

Observations on the oriental plague, and on quarantines, as a means of arresting its progress, addressed to the British Association of Science, assembled at Newcastle, in August, 1838 / by John Bowring.

Contributors

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Edinb. Medical Journal

OBSERVATIONS
ON THE
ORIENTAL PLAGUE
AND ON
QUARANTINES,

AS A MEANS OF ARRESTING ITS PROGRESS,

ADDRESSED TO
THE BRITISH ASSOCIATION OF SCIENCE,

ASSEMBLED AT NEWCASTLE, IN AUGUST, 1838.

BY JOHN BOWRING.

EDINBURGH:
WILLIAM TAIT, PRINCE'S STREET,

MDCCCXXXVIII.

LONDON :
THOMAS CURSON HANSARD, PATERNOSTER-ROW.

R35725

BRITISH ASSOCIATION

MEDICAL SECTION.

August 24, 1838.

RESOLUTIONS.

Moved by Dr. Lynch, seconded by Mr. Greenhow, and
unanimously resolved :

“That this meeting do request Dr. Bowring to forward to the
British Association a written statement of his interesting
observations on Plague and the Quarantine Laws.”

Moved by Dr. Granville, seconded by Dr. Brown, and
resolved unanimously :

“That it be recommended to the Committee of this Section, to
suggest to the Committee of Recommendations of the
British Association, to apply to the government for the
appointment of a commission, empowered to take the
necessary steps for entering upon and completing an
inquiry into the question respecting Plague and the Qua-
rantine Laws, founded upon the important statements
made to the Medical Section by Dr. Bowring.”

BRITISH ASSOCIATION

GENERAL MEETING

1884

RESOLUTIONS

Moved by Dr. Lush, seconded by Mr. Greenham, and
unanimously resolved:

"That this meeting do request the Secretary to forward to the
British Association a copy of the statement of his interview
with the Hon. Mr. Lubbock and the Hon. Mr. Lubbock."

Moved by Mr. Greenham, seconded by Dr. Lush, and
unanimously resolved:

"That it be recommended to the Committee of this Association, to
request the Committee of the Association of the
British Association, to agree to the grant of the
appointment of a committee, empowered to take the
necessary steps for entering upon and conducting an
inquiry into the question respecting the Hon. Mr. Lubbock and the Hon.
Mr. Lubbock, founded upon the statement
made to the British Association by Dr. Lush."

OBSERVATIONS

ON THE

ORIENTAL PLAGUE AND QUARANTINES.

NOTHING but the great interest of the subject, on which I am about to speak, would authorise my intrusion here ; and I deeply feel, that there is something like presumption on my part, who neither possess nor pretend to any medical acquirements, thus to occupy the attention of the medical section—especially, as I have not had time to put the documents I have collected into any appropriate order ; and, indeed, it is only since I arrived in this town, that I even thought of introducing the topic to your consideration. The occasion is, however, too favourable to be lost ; the question is of consummate importance—the theory upon which quarantine regulations are founded is, in its consequences, of such enormous cost, it is creative of such innumerable vexations, impediments and miseries, that their infliction can only be justified or tolerated by a strong necessity—a necessity founded on accurate observation, and sustained by undoubted and incontrovertible facts.

When honored by a Mission from Her Majesty's Government to inquire into the present state and probable future development of our commercial relations in the East, my attention was naturally and necessarily called to those regulations which impede the free transit of merchants and merchandise, which levy enormous contributions upon commerce, which subject travellers to visitations and arrests, the most capricious and the most despotic, and which have created in almost every state, tribunals holding unchecked

and irresponsible authority over persons and property—exercising that authority in arbitrary waywardness, and allowing the sufferer no appeal against injury—no redress for wrong.

The pecuniary cost may be estimated by millions of pounds sterling in delays, demurrage, loss of interest, deterioration of merchandise, increased expenses, fluctuations of markets, and other calculable elements; but the sacrifice of happiness, the weariness, the wasted time, the annoyance, the sufferings inflicted by quarantine legislation—these admit of no calculation—they exceed all measure. Nothing but their being a security against danger the most alarming, nothing but their being undoubted protections for the public health could warrant their infliction; and the result of my experience is not only that they are useless for the ends they profess to accomplish; but that they are absolutely pernicious—that they increase the evils against which they are designed to guard, and add to the miseries which it is their avowed object to modify or to remove.

Having thus announced a strong opinion, the Section will not hesitate to deduct from the value of that opinion the circumstance that I speak rather as a statistical than a medical observer, and do not presume to treat pathologically of the Oriental plague, or to show in what respects it agrees, and in what it differs from other and better understood diseases. I own, too, I am moved by a strong desire to get rid of an enormous evil, and such a desire will naturally exercise its influence upon my judgment. But if I can throw any light upon a question involved in much darkness—if the facts I have collected set other and fitter men upon the business of investigation—if new inquiries are awakened in a direction where the interests of commerce and of human happiness are seriously compromised, I shall be abundantly satisfied. It is given to no man to discover *all* that is true; but it is a privilege to add to our stores of knowledge any thing that is true—and the truth only, I have sought.

The controversy as to the contagiousness—or the extent

of the contagious principle in plague has been long and fiercely agitated. I do not mean to refer to the state of that controversy—except to say, that a very large portion of the evidence which has been brought forward is of a secondary character; it is not the evidence of observers—it is not furnished by those who had seen or studied the plague in the regions of its greatest ravages, who had watched its origin and progress, or even by those, who had the means of sifting the character of the adduced testimony by any sufficient inquiry as to the interests, prejudices, and aptitude of the primary witnesses.

I soon discovered, when pursuing my investigations in the Levant, that much of the evidence floating about in the public mind as to the contagiousness of the plague, was of a very untrustworthy character,—that it emanated for the most part from persons connected with boards of health or quarantine establishments, having a pecuniary interest in the question. When I was enabled to trace a report to its source,—to reach the primary evidence of an asserted fact,—I generally ascertained that no small portion of exaggeration and misstatement had been added in the progress of the narration. I found that some of the boldest assertions of the contagionists were wholly groundless and untrue, such as that the keeping a strict quarantine against the plague was a security against its intrusion. I discovered at every step that the contagiousness of the plague was always *assumed*, as the groundwork of all discussions,—and that the most extraordinary absurdities,—the most amusing inventions were resorted to, in order to account for its outbreak where every precaution had been taken to avoid contact with any human being,—or any supposed infected or susceptible objects. Wherever I had occasion to witness the introduction or progress of the disease—its introduction was spontaneous, — indigenous, — endemic, — its progress never traceable from patient to patient; it broke out in districts remote from one another, between which there had been no communication, and while my own observation sur-

rounded me on the one hand with thousands and tens of thousands of cases, in which the most intimate intercourse with persons ill or dead of the plague—the dwelling in their houses—the wearing their garments—the sleeping in their beds, were not followed by disease in any shape, I was called on the other to listen to stories as evidence of the contagiousness of plague, so puerile, so ridiculous, that nothing but oriental credulity could by possibility be satisfied by them. The facts, the multitudinous facts, the masses of evidence were opposed to the popular Levantine belief; and that belief soon appeared to me to rest for the most part on stories or theories, of whose character I will enable you to judge.

The plague breaks out in a house—the strictest quarantine has been kept—invention is immediately on the rack to discover how the disease has penetrated. In cases reported to me at Alexandria and Cairo, where it was not pretended that the door had been entered, or any communication taken place with the town, the entrance of the plague was thus accounted for. First, in an instance where a very timid person, an alarmed contagionist, who was attacked and died of the plague, had shut himself up in his chamber; it was found that his son had, for his amusement, let up a kite from the roof of the house, and it was supposed that the kite-string had been touched by a bird, which bird was imagined to come from the infected quarter of the city; the plague entered the house down the string of the kite, and the son's father became the victim. In another case, where the plague penetrated a house kept in the strictest quarantine, a cat had been seen to spring into a basket of clothes returning from the wash-house, and thence to leap into the window of the house in question. It was said the clothes belonged to some family which had probably had the plague; but, at all events, the cat was the only intruder who had violated the cordon, and was therefore the introducer of the disease. In a third instance, an Arab girl had hung a shirt out of a window to dry; the

plague attacked the house, and I was told there could be no doubt that somebody in passing the street had touched the shirt, and was thus the cause of the introduction of the malady. Often have I heard its introduction attributed to stray dogs, cats, rats, and even flies. And then comes a natural question,—if the plague be thus introduceable, *what* quarantine regulations can guard against it? Must they not be utterly unavailing against so insidious, so omnipresent an enemy? I cannot avoid mentioning here, that M. Estienne, a late writer on plague, attributes its introduction into Leghorn to a mummy, which, after 20 centuries of interment, was unrolled in that place.* He also states, that cases have occurred, in which after opening a bale of cotton, the porter has fallen down instantaneously dead.

In the Levant, however, which the improvement in communications both by sea and land has made far more accessible to travellers from western Europe, a change in opinion is gradually extending itself both of the inutility and inefficacy of quarantine regulations; and of the non-contagious and endemic character of the oriental plague. The oppressive operation of the sanatory regulations has excited a strong feeling against them; wherever I went in eastern countries, I found the merchants almost unanimous in reprobating their severity, and pretty generally accordant as to their uselessness. The French Government has lately been circulating inquiries among the consuls in the East with a view to some modifications of Quarantine Legislation. I have reason to believe, that some of the replies communicate and confirm the fact to which I have alluded, of a growing incredulity as to the contagious character of the plague itself. All that can be wished for is disinterested, diligent, intelligent, and ample inquiry, and that the example of the French Government may be followed by others, and especially our own.

Were the opinion consulted of the European physicians

* Peste, N. 2.

settled in the Levant, who enjoy the highest character for probity and experience, I believe a majority of them would be found opposed to the current doctrines, as to the contagiousness of the plague. The Levantine population, however, among whom the principal part of their practice is found, are so universally apprehensive of contagion, that a medical man would certainly seriously damage his pecuniary interests, and injure his means of usefulness, if he were believed to be a non-contagionist, as he would be deemed a dangerous person, from not taking the precautions which the popular prejudices deem necessary for public security. I know an instance in which an English physician was menaced with dismissal from the charge of a public hospital, if he gave currency to opinions formed after long and laborious investigation of the causes and character of the plague; those opinions being unfriendly to the system of quarantines; and though no class of men are called upon to exercise, or do, in fact, exercise, a nobler self-devotion than do many of the medical men of the East, yet it is not less the fact, that the state of opinion is a great impediment to the diffusion of more enlightened views.*

Even where the opinion of physicians is unformed, or doubtful as to the character and intensity of supposed plague contagion, the belief in the efficacy of quarantines is very much shaken. Some of the most experienced of them assured me, that they had never been able to trace the plague from one individual to another, and have zealously opposed the attempts which have been made to concentrate plague sufferers on the same spot, or to establish cordons, round houses or districts where the disease was raging. To spread it over a wide, instead of collecting it into a narrow

* Even in Europe the language of many would throw an insuperable bar in the way of honest inquiry. "Let no one who declares the plague not to be contagious," says M. Frank, "be allowed to exercise any public functions connected with this calamity; if there be such a functionary dismiss him!" A comfortable encouragement this for the investigation of truth.

space, has in the judgment of many, seemed the best policy; they found, that to diffuse the disease was to diminish, while to concentrate it was to increase its intensity. Ere long, a very distinguished physician, Clot Bey, who is at the head of the medical department in Egypt; a man whose services to knowledge and to humanity in that country, outstrip all meed of praise; and who has treated thousands of cases of plague, will publish his observations on the subject. I found his opinions wholly opposed to those of the contagionists. He assured me, that in the innumerable facts, of which he had cognizance, he had found irresistible evidence against the prevalent opinion as to the contagious character of this disease; that, removed from the regions of malaria or miasmata, he had never known the plague to be communicated by contact; that all his attempts to communicate the disease had failed; that he had twice inoculated himself from the *pus* and the blood of plague patients without receiving the disorder; that the experiments made of wearing the clothes of those who had died of the plague, had shown the difficulty if not the impossibility of communicating the disease; that he deemed lazarettoes and quarantines not only useless but pernicious. The body physician of the Pasha of Egypt, Gaetano Bey, entertains similar opinions, and is about to embody them in a publication, which will communicate the results of his many observations; and I mention these gentlemen by name, because they have been able to extend their observations over the widest field, because their testimony is of the highest value, and because their judgment has not been hastily formed, but is the result of the most elaborate inquiry and the most extensive experience, and their judgment is *disinterested*.

I lay much stress on *disinterested* judgment, because, wherever quarantines exist, there is a strong interest against the diffusion of truth—a powerful, sinister, and pecuniary motive for upholding the theory of contagion. Perhaps the greater number of European physicians in the Levant

receive salaries as officers of the Boards of Health, and are connected directly or indirectly with quarantine establishments. It is not in human nature that they should be free from "interest-begotten prejudices." Gain attaches to the promulgation of certain opinions, and interest insensibly corrodes the clearness of truth. I do not mean to speak reproachfully, or disparagingly of the medical men of the East; I only represent them as subject to the same influences which act—often imperceptibly act—upon all men in all places. My experience has led me to distrust much of the evidence emanating from boards of health; I have found suppression of facts to a lamentable extent on the one side, and exaggerations of facts to an extent almost equally lamentable on the other. The Boards of Health are armed with almost unbounded authority; that uncontrolled power which individuals or bodies of men are seldom willing to surrender. They dispose of considerable funds for the payment of their own supposed services, and the services of subordinates; and it is only to be expected that their testimony should represent those services as important; opinion thus liberally recompensing them, has at the same time been disposed to regard them as benefactors, incurring great risk for the benefit of their race, and their establishments as public blessings. It is natural, therefore, that little testimony should be expected from them, which should lower their authority, diminish their receipts, or throw doubts on the value of their services.

The supporters of the contagion doctrines, and of the utility of quarantines, have, at starting, to grapple with one astounding fact,—namely, that among the Mahomedan population of the East—with the very rarest exceptions, and if there be such exceptions, they may be invariably traced to intercourse with, and respect for, the opinions of Europeans—that among the Mussulman population—among whom the plague commits its greatest ravages—who see it—who treat it perpetually—nobody believes in its contagious character. And indeed, deplorable would be the consequences if the fear of

contagion entered into the minds of the Moslems. Sixty thousand families were visited by plague in Egypt in 1835, there was scarcely an instance of a patient being neglected or abandoned by his friends and relatives. No dread of infection interfered between the kindness and charities—the attentions and hospitalities—of neighbour to neighbour, of wife to husband, of mother to child, of sister to brother, of sons to parents, of priests to worshippers, of man to man. But among christian Levantines, instances of inhuman desertion frequently occur; among them the alarm for their own safety often leads to a coward cruelty, which stands out in sad contrast to Mahomedan devotion. To account for the conduct of the Mussulmans, the theory of the contagionists is this; that the belief in fatalism, the doctrines of irrevocable destiny, are the causes which induce the Mahomedan population to expose themselves unhesitatingly to the perils of the plague. But I could never discover that the doctrines of fatalism led them to subject themselves unnecessarily to other diseases and dangers. I never observed them wanting in prudence to avert, or sagacity to avoid the ordinary perils of life.* In the presence of inevitable suffering, no doubt the conviction that the suffering was imposed by the irresistible will of Allah, affords support and comfort to the sufferer—but is such a state of resignation peculiar to the East? The Mahomedans vaccinate willingly, both themselves and their children; in their maladies they seek with extraordinary eagerness and confidence the aid of me-

* The Firman of the Sultan which establishes a Board of Health at Constantinople, has the following expressions:—"Though to shun the evils with which God visits us would be to pretend to immortality; it is allowed us to fly from the house we inhabit if that house be threatened with an earthquake, it is allowed us to pass rapidly by a wall which is about to tumble down, so ought we to preserve ourselves from the danger of the plague, for according to the spirit of the Noble Law (the Koran) the plague is like a fire which destroys what it touches," And again, "The body of the Ulemas have proclaimed in Council, that as Allah sends evils, so Allah can remove them, and there is nothing opposed to the Divine Law in man's attempts to rid himself of them."

dical men ; they have beyond all other races a strong conviction of the healing powers of art ; they apply means to ends like the rest of mankind ; their notions of destiny do not protect them from the cares, the anxious cares for the morrow, which will in spite of all philosophy invade all mortal bosoms ; and if they believed in the contagiousness of plague, they would fly from it as they fly from any other impending calamity. The belief in predestination is indeed a Mahomedan dogma, but it is inoperative in the daily business of life.

But any evidence which comes from the East should be cautiously sifted—and to the East the evidence in favour of the contagiousness of plague may be originally traced. The credulous character of the Orientals is well known. To say nothing of the gross religious superstitions of the Levantines, the belief in *Peris*, *Vampires*, *Djins* and *Ghosts*, is almost universal. I amused myself with collecting such superstitious stories as fell in my way, and for any one fact which was adduced in proof of the contagiousness of plague, I found ten which proved the existence of *Peris*, that they had been known to visit certain districts, that they had intermarried with mortals, had provided them with food, had transported them through the air, and given abundant evidence of their presence and their power. As to *Vampires* there are numerous villages in which the authorities have interfered to hunt and inter the suspected *Vampire*, and there is a recognised class of *Vampire* destroyers (*Vampirdji*) to be found in the Levant. *Djins* or *Genii*, both beneficent and malificent, are universally supposed to visit mankind, and it would be difficult to find an Oriental who doubted the frequent appearance of ghosts. Professional magicians are every where met with, and by their arts have sometimes mistified even European travellers, while, among the natives, nobody dreams of disputing their power.

A belief exists among the Levant population in the contagiousness of diseases which in Europe are no longer supposed to possess that character. Cholera is universally

supposed to be a contagious disease, and phthisis (as in Italy) is held to be infectious. I need not remind you, that the cholera arrived from the East, with the reputation of contagiousness,—that most of our medical authorities were at first in favour of its contagious character,—that, in fact, opinion generally regarded it as the plague is now regarded,—but that when a large mass of facts and cases were collected, the number of those who advocated its contagiousness, rapidly diminished, and of those who were opposed to that theory, as rapidly increased. The same would probably be the result of observations on plague made in a field sufficiently extensive, and by competent medical men, who should seek nothing but truth.

Of the extent of credulity, I should weary you by giving examples. A director of a quarantine on the Danube, told me he had discovered that when the Turks wanted to destroy the Austrians, they inserted matter from the buboes of the plague behind the ears of the pigs which they sent to the market at Semlin; by which means the butchers caught the plague and communicated the disease to the rest of the people. The same director boasted to me, that he had committed a man to prison for ten days, because he had bought a fish of a Turk. “How could I tell,” said he, “that the fish would not communicate the plague?” Now, as animals pass the frontiers (both wild and tame) in thousands and hundreds of thousands, and, as it may be supposed, no quarantine can prevent the fish from passing up and down the Danube at will, some estimate may be formed of the value of the precautions, upon whose severity every quarantine officer is wont to pride himself.

The fact is, the Quarantine Establishments are, for the most part, instruments—and terrible instruments of diplomacy and state policy. Under the plea of a regard for the public health, all letters are opened—all travellers are arrested and imprisoned—all commodities are subject to regulations the most unintelligible, costly and vexatious. I once was admitted to a Lazzaret in the Austrian frontier—

where I saw the correspondence of the East with England delivered to the authorities, every letter was opened, examined, fumigated—resealed and despatched. In some Lazzarets, the letters are only punched and smoked—in others, they are cut across with a sharp instrument and dipped into vinegar and water, so that the writing is rendered frequently illegible. Multitudes of letters, sent by private hands, or other channels than the post, escape the quarantine altogether. It is not averred that a letter has ever introduced the plague; but obstruction—delay—violation of the secrecy of correspondence, and frequent destruction of the correspondence itself, are the consequences of the quarantine system. If there be a spot in the world placed beyond the control of public opinion, it is a Lazzaret. Believed, as it is, to be an invention for public security, the tyranny, the extortions, the injuries which are inflicted within it, escape all animadversion. Discussion as to its organization, its laws, its judicature, seems wholly excluded—while it is necessarily interested in the suppression of any facts which would interfere with the unlimited power and large funds of which it disposes.

Have Lazzarets, then, the best, the most rigid, succeeded in shutting out or keeping down the plague? By no means. Odessa has frequently been quoted as having one of the best organized quarantine establishments in the world—certainly one of the severest. Yet, not long ago, the plague broke out in the Lazzaret—entered the town—destroyed a number of inhabitants, and ceased at a particular season as it usually does. Quarantines have been introduced during the last seven years, by Mehemet Ali, into his dominions, in Syria and Egypt. They have been placed under the control of the European Consuls, and ample funds have been given by the Viceroy, both for the erection of proper edifices and for the payment of the necessary salaries. Has the plague, in consequence of these arrangements, visited Alexandria less than it did before? By no means. Have the quarantines protected Damietta—or Rosetta—or Jaffa,

on the coasts—Damascus or Jerusalem, or Cairo in the interior? Nobody can pretend they have. And if looked into, I apprehend it will be found not only that they have been no barrier to the progress of disease, but that they have created, concentrated, and by concentration, diffused the malady. Many of the Lazzarets are in spots singularly unhealthy; at Beyrout I found, not only that many persons who had arrived in good health, had perished in the Lazzarets, of the plague; but that many had died of dysentery and other disorders, from which they were perfectly free when they entered. No plan could be devised more likely to create perilous or contagious elements, than bringing suffering and diseased people together—creating about them a deleterious atmosphere, and delivering them over to the annoyance of an oriental quarantine. In the Lazzaret at Syra, for example, where the exactions are monstrous, and where lately there was not even a water-proof roof to shelter an invalid, I have seen a person come out of his imprisonment having had his garments devoured by rats, and his person disfigured by multitudinous vermin.

I possess the returns from the Board of Health, at Alexandria. It was established in 1831—but it did not prevent that dreadful outbreak of the plague in 1834-5, which destroyed in Egypt probably 200,000 persons. In that year I presume no complete returns were recorded, the mortality exceeded the powers of registration. But I have the returns for 1833, 1836, 1837. Now the average mortality, with good medical treatment, is not more than 60 per cent, and often does not exceed 30 per cent, while in the Lazzaret, at Alexandria, in 1833, of twenty cases eighteen died, or 90 per cent, and in 1836-7, of fifty-three, forty-one died, or $77\frac{1}{3}$ per cent, though it might be supposed a Lazzaret would above all places offer the best mode of treatment, and the most convenient locality for cure. As to the effects of the quarantine upon imported disease, when I was at Alexandria in the present year, the quarantine was strictly in force against *foreign* arrivals, yet there had been cases of

plague, and deaths from plague, almost every day from March 29th to the 27th of May, when I left.

With some honourable exceptions, the quarantines in the East are under the direction of most incompetent and ignorant men. To be effectual, the quarantines should, of course, be universal, and give security all along the coast and the frontier; but the number of medical practitioners in the East is small at best, and in the places of inferior rank they are lamentably, nay incredibly, ignorant. To exclude a contagious disease is positively impossible, and were the East, as peopled as it is depopulated—were the frontiers as cultivated and civilized as they are for the most part barren and abandoned, an efficient cordon could not be established along so vast a line. But where would medical aptitude be found? It is only lately that the *Medico*, who had the charge of the Lazzaret at Beyrout, pronounced a gangrene caused by the fretting of a chain on a sailor's thigh to be a plague bubo. A European physician was called in, and the man was dismissed for his ignorance, but he was only a specimen of a numerous class, and his experience was more extensive than that of the majority of practitioners to whom Lazzarets are confided.* Often have I heard Levantines declare that the doctors did not know a case of plague when they saw it, and cases have come to my own knowledge, where a malady has been officially reported as plague, and when it was found impossible to show, that the patient had had any

* In the Peste of 19th May, 1838, Dr. Bulard says, that all the five cases reported that preceding week as cases of plague, were falsely so reported. In the first a Greek boy had his foot wounded by a piece of broken glass, which produced an abscess, in consequence of which he and his mother were conveyed to the plague hospital at the Seven Towers, kept there ten days, and afterwards subjected to quarantine. In the second a syphilitic swelling was denounced as a bubo. In the third, a soldier who had been wounded in the hand, was reported as a plague patient, in consequence of the appearance of the contusion. The fourth was a case of quinsey, mistaken for plague, and the fifth one of delirious fever. The three last cases were in the Turkish plague hospital.

communication with the plague, the case has been declared to be no plague case at all.

Without denying, then, that some men of merit are employed in the Lazzaret establishments in the East, it may be safely asserted that the most eminent physicians are *not* so employed. One reason may undoubtedly be, that the quarantine practice is often held by them in small honour, and another that few men of feeling would submit to be instruments of a system so intolerable as that which exists. They cannot, and do not close their eyes to the impossibility of establishing such cordons as will prevent intercommunication. Can the strictest quarantine interdict the Arab of the desert from wandering where he will? Will the adventurous Khurd—the migratory Turkoman—the money-seeking Hebrew—the fanatical Pilgrim—the potent Sheikh, be stopped in their peregrinations by the intervention of quarantine? In the universal system of corruption and bribery, which exists in the East, can any functionary be depended on for imposing and enforcing a perfect obedience to sanitary regulations, and any thing less than this is nugatory? In the Egyptian and Syrian provinces every thing has been done that a strong government could effect,—but the inefficiency of the quarantine system is apparent; to preserve a strict system is impossible, and if it were possible, I believe it would be unavailing. In the Turkish provinces—in Constantinople especially, attempts have lately been made to introduce a Board of Health and Lazzarets in European style. The *vis inertiae* of resistance has hitherto succeeded in preventing their establishment; but as their establishment may bring large salaries and much influence to certain parties, no doubt every thing will be done by those parties to compel their adoption. They will throw innumerable embarrassments in the way of communication; but I apprehend will do nothing for the diminution of plague. Among the reforming Turks, there are no doubt some who would be desirous of introducing quarantines, because they exist in

Europe, and because they have been told these quarantines are the causes of the absence of plague. But a worse service than their introduction could hardly be rendered to the Levant. If in western Europe, where some sense of responsibility,—some dread of public opinion—penetrates even into Lazzaret establishments—if even here there is so much of vexation, despotism, pillage and abuse—what would be the sufferings of travellers—what the risks of property in the oriental world?

If the cordons, quarantines, and Lazzarets, which have been established by State authority have failed to give any protection against the inroads of the plague, still less have the private, or local quarantines afforded that protection. It has indeed been often averred that the keeping a strict quarantine has been found in all cases to be a security against the disease. I doubt if ever so bold, so mendacious an averment has obtained so universal a currency and so heedless an admission. It has passed from lip to lip, and book to book as an undisputed fact, that Europeans in the Levant run no risk from plague, in consequence of their shutting themselves up in their houses during the epoch of the disease. And yet hundreds of examples would crowd upon the diligent inquirer, showing that no quarantine, however rigid, could at all times be depended on for protection. It is true, that the risk run by Europeans in times when the plague is prevalent, is small compared to that of the natives; but this applies not to plague alone, but to every other disease, whether contagious, infectious, epidemic, endemic, or sporadic. In cholera or influenza, in dysentery and ophthalmia, the proportion of sufferers among the indigenous population is far greater than among Europeans in general. The better food, clothing, and lodging—the greater prudence—the more prompt intervention of medical skill, give to more opulent classes, among which a majority of the Frank population are found, far more securities against diseases, than the less fortunate classes of society can command. The question is not whether the Europeans suffer less than

the native population from plague, but whether the quarantine precautions taken by Europeans are the causes of their greater safety.

I am disposed to attach little value to individual or domestic isolation. During the raging of a pestilential disease, prudence, temperance, and quiet, are, no doubt, valuable auxiliaries for self-preservation, by diminishing the dangers of the epidemy, be they what they may. It would be a foolish daring not to avoid rather than seek the districts where the disease is exercising its ravages; as there, no doubt, a deteriorated atmosphere must be the consequence of its presence; and that atmosphere may in itself be an element of danger. But quarantines alone, especially where there has been no prudential change in the habits of life, would appear to have no favourable effect in excluding the malady. During the plague of 1835, the Harem of the Pacha of Egypt, consisted of about 300 persons; notwithstanding the severest cordon, the plague entered and seven persons died within the cordon. The cordon itself was composed of 500 persons; these were in constant contact with the town where the plague was violently raging; and of these 500 only three died, so that the proportion of those who perished within the cordon, to those who perished without, was as 4 to 1. I only adduce this fact as an isolated instance, not contending by any means that the general proportion of those within cordons who are attacked by plague is greater than those without; but when the cases are carefully collected, which are presumed to show the efficiency of cordons, but which in fact prove nothing, unless the safety of the parties can be traced to the protective power of the cordon, it is very important, that the cases having a different character should be fairly stated. The plague has about it much that is unaccountable and seemingly capricious. The theory of specific contagion may possibly explain some of its influences, but it leaves the greater number unaccounted for. No theory perhaps explains so few of the phenomena of plague; and on that ground alone

a more thorough investigation is demanded by science, by philanthropy, and by even enlarged self-interest.

It sometimes happens, that particular classes or bodies of men wholly escape attack, while those around them, or those who associate with them, are victims. I was told at Ghizeh, that while cases of plague existed there in the military school, notwithstanding a severe cordon, a large body of workmen, masons and bricklayers, who were employed in building beyond the cordon, escaped without a single sufferer. Before I visited Egypt, I was informed that the strong military cordon established round the arsenal at Alexandria, had completely protected the seamen, and the artisans employed within; and the circumstance was frequently cited as triumphant evidence of the services rendered by quarantine regulations; but when I made inquiries at Alexandria, I learned that the quarantine had not protected the inmates of the arsenal; that there had been many cases of plague, though attempts were made to conceal them, by interested parties who were but too willing to deny the true state of things. The regulations which prevented the workmen and sailors from leaving the arsenal were probably extremely salutary; for the village of Ras-el-tin, in which they usually pass their nights with their families is singularly damp, filthy and unhealthy; a spot where pestilence has always found its most appropriate abode; where the Arabs sleep in wretched mud huts, on the bare floors, surrounded by putrid miasmata; where the streets are so narrow as to be almost impassable; where ordure of all sorts, and corrupting animal and vegetable matter are undergoing perpetual decomposition. Such a locality necessarily engenders disease; and I am happy to say that the Viceroy of Egypt, on the representations of the Board of Ornament at Alexandria, and with a proper regard to the public health, has directed this village to be pulled down, and the huts to be replaced by houses more wholesome and convenient.

Were I willing, or able, to awaken your sympathies by

pictures of human suffering; were it necessary in the pursuit of truth to appeal to exciteable passions; I would endeavour to describe the horrors which the isolation of infected houses and other quarantine regulations, brought with them into Egypt during the plague of 1834-1835. Impotent, wholly impotent to stop the progress of the disease, which raged and raged more intensely as the measures which were taken to arrest it, became more and more cruel and severe, they created an additional mass of misery beyond all power of calculation. The plague no doubt had its awful mission of desolation and death; but the quarantines let loose other murderous missionaries more barbarous and pitiless; in the name of civilization they made men savages—in the name of humanity they inflicted hunger and thirst—intolerable suffering—frightful starvation. They spread distrust and terror where calmness and resignation existed before; they tore asunder—they uprooted all sympathies, all charities, when misery most demanded their aid and support. To acknowledge that a case of plague had broken out in a family was to subject that family to imprisonment, and to uncontrolled despotism. Hence, the dead were flung into the public streets, or buried and allowed to putrify within the dwellings where they died. At last the horrors became unbearable; and our Consul at Alexandria, whose opinion I may quote in his own words, that the current belief as to the contagiousness of plague, “is a delusion which is a reproach to the present age;”—that the existing quarantine regulations are “intolerable absurdities,” Mr. Thurburn, I say, had the humane and manly courage to represent to the Viceroy the fearful, the fatal consequences of the measures adopted by the Board of Health; and they were put an end to by the interference of his Highness. The disease took its course unarrested and uncontrolled by the cordons which had been established; it reached its intensity; but before this period experience had shown that the precautions employed, had served in no respect to check its progress;

with the approach of the hot season it diminished, and at last wholly disappeared, though the cordons had been abandoned and the pestilence allowed to spread and propagate itself at will.

If the common theory of the contagiousness of plague be true, how is the fact to be accounted for, that it is often raging in one city or district, and even in a particular part of a city or district, while in the adjacent neighbourhood, though in constant communication with the diseased locality, no single case is known to occur. It has again and again happened that the plague has been most destructive at Alexandria, and has not reached Cairo; that it has been in Cairo without visiting Alexandria—that it has attacked intermediate towns and spared both these capitals, though there has been a constant, active, and unchecked transit both of goods and passengers. In the present year (1838) there have been numerous cases at Alexandria,—but none in Cairo; and in 1824, when I believe only one case occurred in Alexandria, it is calculated that nearly 50,000 persons were attacked in Cairo. It has often been in Fostat (old Cairo) which is only three or four miles distant, and not in Cairo itself; often in Cairo without reaching Fostat—it is said never to have penetrated the Fayoum, which is only a day's journey from Cairo—never to have reached Assouan or to have entered Nubia, though no less than 7,000 boats are perpetually plying on the Nile, and no precaution has been taken to keep infected districts from communication with those that are healthy. When I was at Smyrna, in June last, I learnt the plague was in three or four neighbouring villages. No quarantines or cordons were established on the land side of the city, and no case had occurred in Smyrna itself. Still, the doctrine that the plague is imported and not indigenous, is prevalent in Turkey as it is in Egypt. The Egyptian Levantines insist that it is not, and never has been, an Egyptian endemic, but that it has invariably been brought by Turkish pilgrims, travellers, or goods; while the Turkish Levantines on the other hand, as

violently contend, that the disease when it breaks out in Turkey is of Egyptian origin, and comes always from Alexandria, Damietta, Rosetta, or some African port. I have little doubt of its being of spontaneous growth both in Turkey and Egypt.

I made it my business to inquire what had been the proceedings of the medical military authorities when the plague broke out in the army of the Pacha of Egypt. I found that it has been the usage to remove the troops from the locality in which the disease has made its appearance, and that their removal, so far from spreading the disease into the district to which the troops have marched, has in all cases arrested its progress. A memorable instance occurred in 1835, when many soldiers among the troops at Abouzabel were attacked by plague. The regiment was ordered a few miles off into the desert and the malady wholly ceased.

Some remarkable cases of the passages of large bodies of persons from places infected with the plague, to other places without any communication of the disease have been reported to me in the Levant. Every year immense multitudes of Hadjis or pilgrims go from Turkey to Arabia—through both Syria and Egypt—and these pilgrims are usually represented as the instruments by which the plague is spread. Now, it is worth noticing, that the plague scarcely ever exists in the East except during certain months of the year; but the pilgrimage of the Mussulmans takes place through every month in turn—for as the Mohamedan festivals are reckoned by the lunar calendar, they change their season from year to year: and if pilgrims be the cause of the circulation of the plague, the plague ought to accompany their progress whatever be the season of the Ramadan—the course of the pestilence should be traceable all along their path; but it is notorious, that in considerable districts through which they pass, the plague has not been known to penetrate; and it is equally notorious, no plague accompanies the Hadjis in any district, except during

certain months of the year. In 1824, when the plague raged so fiercely in European Turkey, many thousand Turkish pilgrims passed through Alexandria on their way to the holy city; but in Alexandria there was only one case of plague, though no precautions were taken and no quarantine regulations then existed to interrupt their progress.

The cases in which contact with persons having the plague, or with the corpses of those who have died of the plague, has not communicated the disease, are so abundant as to show that the contagious principle cannot at all events be a very active one, at least on ordinary occasions. Mothers frequently die of the disease without communicating it to their sucking children—husbands and wives have the malady while in a state of habitual cohabitation without conveying it to their partners. Plague patients constantly expire in the arms of others and no evil consequence results, and it is scarcely possible to have been long a resident in the Levant without being an ocular witness of cases where to be in the presence of, and even to have handled, a plague patient, has led to no injurious consequences. A case occurred at Alexandria, where a Frank lady (Mrs. Portalis) who had been keeping a strict quarantine was attacked by and died of plague (I think in 1835). It was not known at first under what disease she was suffering, and being a person highly esteemed, and of some consideration in the place, she was visited by the principal ladies of the town, who did her many friendly offices, embraced her, lent her such personal attentions as her indisposition required, without any idea of the character of her malady. She expired the day after she had received these visits, but no one of the visitors was attacked by plague.

Even those who contend most strenuously for the contagiousness of the plague, have not ventured to say that they have been able to trace it from person to person. Cases of the appearance of the disease after contact or communication with plague patients may no doubt occur; but it by no means follows, that the contact or communication was the immediate cause of the spread of the disease. What is

wanting to support the popular theory and to justify the quarantine regulations is, to prove that the plague is not of spontaneous or endemic growth—that it is communicated by a specific contagion only—and that Lazzaret arrangements can prevent its progress. I apprehend that neither of these theories can be supported by facts sufficiently numerous to overthrow the immense multitude of facts which appear to demonstrate, first, that the primary cases of plague are not imported, but indigenous in the spots where it exhibits itself—that its progress is not to be tracked from one diseased person to another, and that the establishment of cordons or Lazzarets has not prevented the introduction or the spread of the disease.

Credulity has divided, and long habit has sanctioned the division, of all articles into two classes—the susceptible and the non-susceptible of contagion—substances which can, and substances which cannot, communicate the disease. It would be wasting words to expatiate on the absurdities to which this capricious and unreasoning fancy has given rise. For example, feathers are considered as peculiarly susceptible. I recollect, when escorted to the Lazzaret of Shappanek, the guides were particularly careful to remove all the feathers scattered on the ground, lest we should touch them—yet, in our dormitory, a number of house-martins had built their nests, and we were amused at watching them flying about in all directions, and of course, if communicable, communicating the diseases of the Lazzaret to the adjacent town and country. In the garden of the Lazzaret, were quantities of fruit, and multitudes of birds of all sorts gathered together to devour it, and dispersed themselves on all sides; pigeons came in numbers from the adjacent villages, and returned to their abodes without molestation or hindrance. How, indeed, if winged creatures can communicate disease, do Lazzarets prevent its communication? Cotton wool is deemed peculiarly susceptible. Now, of this article, from 100 to 150 thousand bales are annually exported from Egypt to Europe. The cotton is cultivated and gathered in districts frequently visited by the plague,—picked and packed by

those who are themselves and their families both subject to and often victims of the malady. I have frequently heard of instances in which the Arabs having been attacked by plague, have laid themselves down and died on the bales of cotton wool, afterwards shipped for Europe. The pus from the bubo is often deposited among the cotton, and packed up for our market. Were the plague so contagious as it has been supposed to be—so easily communicable as is pretended,—would not this cotton convey it to those who open the bales, who manipulate it in the Lazzarets—and who are thus exposed to the contagion in its concentrated and most perilous state? But in most of the Lazzarets of Europe, the bales are not opened at all; they remain a certain number of weeks, and are then sent to the markets for sale, and distributed among the manufacturers and artisans without any, the slightest precaution. Now, what is to prevent the introduction of the plague into our ports,—into our manufacturing districts,—into all the towns where our manufactures are sent or consumed,—if it really possess the character which has been attributed to it?

If it be contended, that the sanatory precautions of European Lazzarets are justifiable because some susceptible article impregnated with disease might otherwise be introduced and introduce the plague, how is the fact to be accounted for, that after the great Egyptian plague of 1834-5, the clothing, the furniture, the property, of those who had perished was publicly sold; and that no case of plague followed the dispersion of the supposed depositories of contagion? Between 500 and 600 houses in Cairo were wholly depopulated. When the last of the inhabitants perished, the police closed the doors, and after the plague had ceased, the houses were entered and all the contents were sold in the public bazaars. Was there any communication of disease? None, whatever.

On inquiry at the Mussuhman hospitals, where cases of plague are almost always occurring in certain months of the year, I found that their lint and linen were used indifferently for plague and other patients,—that the linen which had

been used for plague patients was unscrupulously employed for patients who were the subjects of other disorders, and that no instance had occurred of the communication of the plague by the employment of the linen of the sufferers from plague.*

In fact, so far from the plague being *easily* communicable, nothing has been found so *difficult* as to communicate it. Could it be traced to a specific *virus*, some means might possibly be taken to control its progress. But, the impossibility of ascertaining the immediate cause of propagation is the great embarrassment of the whole question. A case or two of its apparent communication by inoculation has occurred in the localities of its endemic existence; but no case has come to my knowledge where inoculation has communicated the plague out of the infected locality. Dr. Bulard, who has, of late, excited much attention by his attempt to introduce Lazzarettos into Constantinople, an attempt from which he is now disassociated in consequence of a misunderstanding as to the amount of his own pecuniary recompense, did, while in Egypt, wear, for I believe twenty-four hours, the garments of persons who had died of the plague without being attacked.† Dr. Bulard, during the period of the discussions as to the Lazzaret establishments in Constantinople,

* M. Bulard says, that "in the Esbekier Hospital at Cairo (which is under the direction of Europeans), the same beds, linen, shirts, drawers, and sheets, which during six months had been employed for from 2,000 to 3,000 plague patients, were used for general purposes; for those suffering from fever, wounds, ophthalmia, dysentery, syphilis, without other precaution than simple washing in water, without alkali or soap.

"Our own linen was left an hour in water, and ironed by laundresses; while aprons were lying about the place impregnated and almost wholly covered with the pus of buboes, the serus of carbuncles and pestiferous blood."—*Peste*.

† Dr. Bulard's account of himself is as follows:—"I have struggled with the plague for five years. I have lived at different times, and during several months, amidst the cries of suffering thousands of plague-subjects, and the emanations from their dead bodies. I have dissected 300 plague-corpses, and have treated 2,000 plague cases."—*Peste*. N. 4.

professed his belief in the contagious character of the plague. Many individuals condemned to death were delivered over to be experimented upon, and received by him into the plague hospital. Five he inoculated, most of them several times;—they were inoculated both with the blood and the pus of plague patients—of the five, only one showed any symptoms of the disease. His own deduction is, that these experiments prove nothing, either for or against contagion; because, he says, they were made in a hospital where there were from 500 to 600 plague patients—in an apartment where, from fifty to sixty were confined,—on subjects who had been attending the plague patients for a week. The natural inquiry would be—has the plague ever been communicated as the small-pox is communicated, by the virus *alone*—in places remote from spots where the plague is wont to rage? Can any such case be quoted?

In my intercourse with physicians in the East, I have found several examples of attempts vainly made to communicate the plague by inoculation to themselves. Clot Bey has twice inoculated himself, both from the matter of the bubo and from the blood of plague subjects. Dr. Hepitis made several efforts to give himself the plague by repeated inoculations, but in vain. The case of Dr. Rosenfeld has been frequently cited as evidence of the contagiousness of plague. He exposed himself to its action in every conceivable way—sought its worst exhibitions—dwelt habitually among the diseased—accustomed himself even to tear open the buboes of plague patients, and to smear his body with their pus and their blood. He seems to have been of negligent,—not to say filthy habits,—and had for years, both in Africa, Asia, and Europe, treated the plague with scorn and mockery, professing to have discovered a preservative, with which he secured himself and his followers. It might be a question for curiosity, whether the history of such a man affords most evidence for or against the doctrines of the contagionists; but I cannot refrain from quoting a singular passage in his biography, which Dr. Pezzoni has written, to prove the

truth of the popular opinions: "The so-called invulnerability of Rosenfeld was no stronger proof of his possessing any preventive of the plague than the invulnerability with which the nurses and other persons employed in the plague establishment appear to be endued,—since they remain both day and night with plague patients, in perfect impunity, dressing their wounds, making their beds, and rendering them every sort of help."

Among the medical men who were in Egypt, during the great plague of 1834-5, opinions were about equally divided as to the contagiousness or non-contagiousness of the disorder. But it is remarkable, that while only one of the non-contagionists died, several of the contagionists were victims. Those who took the greatest precautions were among the sufferers. M. Lardoni was a remarkable instance. He was the most timid of men—he never visited his patients but on horseback, and his appearance is thus described:—"His harness was wholly of unsusceptible materials, his saddle closely covered with oilcloth, his stirrups were braided and his reins made with filaments of the date tree; he had a huge oilskin cloak in the shape of a sack, which rose above his head and descended beneath his feet; he was always escorted by four servants, one before, one behind, and one at each side, so that no person could approach him." A thousand other ridiculous precautions were adopted by him; they were all in vain; he was attacked, though, for two days after the attack, he declared it was impossible it should be the plague; on the third he announced that it was really the dreaded calamity, and died soon after.

The non-contagionist physician who died was Rigaud. Nothing could be more remarkable than his courage, devotion, or rather self-abandonment; he had no fear of the pestilence, and took no sort of precautions; he attended the sufferers with singular assiduity; paid no regard to his person, was constantly engaged in visiting and assisting the living, or in dissecting the dead; he was worn out, indeed, with fatigue and excessive labour. Yet he passed safely through the most fearful crisis of the pestilence, with

health and spirits unbroken. Just as the plague was ceasing, when its violence appeared wholly exhausted, and the season of its disappearance was about to arrive, Rigaud fell ill, and was a speedy victim.

The cases of plague which came under my notice in the East appeared to me of spontaneous, indigenous, and endemic origin. During my abode at Alexandria it broke out in various—frequently in remote and separate—parts of the town—without any traceable connexion or communication. It could not be followed from person to person, from house to house, from district to district, but appeared irregular and capricious in all its movements—now attacking one locality—abandoning that and hurrying off to another. When it broke out at Jaffa in the house of the Russian Consul, a report was spread, which I found to be groundless, that it had been introduced by the Mussulman pilgrims returning from the Holy Cities. No pilgrim—no person infected with plague had entered the consulate—nor could any link be found to connect its irruption with any other spot than Jaffa itself. Jaffa was put into quarantine—the communication with the surrounding country was stopped—yet the plague broke out at Jerusalem, in one of the convents, where no diseased person had penetrated, and where its appearance could only be explained by supposing its birth to be spontaneous. It next appeared in a village in the neighbourhood of Tripoli, in a spot where I was assured there was no importation of goods, nor transit of travellers. In passing through Constantinople, I learnt there were cases of plague in different, and from one another distant, parts of the town; these cases not being each a nucleus of disease from whence it might extend itself as radii round a centre; but each case of separate and independent creation. Such was also the state of things at Nissa in Bulgaria, where the disease was raging when I returned by the Danube.

All statistical materials are in the Levant, of a very uncertain and unsatisfactory character, and especially the sta-

tistics of disease. If any elements more correct and complete than others exist in that part of the world, they must be sought among such European authorities as are connected with any organised and defined masses of individuals. In the question as to the contagiousness of plague, the armies and navies of Oriental nations would present a wide and valuable field for inquiry. I have before spoken of some facts connected with the Egyptian army; and, as far as I was able to collect information from Europeans in the military services of Turkey and Egypt, I found my opinions confirmed as to the uselessness of Lazzarets; and that among soldiers and sailors intercourse with plague patients was very frequent without any resulting evil. I submitted to Mr. Abbott, one of the medical men in the Pacha's fleet, a series of questions to which I here give the *verbatim* answers of this intelligent observer:—

Question 1. Do you think the plague is indigenous in Egypt, or is it in all cases of foreign importation?

Answer 1. I think it is indigenous; indeed, I do not believe Egypt is ever entirely free from the plague—that is, in its least virulent form. I have never known it to have been imported. The idea of its being imported by the Hadjis (pilgrims) must be incorrect, or we should have it occurring at all seasons of the year, instead of between* November and June, in consequence of the arrival of the pilgrims being in the month of Ramadan, which month does not always occur in the same season of the year.

Question 2. Have you known any cases of the origin of the disease when there had been no contact or communication with a plague patient?

Answer 2. Yes, several; especially the case on board my own vessel, which will be hereafter mentioned. The case of Dr. Lardoni, the Pacha's physician, who, it is well known, never touched a diseased person unless with a stick;

* Plague is said never to commence until November, nor to continue after 21st June.

nay, would not even go abroad unless dressed in oiled silk clothes and gloves, which he changed before going into his house; also, the case of Madame Portalis, who died. Mr. Galloway can prove this.

Question 3. Have you known any cases where cordons and other such precautions have not been security against the disease?

Answer 3. I have never known any benefit to accrue from the numerous cordons that have been at different times established in this country. The disease has invariably spread in spite of them. Their supposed benefit arose not from the cordon, but from the soldiers being employed to remove the patients from their mud huts into more healthy and better ventilated dwellings, and in the cleansing or destruction of infected habitations.

Question 4. Have you known any cases where contact with a plague patient has not communicated the disease?

Answer 4. Yes, many! I myself not only touched my patients every quarter of an hour, but obliged my assistants not only to touch them but to sit on the beds of the patients, and there to remain until relieved (hourly) to administer the remedies prescribed. Neither I nor my assistants, were attacked by the disease. The hospital on board my vessel "*Aboukir*," was only constructed to hold eight persons, four

below and four above, thus

1	2
3	4

 separated only by rails

about three inches apart, so that in reality four persons were lying in one bed, and yet not one of the many other patients admitted into this hospital during the time (nearly three months) the plague patients were there, had the slightest symptoms of the disease. I never adopted any kind of quarantine or any fumigations. The "*Aboukir*" was a line of battle ship of eighty-four guns, and had at that time upwards of 1,000 men aboard, suffering under the usually considered predisposing causes; such as discontent at being confined on board and separated from their families whom they had left at a day's notice, without money or visible

means of subsistence; depression, from anxiety concerning their families, of whose health they had no means of inquiry, &c. &c. &c.

Question 5. Have you known cases in which contact, examination, handling, or dissection by medical men, has not been attended with danger to the practitioner?

Answer 5. Partly answered above (in No. 4.) I have known several medical men, who, while the plague was raging with its greatest violence, persisted in making post mortem examinations of plague patients without taking the disease, and yet when the disease had nearly ceased (indeed, after all quarantine had ceased, and every one in full pratique) they have been attacked and carried off by it. Could it have happened by contact? is it not more probable it was caught by infection, or the common cause of the disease? Mr. Laidlaw, a practitioner of first-rate abilities, attended many cases of plague, during the whole existence of disease in this country. He established a hospital for the reception of the English, and upon one, a captain of a merchant ship, he tied the external iliac artery, the femoral artery having given way, in consequence of the great sloughing of the bubo and surrounding parts. The patient recovered, and Mr. Laidlaw did not take the disease;—neither gloves of oiled silk, or any other absurdities were used.

Question 6. Have you reason to think that pure air and ventilation have any influence on the plague, as to the dissemination of the disease?

Answer 6. Yes, I think that the plague did not spread on board the *Aboukir*, in consequence of the great care taken to ventilate the vessel by keeping all the ports open, all the windsails up, so that pure air was sent into every part of the ship, and also by not allowing the men to sleep on the orlop deck. These precautions were used by all the fleet, and with every possible advantage: while on board transports and merchant ships, whenever a case of plague occurred, it was seen to spread and make sad havoc among the crew, in consequence of the want, I think, of proper ventilation.

Question 7. Have you ascertained whether a mephitic atmosphere and the want of proper nourishment and medical care, have contributed to the spreading of the disease ?

Answer 7. In all merchant ships, ventilation is very badly managed, the crews are shut up to sleep in a small part of the vessel, and that below, where all the impure, mephitic air collects, being of greater specific gravity than atmospheric air, and thus the disease spreads. I know cases of plague occurring on the ground-floor of a house, the patients have been taken away, the room shut up for two months or longer, and persons entering before the room was properly ventilated, have caught the disease. There cannot be any doubt that want of nourishment by lowering the system, renders persons more susceptible of diseases, particularly those of a typhus kind ; neither can it be doubted that the want of medical aid has greatly tended to spread this disease.

Question 8. In the cases where you have seen plague on board ship, what was its origin, and had the patient had communication with the shore ?

Answer 8. On board my ship, the "*Aboukir*," the first person was a negro, taken prisoner at Nablous, in Syria ; he was received on board while we were off Jaffa, in June, he was never permitted to leave the ship, or to communicate with the shore in any manner. He was attacked in December.

Question 9. Have cases come to your knowledge where mothers suckling children, husbands cohabiting with their wives, or similar cases of intimate contact, have not led to the communication of the disease ?

Answer 9. Yes, many such cases have occurred ; I knew the female servant of Mustapha Capitan, who died of plague while suckling, the child did not take the disease, and is, to the best of my knowledge, now alive. I also know an instance of a person sleeping with a female all night, she left his home early in the morning, and upon his going into the street, about two hours afterwards, he found her lying within a hundred yards of his house, suffering from the

plague. He has never had the plague. Also the case of Madame Bugily, who, with her husband and family, was in strict quarantine; she was suddenly taken ill, the medical men attending her were uncertain as to her complaint, but after a few days she died of the plague. During all this time her husband was sleeping with her, and attending upon her; neither he nor any one else in the house caught the complaint. After her death it was discovered that her pet monkey had been allowed to run about the terrace, (which, by the by, must have been in quarantine) and there caught the plague, and then gave it to his mistress. *On dit* a bubo was discovered in the monkey's axilla; but this was not found out until after the death of the lady.

Question 10. Have you known any cases in which the clothes of plague patients have been worn without danger?

Answer 10. No such cases have come to my knowledge, although it is quite certain that the clothes of deceased persons are publicly sold in the bazaar when the plague has subsided. It will be well here to remark, that in the month of February, 1835, in consequence of the existence of the plague in Alexandria, our fleet was ordered to sea. It was necessary that provisions, clothing, and stores, of all sorts; blankets, tarbouches, shoes, and other woollen and leathern articles, all supposed to be highly susceptible, should be embarked. Now, these things would have been rendered useless, had they passed through the usual ceremony of fumigation, therefore that form was dispensed with, and the articles were received on board direct from the stores on shore, necessarily passing through many hands, and certainly many of the persons charged with their transport and delivery, must have had the plague, indeed it is well known many died of the disease.

The day before we sailed, the wives and relatives of the sailors were also permitted to come alongside, when tarbouches, blankets, cloth dresses, and other articles, were received on board, and yet in spite of the neglect of quarantine, the plague was not introduced into the fleet, &c. &c. &c.

To some of the facts referred to by Dr. Abbott, I have had occasion to speak in the course of these observations, and am happy that my testimony is confirmed by so competent a witness.

It is, I believe, an ascertained fact, that during certain seasons of the year, some cases of plague are almost always to be discovered in the great cities of the East. But it is only at periods somewhat remote, at a distance of from 5 to 10 years that the disease appears in great violence. And it is seldom in the same year that it rages with extraordinary intensity in different places*; it is scarcely ever known to exist except during certain months of the year, and is always driven away by the duration during 6 or 8 days of a heat above 90° of Farenheit; these facts seem scarcely reconcilable with the popular doctrines of contagion; for if the plague be constantly present during certain seasons of the year, what is to prevent its diffusion? why, when it appears in its greatest force, should it not spread in all directions and invade the countries which take no precautions against its introduction? why should it diminish and die away under a given temperature, to be revived again, not by progressing from person to person, but spontaneously, when the temperature falls with the approach of the wintry season?

It has been remarked to me, that the attacks of the plague most frequently take place at night when damp and heavy dews predispose to disease.

The regions in which plague commits its most terrible ravages will be found to be these; where no provision is made for the cleanliness of houses or their inhabitants—in the towns where filth is allowed to congregate—where animal and vegetable matter is putrified and decomposed

* The great plague of 1812, which destroyed more than 100,000 persons at Constantinople, was little influential in Africa. That of 1818, which was so fatal to the Barbary States, did not penetrate into Egypt though no precautions were taken against it. The plague of 1835, so murderous in Egypt, had little action in Turkey, and that of Asia Minor of 1837 did not at all penetrate to the southern coast of the Mediterranean.

without any interference—in low and swampy places—in the neighbourhood of marshes and lakes—near subterranean waters—in a word where unwholesome vapors and pestilential miasmata are perpetually exerting their baneful influences. In the spots where the value of human life is at the lowest—where the average of mortality is the highest—where common diseases are greatly aggravated, and the more alarming become almost universally mortal—where there are no floors for rest, nor rain-proof roofs for shelter, nor wholesome food for sustenance, nor sufficient clothing for protection: there will the plague be found an almost permanent inmate during certain seasons, withdrawing only for a few short months, to return inevitably with the return of another year.

I have much to apologize for in the crude, undigested, desultory character of these hasty remarks. Still, I shall have done some service if I have succeeded in awakening your attention to a subject of paramount importance, and which it appears to me cannot be allowed to rest in its present state of uncertainty, an uncertainty unsatisfactory to science, dishonourable to inquiring philosophy, and greatly injurious to the commercial interests of the nation. On such a subject it would well become a government like ours to take the initiative of inquiry—to send a commission into the Levant in order thoroughly to investigate the whole question, and to ascertain by an extended, minute, searching and unprejudiced inquest whether those sanitary regulations which are so costly, so capricious, so vexatious, and so despotic, are demanded by a due regard to the general health and to the public interests; whether quarantines are really useful, or only inefficient, or whether they are not pernicious; whether the contagiousness of plague is of a highly perilous and communicable character, or whether it requires for its propagation conditions rarely combined, and such as may be provided against by civilization and good police? And as other countries have also a deep concern in the solution of these interesting questions—as our own sanitary legis-

lation could scarcely be changed unless the governments of Europe were willing to concur in some general modification ; it would be highly desirable that the leading commercial powers should be invited to carry on a contemporaneous, if not a united inquiry, which might either serve to justify the existing state of things, or lead to improvements friendly to economy, to trade, to knowledge and to happiness.

Among the physicians to whom I was indebted for many instructive and valuable communications while in the East, was Dr. Laidlaw of Alexandria. Since I addressed the foregoing observations to the association, I have had the privilege of receiving from him the accompanying paper than which I could find no more appropriate conclusion to my remarks. However lightly my opinions may be estimated, the facts which Dr. Laidlaw brings forward cannot fail to make a deep impression. Other similar testimony is on its way ; but the controversy being again opened under the sanction of the association, abundant opportunities will occur for the publication of any further evidence likely to assist in the formation of correct opinions.

Alexandria, August 6th, 1838.

DEAR SIR ;

I am now about to fulfil the promise I made to you during your stay here, of giving you a slight sketch of my experience in the investigation of plague and the result of my observations upon its contagious or non-contagious nature. I must, however, previously point out to you the advantages I have possessed in following out this investigation, and warn you that I am by no means a violent and prejudiced partisan of any preconceived theory, but I have drawn my conclusions from my own personal observation. I have now resided nearly seven years in Egypt, and I tell you candidly that when I arrived in this country I was as firm a believer in the high degree of contagion which has been universally

imputed to plague, as any person could be, who had never carefully investigated for himself, but followed the orthodox principles of the schools in which he received his education. Circumstances, however, soon occurred to shake this belief, and judging by the analogy of what I knew of the nature of the contagion of other known contagious diseases, I was struck with the idea that the contagious nature of this disease must be very grossly exaggerated, and that it was a dereliction of reason to give credence to the absurd and monstrous stories in circulation among the residents in the Levant. One of the first circumstances which struck me was the superstition and ignorance of the most strenuous supporters of the contagion and quarantine system, and who are, with the exception of the English residents, either bigoted Catholics or of the still more bigoted Greek Church. I found it useless to argue with men, whose credulity was so great that they regarded the mere discussion of the question as something approaching to profaneness, and most of whom if told by a priest, that a miracle had been performed, would, without inquiry, have implicitly believed it. The universal answer to every doubt which I ventured to suggest was, that there could be no doubt of the case at all, every body believed it, and every body always had believed it, and it was not very likely that I should be able by any arguments to satisfy them that there could be any doubt of what had been implicitly believed for ages. Persons of this character are to be convinced only by demonstration, but as it is almost a part of their religious faith to believe in the contagion, even this will not always succeed, and therefore instead of uselessly wasting my time in argument and theory, I determined carefully and impartially to investigate the disease as soon as it should appear and to satisfy myself, if I could not convince the public, of the true nature and character of this scourge of mankind.

An opportunity was soon afforded me, of putting my determination in execution by the breaking out of the plague in this city, in the latter part of the year 1834, and its raging epidemically to an extent almost unheard of even in Egypt, during the first five months of 1835. I have since had ample opportunity of examining the disease as it has occurred sporadically, as no year has ever passed without several cases of plague coming under my observation. In fact, I have seen it in almost all its characters, and have paid diligent attention to the most minute circumstances connected with

its propagation. I shall now proceed to give you a slight sketch of its progress in its epidemical character, and of the impotent attempts which were made to arrest it, and shall then detail to you some of the most important facts which struck me at the time, as shaking the foundation of the theory of propagation by contagion, *and by contagion only*.

As soon as the disease was ascertained to exist in the town, all the European inhabitants put themselves in quarantine, and nothing was received into their houses, without being previously smoked or passed through vinegar and water. The most abominable system of annoyance to the inhabitants was adopted by the sanitary police, in the hope of stopping the propagation of the malady. Every house in which the disease was discovered was instantly closed, and guards placed around it, the miserable inhabitants being removed to the Lazaretto. One of the first cases of plague occurred in the European Hotel, and which was frequented by great numbers of Europeans. The sanitary police with a large body of soldiers blockaded the house at the usual hour for dining, and actually seized, in defiance of all law and justice, upwards of forty persons, the great majority of whom had only entered a few minutes previously for the purpose of dining, and carried them off to a miserable Lazaretto, where no sort of comfort and scarcely the necessities of life were afforded them, to perform an expurgation of forty days. The surgeon, also, who had attended the patient, was put in quarantine for the same period.

Notwithstanding, however, the severity with which the police regulations were enforced under the despotic and irresponsible direction of a board of health, notwithstanding that every vessel coming from a suspected port was subjected to a strict quarantine, in order to prevent any new importation of the suspected virus, still the epidemic steadily pursued its course, just as it had always done before, when none of these precautions were adopted, daily increasing the numbers of its victims as the season favourable for its propagation advanced, until it was found that the shutting up of infected houses was worse than useless, and the Pacha, more humane than the infatuated Europeans who advised him, ordered that all further attempts to stop the progress of the disease by sanitary regulations should be abandoned. It is not unreasonably conjectured that during the above mentioned period, great numbers of persons died of

plague, and who were buried in their dwellings by their relatives, in order to avoid the nuisance of quarantine, and from the decomposition of their bodies, a new contamination was constantly added to the vitiated atmosphere. Thus ended a most decided attempt, backed by all the authority of despotic power and exercised with the most merciless severity, to arrest by quarantine the progress of the disease. If these measures had been put in force when the disease was on the decline, and the altered condition of the atmosphere was no longer genial to its propagation, as was the case at Malta, in 1813, they would have appeared to have succeeded, because, whether they were adopted or not, it would have ceased as it did here after all measures had been abandoned, but in this case, having commenced the shutting up at the very first breaking out of the epidemic, a fairer trial of the efficacy of this much extolled means of safety was afforded, and the result has shown that its boasted efficacy was futile, and that the disease was not to be confined within bounds by guards or sanitary cordons.

I shall now endeavour to show you, as briefly as possible, the manner in which the disease gradually made its progress in spite of every attempt to arrest it, and how it also gradually disappeared, notwithstanding the discontinuance of all precautions. The disease first appeared in August 1834, and from that date the sanitary regulations commenced, that is to say, every person attacked with plague was removed to the Lazaretto; his house shut up and his whole family put in a strict quarantine, &c. &c., and these proceedings were carried on with the greatest severity until the 24th of February, 1835, when they were abandoned as useless. Now, you will have the goodness to observe that, according to the official returns, there were ninety-three deaths by plague during the month of December 1834, that in spite of all the severe measures adopted, the deaths by the same malady increased in the following month to one hundred and forty, and that the deaths for the first twenty-four days of February, (the date at which the quarantine was abandoned) amounted to no less than five hundred and fifty-eight; thus in my opinion demonstrating incontrovertibly that as the season favourable for the spreading of malady advanced, so would the disease advance in defiance of all sanitary regulations. The total deaths in February was seven hundred and ninety three, in March (the most genial season) it rose to four thousand two hundred and

fifty one, in April it declined to one thousand nine hundred and twelve, and in May, it was reduced to two hundred and sixty-two, after which the disease only occurred sporadically much in the same way as it exists at present.

It was not till the middle of the month of March (the period at which the epidemic was most virulent, and the deaths varying from one hundred and forty to a hundred and eighty per diem), that any attacks took place among the English sailors employed in loading cotton. This is somewhat remarkable, in as much as almost all the persons employed at the cotton stores had been attacked, and were in daily contact with the sailors employed in loading the vessels. When the disease broke out among the sailors, I was called upon to attend them, and a large proportion recovered: the disease did not spread to any extent, although they were in constant communication with each other, and only twenty were attacked, and of these only four died, several of these were, however, by no means aggravated cases. I attribute the comparative exemption enjoyed by these people, in some measure to their more generous diet, than that of the Levantines, but principally to their sleeping on board their ships away from the miasmatic exhalations of the land.

I shall now proceed to give you a few facts, which are indisputable, and which must, I think, be sufficient to convince any reasonable person, that if the plague is propagable by contagion, (and this, I by no means deny in toto) yet, it has been greatly exaggerated, and that so far from its following as a general rule, that persons exposed to the contact of the infected are always, or generally attacked, it ought rather to be considered as the exception. So far as my own experience goes, I can assert with confidence that such is the case. I shall endeavour in the selection of the facts, which I am now about to lay before you, to select cases as they occurred at different dates of the epidemic, to avoid the objection that the season might be unfavourable to the propagation of the disease, and shall give you cases from the first which I saw and treated to the last, during the epidemic, and will then conclude with a few sporadic cases, selected from the many which have presented themselves to my observation.

CASES.

CASE. 1.—7 *Feb.* 1835.—The female servant of Mrs. Hume was attacked with plague. Mrs. Hume's family consisted of only this servant and one lodger; and they were in the strictest quarantine; no one being allowed to enter or go out of the house, and every article of provisions, which were the only things admitted, was passed through water, and every paper carefully smoked. I was called in to see the patient and prescribed for her, and she was afterwards removed to the Lazaretto and got well. Mrs. Hume, the lodger, and myself, were the only persons who were in contact with her, and we all continued in health during the epidemic.

CASE 2.—18th *Feb.* 1835.—Mr. G. Sceriha was attacked with plague, and I was called in to attend him. This patient died sixty hours after he was first attacked. The whole of his family, consisting of his mother, two brothers, three sisters, and an Arab woman servant, as well as myself, were constantly about the patient, as much in contact with him as in cases of ordinary disease. A few hours before he died, I cut all the hair from his head to endeavour to relieve the delirium. The family removed to another dwelling, and no one was attacked at the time; but the elder brother died of the plague about six weeks afterwards, during the height of the epidemic. The three sisters, mother, brother, Arab nurse, and myself escaped.

CASE 3.—24th *Feb.* 1835.—My servant Mohammed was attacked with the plague. I attended him and did every thing I could to assist him, and he ultimately recovered. He was in every way in as complete contact with me as possible, making my bed, brushing my clothes, and waiting upon me: during his illness many of his friends came to see him and showed no hesitation in assisting him in every way. I never could ascertain that any one of these was attacked with the disease; it was certainly not the case with several upon whom I kept my eye during the epidemic. One man, whom I employed, especially to look after the patient during his illness, I found one morning fast asleep with his head reclining upon the bed of the patient. I know that this man did not contract the disease.

CASE. 4.—8th *March*, 1835.—The master of the English brig, "Delight," in the harbour of Alexandria, was attacked with

plague. I was sent for and went on board, and afterwards visited him twice a day till he recovered: the case was a very severe one, and the patient was delirious before I was called in. I bled him and treated him precisely as if he had not been suffering from a pestilential disorder. The cabin boy, who attended upon him, slept in the same cabin with him, and not three feet distant from the bed. The mate of the vessel slept in a berth next to the main cabin, and with which there was a constant communication; he frequently assisted the sick man in changing his linen and in arranging his bed clothes. Upon visiting the patient one day, I found the master of another vessel sitting close to the bed side; and when he went away he shook hands with him. These three individuals I anxiously watched to see if they would receive the infection, but they all remained in perfect health.

CASE 5.—*24th March, 1835.*—The carpenter of the brig, "Patriot," lying in the harbour of Alexandria, was attacked with the plague. This patient died on the eleventh day. The vessel in which this case occurred was full of cotton; and a round house had been built on the deck for the accommodation of the seamen. This round house was only about fourteen feet long, by ten in breadth, and was fitted up all round with berths for the men, one above the other: in this small space the whole crew were crowded, and the ventilation was very imperfect. The crew of the vessel lived and slept in this place five days and nights along with the sick man; and it is impossible to conceive any plan by which they could have been placed more immediately in contact, or by which infection or contagion was afforded a more favorable opportunity of developing itself; yet, of all the persons thus exposed, only one person was afterwards attacked with the disease, and he recovered after a few days treatment.

CASE 6.—*5th April, 1835.*—The captain of the brig "Elliott," in the harbour of Alexandria, was attacked with plague in its most virulent form. His ship was loaded with cotton, and he was on the eve of sailing, and had taken on board two passengers for England, a man and his wife, who lived in the same cabin with him, and assisted him in every way in their power, until he was brought ashore to the hospital, a period of several days. I attended him, and he got gradually better. On the 15th May, the sloughing of the plague bubo in the groin opened the femoral artery; and to

prevent his bleeding to death, I was obliged to tie the external iliac artery, and he ultimately recovered. The passengers, his mate, several of his seamen and his cabin boy, the latter sleeping in the same room with him during his illness, were of course as much exposed as could well be, yet no one became sick.

CASE. 7.—A young lad, in my own house was attacked with plague and died in a few days. My family consisted of a gentleman who resided with me, a European man and his wife as servants and the lad. The two servants concealed from me the circumstance of the boy's illness till he became insensible, in the hope that he would recover. No precautions were taken, and the servants who slept in the same room with the boy were in constant communication with myself and my friend ; no one was attacked.

CASE. 8.—*6th April, 1835.*—Sceriba, the brother of the patient, case 2, was attacked with plague and died in five days. I did not see this patient till the third day. His mother, brother, three sisters, and myself, with several other persons were constantly about the patient and in contact with him : no one was attacked, and they are all now alive and well. I am aware, that to this case it may be objected, that he had contracted the disease from his brother ; but if the credulity of any objector is so great as to lead him to believe that this person could walk about, eat and drink, and be apparently in the most robust health for no less a period than forty-seven days, and at the same time be labouring under the infection of plague, I am willing to waive the case as an argument ; and indeed, I have only selected it for the purpose of showing how a number of persons may be exposed more than once without the disease appearing among them.

CASE 9.—*7th April, 1835.*—The plague broke out at the house of Mr. T——, a merchant of Alexandria, and I was sent for to attend the patients. I found three persons attacked all on the same morning, a gentleman residing with Mr. T——, an Italian servant, and an Arab servant. The two servants were removed to the hospital ; the other patient remained in the house, and was attended to and assisted by myself, Dr. Aubert, Mr. T——, and several other persons. No one was afterwards taken ill.

I think I have shown by the above cases that, to say the least, the danger of contagion of plague, even during the raging of the

epidemic is greatly exaggerated, and I have now only to detail to you a few cases which have occurred sporadically as it at present exists in Alexandria; and I have no hesitation whatever in expressing my decided conviction that, unless the state of the atmosphere is favourable to the spread of the disorder, as is undoubtedly the case during the epidemic, there is no danger whatever from these causes, that they are purely accidental, and that it is impossible to produce by them the spread of the disorder. I have never seen a case of plague occurring sporadically where any person about the patient or in contact with him was attacked; and I cannot find any one that has SEEN one, although it is talked of among the Levantines as a common occurrence. I shall, therefore, relate only two or three striking cases, as any detail of a greater number would be mere useless repetition, the results (as to contagion) being in every case the same.

Sept. 23, 1835.—Dominico Malich and Giovanni Sepich were brought to the hospital with plague, having been ill several days. Of these patients the latter died a few hours after his admission, and the former a few days afterwards. They were looked after by three Arab servants who paid them every attention, and who were completely in contact with them, frequently lifting them in their arms when they rolled off their beds in their delirium. These servants were afterwards subjected to a quarantine of forty days, and they all remained in perfect health.

April 18, 1837.—Thomas Griffith, a seaman of the ship "Bristol," in the harbour of Alexandria, was brought to the hospital with plague. This patient was in free communication with all the ship's company, and was not sent on shore, until he was very ill. The vessel was put in quarantine for forty days, but no sickness of any kind occurred.

June 5, 1838.—Nicola Azzopardi, a waiter in a European coffee-house, was brought to the hospital ill with the plague by a companion who assisted in carrying him into his apartment. The patient had been in communication with a great number of people at the coffee-house; and, after his admission at the hospital, he was bled by a barber, and his head was shaved by another person. He was removed from the hospital by orders from the Board of Health, and died a few days afterwards. The coffee-house and everybody in

it was shut up, and the poor barber, and all his effects carried away to the Lazaretto. Of all the individuals thus exposed, no one has since been attacked with the disease.

May 6, 1838.—The female servant of M. Cerrutti, the Sardinian Consul-General at Alexandria, was taken ill, and the disease was soon discovered to be the plague. The family of M. Cerrutti consisted of nine persons, including the domestics, and all of them were in constant personal communication with the patient, and every care and attention was afforded her. The patient died, and no other member of the family has been attacked since.

The above cases will serve to illustrate the nature of the disease, regarded as a contagious malady, when it occurs sporadically, and I have now only to trouble you with a few concluding observations:—

I trust I shall stand excused, at least by you, Sir, for having somewhat dogmatically asserted my opinion in opposition to the generally received doctrine; and I also trust you will not impute any mixture of vanity and presumption to the zeal I show in the desire to arrive at the truth. I have already told you, in the beginning of my letter, that I should state only what I myself had seen and I have been so careful in the selection of my cases, that there is not one of them which cannot be fully substantiated by the evidence of persons now living. I have not the vanity to presume that the result of any investigation of mine can have any influence in shaking the established belief of the public. I am quite aware that, regarded as a speculative subject, it is more probable, that I should be mistaken than that a large portion of the civilised world should have been deceived for centuries. Yet, Sir, I cannot give up my present views of the subject until further experience shall convince me that I have been labouring under a delusion; but if at any period an investigation should be set on foot to inquire into the subject, conducted by scientific men who personally examine for themselves, and do not rely on hearsay evidence which would not be received in any court of justice; and if this tribunal should decide that I am wrong, and that my conclusions are erroneous, I am willing to abide by their verdict, and to admit that contagion and quarantine, as now in vogue, may, like some other mysteries, be incomprehensible, but nevertheless true.

I remain, my dear Sir,

Your's very truly,

JAMES LAIDLAW.

