pilgrims assembled there were fit victims for

any disease; but the condition, exhaustion, overcrowding, filth, however much they might predispose to cholera, were not those which produced this disease in its endemic habitat, India. The impression on the organic system of nerves spoken of by Dr. Fuller, so far from being peculiar to cholera, was an effect common to all the specific blood-poisons. As to terrestrial emanations, which had been suggested as a possible cause, no kind of analogy supported this idea. It was in fact confessing that we knew nothing about the cause, and it was better to say so in so many words.

Dr. C. Drysdale remarked that, notwithstanding the cogent arguments used by Dr. Fuller, he could not agree to the view that cholera was not contagious, although he would be only too glad to think so. Dr. Baly's analysis and the whole literature of the subject seemed to show that the only supposition fit to account for all the phenomena was that it was contagious, and that atmospheric or telluric or hygienic causes did not usually originate the disease in Europe, but merely assisted its progress. He believed with Dr. Fox that it originated in India, and was carried by individuals to Europe. As to Dr. Snow's theory, he believed the truth to be that bad water of any kind much predisposed to diarrhœa and cholera; and certainly if cholera dejections were present, this must be reckoned the most dangerous of drinks. He did hope that Dr. Fuller would never make the experiment of drinking a portion of the rice-water stools; for

however noble and heroic such-like experiments were, they were too costly when lives were perilled by them. No one could fail to admire the heroism of M. Girard, the student at Montpellier, who placed fur from a dying cholera patient's tongue on his own tongue to encourage the attendants. The action was noble only because it was supremely dangerous. How did the non-contagionists account for the appearance of the late outbreak of cholera treading the very path that travellers most frequented; viz., from India to Alexandria, from Alexandria to Malta and Marseilles; thence by rail to Paris, and by boat to Italy? Then again appearing at Southampton on the arrival of a vessel there, and again in America on the arrival of an emigrant vessel. Dr. Simpson in Edinburgh, and Dr. Boeck in Christiania, had given the clearest proofs of the contagious character of cholera. In London and Paris, and large towns, it was very difficult to trace the origin of contagious diseases. No doubt it was desirable to prevent our people being terrified by the idea of contagion; but truth was always more advantageous for the mass, on the whole, than error. He would then, with Dr. Fox, urge upon European governments the importance of, if possible, by quarantine operations and isolation of those attacked, restraining the ravages of what was now the most fearful scourge of the human race; and if the rinderpest could be, as it had been, so well kept out of south Europe by the German government, he did not despair of lessening the ravages of cholera. With respect

to the hygienic means of fortifying the constitution by good food, &c., he agreed with Dr. Fox that as long as poverty was so common as it still was in all civilized countries of Europe, little could be done in warding off epidemics. When the causes of poverty should be calmly considered and understood, instead of ignorantly and systematically ignored by those who ought, from their education, to know better, some hopes might be entertained that epidemics would in the end be less fatal. Attention to the size of families and emigration was of more importance than even ventilation, &c.; since the very poor could never secure either good food, ventilation, or any other comfort. Every effort, however, should be made to secure good drainage, ventilation, and food for the poor in the coming epidemic. With regard to treatment, the multiplicity of drugs used showed the difficulty of attaining great success with any, at particular stages of the epidemic. In cholera, as in other diseases, the rational treatment was always the best. If the motions were brown, as in summer diarrhœa, a purge was sometimes of service. When serous diarrhœa had fairly set in, M. Velpeau's advice—viz., to use five or six drops of laudanum every two hours, on sugar—was good; and whatever remedy was used when the doctor was absent should be as simple as possible. Strychnine, belladonna, &c., were, he believed, contra-indicated and very dangerous, even in collapse, and warm applications to the extremities were the great remedies in collapse, with frictions over the body. Rest in bed and

the use of milk or soup for diet was indicated. Diluents were indicated, from the extreme thirst and loss of fluids from the system; stimulants were frequently indicated. Dry cholera, or cases without diarrhœa, were most uncommon.

Dr. Greenhow said that he should confine his observations to the point suggested by the last speaker (Dr. Drysdale)—viz., the contagiousness of cholera. He had carefully examined all the evidence adduced by various writers in support of the contagious doctrine, and had had peculiar opportunities for personal observation during the last two epidemics of 1849 and 1854, and yet no real instance of the spread of cholera by contagion had ever come under his notice. Many such had, indeed, been reported to him; but on a careful examination into all the facts, every one of them had broken down. The strongest evidence in support of the doctrine of contagion was the general fact, that each severe visitation of cholera during this century had appeared to travel in a westward direction until it arrived in this country; but even this was, in his opinion, rendered inconclusive by various other facts which he should proceed to mention. The truth was that cholera was not new to this country in the present century, for it had prevailed here, although, as it would seem, in London exclusively, during the latter half of the seventeenth century, and had caused a larger mortality in proportion to the population of the metropolis than any of the visitations in our own time. The disease was so well described by Willis and Morton that no one prac-

tically conversant with cholera in the present day can doubt the identity of the two diseases. Then, again, for several years before the advent of cholera to this country in 1831, there had been an increase in the mortality from diseases of a profluvial character in London, and no less than forty-eight deaths were recorded in the bills of mortality under the name of cholera in 1831, although the disease was not supposed to reach the metropolis until February, 1832. Also during the summer of 1831 several medical men of reputation had published several cases of cholera that occurred in various parts of England some months before the earliest cases in Sunderland, where the importation of the disease into this country is supposed to have taken place in the month of October of that year. Moreover, there had not only been, annually, since that time sporadic cases, which would certainly have been set down as true cholera, had an epidemic been prevailing at the time ; but there had been several isolated outbreaks which no one had attempted to attribute to importation from abroad. Neither did an investigation into the modern views as to the mode in which cholera is believed to spread by contagion afford any substantial evidence in support of the doctrine. These might all be said to be founded on the theory that the dejections of cholera patients were the exciting cause of the disease. According to Dr. Snow, the swallowing of the supposed poison excites the disease just as the syphilitic virus excites syphilis. On the other hand, Dr. Thiersch considers that the dejections

must have first undergone putrefaction to render them poisonous, and Dr. Pettenkofer that the dejections must act as a ferment in a porous soil already charged with night-soil, in order to the production of the cholera miasm. These several views are, however, only theories, which, although they tally in several respects with the local history of cholera, have never been brought to demonstration in particular cases; and all the evidence adduced in support of them amounts to the fact, that cholera has prevailed especially where the people respired an atmosphere vitiated by the products of the decomposition of human night-soil, or drank water fouled by the like impurities. This fact was, undoubtedly, true; but it was not true, according to his (Dr. G.'s) experience or investigations, that the presence was required in such impurities of the dejections of cholera patients, either in the recent or fermented state. Cholera being then, in his opinion, largely due to local causes, it might very properly be asked,—Why does not cholera prevail every year? To this he would reply—because at least another factor is needed. During and before every epidemic of cholera in the present century a certain meteorological condition has prevailed. The barometer has been high, the atmosphere remarkably still, the temperature, especially the night temperature, above the average, and the rain-fall insufficient. It was also said that there had been a deficiency of electric movement. It was quite conceivable that in such atmospheric conditions both a different form of decomposition might take place,

giving rise to unusual products, and that these latter would be retained longer in the vicinity of human dwellings. He could also conceive it possible that some other exceptional telluric influences might exist at such times. However this might be, cholera had come in 1831, in spite of a rigid quarantine; and he did think it most desirable that the attention of the medical profession, and of the public generally, should be directed rather to the removal of the local conditions, which appeared under every existing theory to be necessary to the spread of the disease, than to any attempts to prevent its importation by means of restrictions on commerce, which would certainly prove both futile and vexatious.

Mr. CURGENVEN was a believer in the contagious nature of cholera. We find, he said, the cholera following the course of trade. It visits Cairo, Constantinople, Ancona, instead of going to inland towns. Then it comes to Malta, then Marseilles, then Paris. From Malta to Gibraltar, and thence to Southampton, by the ship *Nianza*, on which vessel there were four deaths; yet she was only in quarantine one day. Some cases had appeared in London: one in a mantua-maker who had come from Paris, and who died in ten days. Winter had come on and checked the disease; but it would reappear again in spring. Impure air and water will not cause the disease, but predispose those who are exposed to the contagion to take it. Certain epidemics will appear when a soil is prepared for them. Typhoid fever or cholera will ravage one side of a street with bad drains and

leave the other untouched. In 1853, at the Royal Free Hospital, there was one nurse who evidently caught the disease. He had warned her after this against a second attack; but she met a cholera patient at the gate, took the disease, and succumbed. The poison germs of cholera are in the air in epidemic times, requiring only to meet a fit soil. He had witnessed three epidemics of cholera, —1849, 1853, and that in the Crimea in 1855. In the last two he had trusted mainly to calomel, and would not hesitate to say that a great many lives had been saved by its use. In 1853 he was resident medical officer at the Royal Free Hospital. There the mode of administering calomel was to give a scruple or half a scruple dose, with the same quantity of powdered ginger in treacle. This in nearly every case stopped the sickness and purging at once; if it did not, the dose was repeated; and four hours after the arrest of the purging a draught was administered, consisting of an ounce of castor-oil and an ounce of tincture of rhubarb. The effect of this draught was to bring away a copious evacuation, black, and of the consistence of treacle. Recovery then followed, except in a very few cases, which succumbed to the secondary fever or uræmia. The calomel was not absorbed; but he believed that its powerful alterative action was exercised on the mucous surface of the stomach and intestines, being there converted into the insoluble black oxide: it is all removed from the body by the purgative that follows. Dr. Johnson's treatment by castor-oil was tried in four cases, and they all died; when

it was considered unwise to proceed further, as so much success had attended the calomel treatment. Almost every case that was not in a state of collapse when brought to the hospital recovered. He followed the same course of treatment in the Crimea, and did not lose a single case. Opium and all drugs dependent on absorption were useless. Stimulants were rarely of any use. In the collaped stage the treatment by salines in large doses, and frequently administered, he considered had saved a greater number of lives than any other plan. Diarrhœa was most successfully treated in 1853 by sulphuric acid and opium, and by chalk mixture with opium and astringents. In the Crimea sulphuric acid failed, when the compound cinnamon powder with tincture of catechu was found most useful.

Dr. Hart Vinen thought that the progress of cholera pointed to its contagiousness. He had seen several cases that strengthened this belief. For example, a German baker died of cholera. The woman who nursed him died of the disease, and several persons who came to see him died of it; the next door neighbours also died. In the case of the cholera outbreak of 1854, he had seen many cases where no alvine dejections could account for the disease. An old lady in St. John's Wood, who kept a school, was one of the first to die in that locality, and the curate also died. As to treatment, he had found calomel in large doses and astringents the best. The ordinary astringent of acetate of lead and opium was very useful.

Mr. Owen had listened with great interest to

Dr. Greenhow's address. Dr. Greenhow had shown that contagion was not necessary to the production of the disease. He (Mr. Owen) was, however, a contagionist, for he thought that that side had the best of the argument. It was hard to prove a negative; and all that the non-contagionists could say was, that the disease *might* arise without contagion. The disease in Epping lately was traced to a person who had been in Southampton where cholera was at the time. As to the case of the student who swallowed the rice-stools, not being infected, that was no proof that another person would not be destroyed by it: his system might be proof against the poison at the time. It was well that there was a difference of opinion on the subject, as this caused the public to be less apprehensive than if all were contagionists.

Mr. Adams had been connected with St. Thomas's Hospital in 1848-9, when there were cholera wards there. Mr. Grainger's views were those of the non-contagiousness of the disease, and were then accepted as true. During the epidemic only one nurse died, and none of the students died of the disease. Mr. Adams made all the post-mortem examinations, and he could only say he did not think the disease directly contagious to individuals, although the fact of its travelling from India seemed hard to get over. No one at that time had any fear of contagion. Denudation of epithelium of the intestines occurred in all the cases where collapse was complete. As to treatment, at that time all treatment seemed alike. No one had confidence in any drugs. A pailful of water

at the bedside for drink seemed the most successful. But, whilst the epidemic lasted, no one treatment availed more than another.

The PRESIDENT said he had seen a great deal of cholera in 1832 in Whitechapel. He then found most advantage from administering small doses of calomel with camphor every hour, and diluents *ad libitum;* also the application of warmth and friction, especially to the extremities. He still remained a believer in contagion, after all he had heard from Drs. Fuller and Greenhow. Mr. Sedgwick's case, he thought, was one of contagion, as the poison was evidently in the room six weeks after the other cases had left. Cholera travels from East to West, that is, follows the track of commerce, and slowly, for it never traversed the ocean at a rate exceeding that of ships, whereas influenza traversed space quickly.

Dr. MUSHET avowed himself a non-contagionist. Elevation above the sea explained the immunity of some districts over others which lay by the sea and in the course of trade. In 1854, at the Marylebone Infirmary, all kinds of treatment were used. Castor-oil treatment was always fatal. Sulphuric acid seemed the best. There was a night nurse in the cholera ward who lived in it constantly, and was not attacked. Those who were attacked seemed to him to have been so because they were near the privies: in the surgical wards a man and nurse died who were near a foul privy. The undertakers were not affected, and they lived entirely among the dead. Another woman died of it, but she was a drunkard. He thought there

was no sufficient evidence for the theory of contagion.

Dr. GREENHOW remarked that in 1854 every one was a non-contagionist, and now it seemed likely to be the reverse. Then stinks were the supposed cause; now he could see that medical opinion had turned round towards contagion. As to quarantine, it must be remembered that in 1831 quarantine existed and to no effect. He did not say that the disease was non-contagious; but that he had not himself seen evidence sufficient to convince him of the fact.

Dr. TILBURY FOX in reply stated that time did not admit a full reply. He would only merely say that he had recently received information from the East corroborative of the origin of the present epidemic in India. Before the pilgrims arrived at Mecca, it prevailed at Aden and Mokullah. Cholera, it was strange, was unknown in Australia. Contagion was now differently defined from formerly. Thus, a ship, a pilgrim, an animal, or a moist cloud from an infected city, might carry contagion. In times of cholera it was very important to use water free from all impurities. The charcoal filter of Atkins, of Fleet Street, was the best and simplest purifier of water he was acquainted with.

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