Observations on Asiatic cholera: and facts regarding the mode of its diffusion / By T. Simpson.

OBSERVATIONS

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AND

FACTS

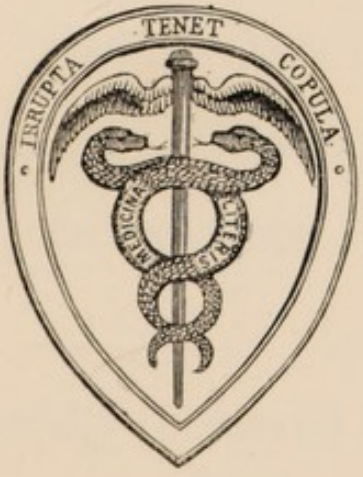
REGARDING THE MODE OF ITS DIFFUSION.

BY

T. SIMPSON, M.D.

"Of those mysteries which heaven
Will not have earth to know."—SHAKSPERE.

"These things, to my best discerning, are truths; and if they be indeed so, I am sure they are pertinent ones."—ABP. LEIGHTON.



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PREFACE.

The object which the Author of the following Work has proposed to himself, is, to offer to the Public certain presumptions and facts, in proof of the doctrine that Asiatic Cholera is a contagious disease, depending for its existence on an animal poison.

Having carefully observed the disease, during its prevalence in York, in the year 1832, he has arrived at the fullest and most

complete conviction of the truth of that doctrine ; and he is fully persuaded, that the admission of that doctrine, by those who have directed the public mind on the subject, during the last twelve months, would have suggested such precautions, (by insulation, and the early removal of the sick to proper receptacles,) as would have been the means of saving many thousand lives.

The Author begs to acknowledge that he is greatly indebted to many able writers on the subject ; and although he may differ from many of them on some essential points, he has at least the satisfaction of feeling that his views approve themselves to his own mind, with the most entire conviction of their truth.

While offering a willing tribute to the great merit of the Works of Reginald Orton, Drs. B. Hawkins, Kennedy, Haslewood, Mordey, Moir, Leichtenstadt, Scot, Macmichael, Snow, and many others, he cannot omit expressing his deep obligations to Dr. Copland, for his able Article on Pestilence ; an Arricle so remarkable for its comprehensiveness, and the accuracy of its details. Neither can he forget to mention the valuable collection of cases, published in the Edinburgh Medical and Surgical Journal, by Dr. Simpson, who has argued many points of great interest, in relation to the Disease, with much acuteness and logical precision of thought.

The Author is fully sensible of the numerous imperfections of the Work :—some degree of indulgence, he would venture to solicit, on the plea of the frequent interruptions, inseparably connected with the exercise of a laborious profession.

York, Dec. 8th, 1849.

OBSERVATIONS

ON

ASIATIC CHOLERA,

ETC. ETC.

THERE is something so mysterious in the history and character of Pestilence; so appalling, when we hear of its being abroad, stalking through distant lands, and defying all human efforts to arrest its progress or mitigate its violence; that it has in all ages commanded the most fearful interest, and has powerfully impressed mankind with the conviction that they had incurred the dis-

pleasure of the Almighty, and that they were justly suffering divine punishment for their offences.

Emotions and thoughts of this kind necessarily acquire additional strength, when after having contemplated the disease as raging for a while in some distant land, we at length hear of its stealthy march towards the confines of our own shores.

Such was the state of matters in this country, a year or two ago, with regard to Asiatic Cholera; but now we have been called upon to meet it at our own doors.

Although less alarm has been excited by the approach and actual invasion of the malady on the present occasion, than on its former introduction into this country, still it has been amply sufficient to produce most painful anticipations regarding the uncertainty of its results.

The Pestilence now raging over many parts of Europe, Asia, and America, had its origin at Jessore, in the Delta of the Ganges, in the year 1817: it has received the name of Asiatic or Malignant Cholera, in reference to the locality of its origin, or to the fearful severity of its visitation; it is also frequently called in this country Epidemic Cholera—a term which ought to be understood as denoting the extent, rather than the cause, of its diffusion.

There are many points of resemblance between this disease and that form of Cholera which has prevailed in this country, in the autumnal season, sporadically, from the remotest period: which latter form has been described by most ancient and modern writers on medicine, as occurring in almost every country on the face of the globe.

Yet that the two diseases are dissimilar,

in several respects, is a fact beyond all doubt. For whilst one form prevails almost exclusively during the latter part of summer, or early in autumn; often arising from exposure to a cold evening air after a hot summer's day, or from irregularities of diet; the other form has an existence independent of such physical conditions, and a power of extending itself over every part of the globe; and is, in a great measure, unaffected by all those circumstances which are alone concerned in the production of the former.

The former disease is described with much conciseness and perspicuity by Hippocrates, in the 5th Book on Epidemics; by Celsus,* with his usual elegance of diction; by Aretæus the Cappadocian, still more in detail;— by Cœlius Aurelianus, Asclepiades, Paulus Æginetta, and Avicenna.

* Celsus, De Medicina, cap. xi., lib. ix.

It is also alluded to, although with less distinctness, by several early English writers; —by Gilbert, in his "Medicinæ Compendium;" by John of Gaddesden, in his "Rosa Anglicana;" and it is described very accurately by Sydenham and Morton.

Still there is not the slightest allusion to the remarkable facts which have reference to its diffusion through the various regions of the earth. On the contrary, it would seem that the disease has generally occurred in other countries, as it has in this, only at certain periods of the year, and depending on those physical conditions which appear in autumn, and which rapidly pass away on the approach of winter. Cholera has, however, appeared in India on various occasions, and has prevailed in certain parts of that country epidemically. Annesley has described several of these attacks as endemic, from their being

confined to particular districts, and apparently depending on some cause connected exclusively with the locality in which they prevailed. Mr. Scot, in his very excellent "Report of the Epidemic Cholera," has briefly described several of these Epidemics as occurring in 1769, 1781, and 1783. Bontius* also describes Cholera in 1629, as an Endemic, depending for its cause "on a hot and moist disposition of the air, and intemperate indulgence in eating fruits."

The close resemblance existing in their general symptoms, between the two forms alluded to, has been clearly pointed out by several writers, but by no one more elegantly than by Dr. Chambers, in the Lectures originally published in the Medical Gazette many years ago, and which have been recently printed in a separate form. These Lectures

* Bontius, De Medicina Indorum, cap. vi., p. 69.

contain much useful information on the subject, written in a very forcible and perspicuous style.

Cases of this kind occur sporadically in the autumn of each year, to most English practitioners; confirming the accuracy of the writers above referred to, and arising from local causes in operation at the season which has been named, which causes operate only on a few individuals, without manifesting the slightest disposition to spread, either by contagion, or by the influence of any more general cause: neither is there, in any of the writers before-named, the most remote allusion to the notion of the disease as existing under such circumstances as have at any time been supposed to generate a contagious property.

That the disease originating in the Gangetic Delta in 1817, manifested from the

first, some striking peculiarities, is clearly admitted; the suddenness of its invasion, its intensity, the rapidity of its course, its dreadful mortality, and its speedy diffusion in every direction through the surrounding country, soon produced on the minds of the medical attendants a strong conviction that it was a new disease—a most fearful Pestilence.

The opinions thus formed at an early period after the commencement of the scourge, have been strengthened and confirmed by its subsequent history, which comprises a series of melancholy outbreaks, not only in the country in which it originated, but in climates the most varied in their physical peculiarities, and through a range of somewhere about sixty-six degrees of latitude;* thus evincing,

* "On the whole, then, the Epidemic, from its commencement in 1817, till the end of 1823, had travelled

beyond all doubt, an inherent property or principle on which its diffusion depends, and setting at defiance all variations of temperature,—heat, cold, dryness, or moisture,—in all the different countries of the globe.

What the circumstances were which operated in generating a new and so remarkable a disease, is involved in the deepest mystery. The subject is just as inexplicable as the origin of Small Pox, and of several other diseases, which began apparently *de novo*, at a certain period of time, but which seem likely to continue so long as human life shall be permitted to exist. The weight of medical authority is decidedly in favour of the opinion, that the present Pestilence is a

over ninety degrees of longitude, and sixty degrees of latitude; viz., from the Philippine Islands to the coast of Asia Minor, and from the Island of Bourbon to Astrachan, and to the Caspian Sea." — *Graves' Clinical Lectures*, vol. ii., page 392.

new disease; having its origin, like most others of a similar character, in the East.

To the medical philosopher, few subjects within the range of his studies can be more interesting and deeply absorbing, than the investigation of all those circumstances which relate to the history, symptoms, causes, pathology, and treatment of this most remarkable disease. "What then is Cholera? Is it purely an atmospheric disease, caused solely by the presence of some morbific agent or quality in the air, and irrespective of emanations from the persons of those who are afflicted with it? In what manner is the supply of this morbific matter in the atmosphere kept up, so as to enable its influence to be transported over tracts of many thousand miles? Is there any quality in this morbific principle, by which it can assimilate the atmospheres of other regions to its own condition,

as it comes in contact with them? How does it progress against adverse winds, and in what manner does it diffuse itself, so as to touch one place, avoid another, and spread at times in the most opposite and unexpected directions? Can it be explained how this poisonous atmosphere does not affect a whole population at once, more especially on the sea-board of a country lying opposite to the quarter whence it is acknowledged to come, and that across the sea, instead of appearing only in one seaport town—Hull—and there after the arrival of a ship from Hamburg, with the disease on board? These questions may, perhaps, be answered by saying that, in all these respects, Cholera only follows the laws of other Epidemics. But that leaves the question wholly unexplained; an Epidemic signifying simply a disease which prevails at the time to a considerable extent. The term

conveys no explanation as to the origin or method of diffusion, nor indeed as to the nature of the disease so prevailing, which may be infectious or otherwise; it leaves the whole matter an open question. How, then, a stream of poisonous or morbific air, capable of producing this sole disease, should either be wafted entire, or by progressive fusion or amalgamation, be propagated from Hindostan, through Persia, Russia, Poland, Prussia, thence to Hamburg, thence to Hull, London, Leith, Dumfries, Glasgow, Belfast in Ireland, and finally to North America, across the wide Atlantic; leaving many adjacent tracts of country, and all southern Europe, for the time at least, untouched? Or how this can be effected in the face of adverse winds, through every variety of climate or season, and in a comparatively narrow stream, is a thing which even imagination cannot grasp;

and that can only be believed on the ground of its being some special dispensation of Providence. Or, on the other hand, is Cholera a disease, which, originating in a particular climate, possesses the power of propagating itself by means of a peculiar and specific virus, emanating from the bodies of those affected by it, and producing the same disease in others who are exposed to it, constituting it, in fact, a contagious or infectious disease?" *

The question regarding the mode by which this singular disease is propagated through countries so remote from each other, varying so essentially in climate, in temperature, in the moral and religious habits, manners and customs of their inhabitants, extending through a range of more than sixty degrees of latitude, constitutes, as has been before observed,

* Scot, Introduction, p. xx.

one of the most important subjects in the whole circle of medical science, for the solution of the medical philosopher. Possessing a power of extending itself beyond those diversities of climate which repress ordinary Epidemics, it will exist through every variety of climate and temperature, in every season; in situations where excessive heat would dissipate the plague; where a lower temperature would be incompatible with yellow fever; and where intense cold would inevitably suspend every sort of malaria with which we are acquainted. How could any evaporation go on at temperatures—30° or —35,° more than sixty degrees below the freezing point of Fahrenheit?

It is not improbable, that a certain range of temperature may favour the *diffusion* of the malady; but its *cause* is perfectly distinct, and altogether independent of any assignable

temperature or condition of the air, of which we are cognizant.

To decide on the mode by which the disease is maintained—the mode by which it is disseminated through a range of country so vast, and in climes so varied, is a matter of vital importance, and of the deepest interest to mankind in general, as well as to the medical philosopher.

There are two opinions on this subject, widely differing from each other, which, during a period of thirty years, have engaged the attention of their respective partizans. Many Essays have been written, many theories broached; and plain and obvious facts admitted by both parties, have been adduced by each, in support of completely opposite opinions. According to the views of one party, Asiatic Cholera is produced by a certain condition of the atmosphere, arising from

some morbid agent or principle existing in that element, and is entirely irrespective of emanations proceeding from the persons of those who are the subjects of the disease.

The opinion of the other party is, that the disease is purely infectious or contagious,—that it arises from an animal poison or miasm, generated during the progress of the malady in one person, and capable of producing a similar malady in another person, who may happen to be within the range of its influence, and to be at the same time in a state of predisposition or susceptibility to its reception : this state of predisposition being determined by the present state or condition of health of the recipient. Contact seems by no means essential to the production of the malady ; it is highly probable, that the poison is conveyed for a short distance from its source, and enters the subject through the

respiratory organs, the air being the medium of its communication. It seems very clearly ascertained by observation and experience, that emanations proceeding from the dead body, from the excretions of the patient, or from wearing apparel imbued with those excretions, have, in many instances, conveyed the disease to persons at various distances, and at intervals of time varying from a few days to many months.

The question regarding the mode in which Asiatic Cholera is conveyed from place to place, in which it travels through various countries, amid such a diversity of physical conditions, is a question deeply important to all. For it will be at once evident, that, if it depend on any cause existing in any peculiar condition of the atmosphere, (an element diffused over the whole world, absolutely necessary for the purposes of respiration,

and for the maintaining of animal life,) that, in such case, all human efforts must be unavailing to effect any change in the great mass of air by which we are surrounded; and that, consequently, we must be always exposed to the disease during each moment of our existence,—that, in short, we must be entirely at the mercy of the circumambient element. No barrier could then suffice to resist the incursions of the malady; no amount of insulation or seclusion could avail to protect us from its ravages.

But if, on the other hand, the disease should be found to arise solely from a virus elaborated by one human being during its course; and if a similar indisposition should be transmitted through the medium of the respiratory organs, or, by any other mode, should be conveyed directly through a very limited space; then, it would appear morally

certain, that we *do* possess the power of limiting its diffusion, of arresting its progress, and thus of staying the fearful destruction of human life.

The question of the contagious or non-contagious property of that specific cause which can alone produce the malady, can only be finally settled by extensive observation, and a careful examination of the immense body of facts which have been accumulated, in the course of its progress, during the last thirty years.

Those rational deductions which will ultimately establish the truth, can be arrived at only by evidence. The authority of names ought to have no weight in the decision. It ought to depend wholly on the value of the facts, and the conclusiveness of the arguments deducible from those facts. Evidence, in order to carry full conviction to the mind,

should, if possible, be of such a character as to obviate many, if not all, the objections which may be urged by the opponents. An accurate history of the disease ought necessarily to comprise details of all the facts which time has brought to light during its progress, and, independently of a certain amount of valuable testimony thus obtained, will frequently suggest a series of probabilities, or strong presumptions, in favour of such views as may be established by direct evidence. And, although such probabilities do not of themselves constitute positive evidence, still, if numerous and highly reasonable, they powerfully strengthen and confirm our conviction of the principles established by a series of clearly admitted and well authenticated facts.

That the established economy of nature is effected by certain principles or laws

adequate to the production of the series of phenomena or events, which we observe going on constantly around us, is a fact as certain, as that those laws are impressed by the hand of the Almighty.

The doctrine of causation, as it is termed, has been established by a careful consideration of the order and succession of phenomena. But, beyond the relation of antecedence and sequence which we observe, we are permitted to know little or nothing. Nay, even in many examples in which the order is invariable, it does not seem apparent that the antecedent comprises the cause of the sequent,—as, for instance, though day and night invariably follow each other, it would be absurd to say that one is the cause of the other.

A metaphysical objection has been urged against the evidence which has been adduced

in proof of the contagion of Cholera, from the fact, that if a number of persons are exposed to that which is considered the source or cause of the disease, whilst some are affected, many escape. A little consideration of the circumstances will suffice to prove, that this is really no infraction of the law, that "Like causes will always produce like effects." It is evident, that, in conformity with this proposition, the circumstances in each case ought to be precisely similar in all respects; and, from the very constitution of the human mind, every one feels convinced, that if they were really the same, the result would be perfectly identical. But there is no truth more fully established in the mind of every medical practitioner, (even of one who has had but a limited experience in the exercise of his profession,) than this,—that there is the greatest

difference in the state of health and constitutional power, in different persons, where physical circumstances are apparently the same.

From the great diversity and delicacy of the structure of the organs composing an animal body—from the variety of function, and the intimate dependence that exists between the manifold actions constantly going on in the animal economy—there exist the greatest differences in the state of health, strength, or weakness, and consequent susceptibility or insusceptibility to the causes by which we are constantly surrounded, and which are continually exerting their influence upon the animal frame. But although these alterations exist in endless variety in the human constitution, and from causes often inappreciable to our senses, still nothing is fortuitous; all these manifold differences in the ever-varying state

of the human frame, are no doubt determined by the action of laws which preside over animal bodies.

It is admitted by all parties, that Cholera must arise from some definite cause capable of producing this specific form of disease. And if the number of persons who escape the malady after having been fully exposed to its influence, be considered an argument subversive of the doctrine of contagion, the objection surely operates with infinitely greater force on the other side of the question. If, for example, the cause, whatever it may be, which it is alleged is required to produce this specific disease, and which is deemed essential by the contagionist, should, for the sake of argument, be given up, as well as the predisposition which also appears to him to be necessary ; and if the atmosphere alone, as the anti-contagionist contends, be admitted

as the sole cause ; it would then appear, that not a single individual could escape, that every member of the human family would be alike exposed to it, in every situation in which he might be placed. This view immediately places the anti-contagionist in a difficulty which would appear quite insuperable. The doctrine of contagion explains at once the reason why so few persons are affected, after being exposed to the poison. But the opposite opinion altogether fails to explain how it comes to pass, that so many escape, (assuming that the cause exists in the mass of the atmosphere itself.)

It is really difficult to conceive, that any medical man could make the objection above alluded to, in good faith ; since the circumstances of predisposition are so clearly and obviously marked, in the class of persons most prone to take the disease when fairly

exposed to its influence, and when that atmospheric constitution is prevailing, which has in every age been deemed essential to the diffusion of all contagious disease. Although this constitution of the atmosphere acts as a powerful *predisposing* cause, it is in the highest degree incredible to suppose, that it ever comprises in its elements the *specific* cause, capable of producing Cholera, Small Pox, or indeed any other specific malady. It is probable that its influence is exerted on the animal economy, by depressing the vital powers to a point rendering each predisposed person, who had been previously exposed to its specific cause, susceptible of the developement of the disease.

The contagionist believes that three causes must combine, in order to the extensive prevalence of a contagious disease. 1st. The specific animal poison generated by some

person labouring under the disease. 2nd. A recipient placed within those limits which are required for that poison to act in with the necessary intensity. 3rd. A certain constitution of the air favourable for its dissemination.

On the present occasion, it is purposed to present to the reader, a certain amount of direct evidence in favour of the opinion, that the disease is communicated by contagion or infection—the terms being used synonimously.

This opinion has been maintained by a highly respectable body of writers, whose numbers have been much augmented by the additional evidence afforded by the recent extensive prevalence of the disease. It is proposed to shew, that one mode at least, if not the only mode, by which the malady is disseminated, is by certain emanations arising

from the expirations from the lungs, or from the surface of the body ; from the various secretions or discharges which occur during the progress of the disease, or from the wearing apparel or bed-linen imbued with those excretions : these emanations being transmitted from the sick to the predisposed persons who may happen to be placed near enough to the patient to enable the poison to act with an intensity sufficient for the perpose of infection. It is highly probable, that the disease is received by a person so placed, through the medium of the air thus impregnated acting on the delicate pulmonary tissue, and conveyed there during the act of respiration.

It cannot be clearly ascertained at what distance such emanations are rendered innocuous by atmospheric dilution ; but it is probable that the distance will be much more

limited in a large and well-ventilated room, than in a crowded apartment, ill-ventilated, and containing several patients labouring under the disease. The observations on the subject, regarding the mode of communication of the infectious principle in Small Pox, Fever, &c., published by Dr. Haygarth, many years ago, furnish the most exact information which we possess, and which may readily be extended by analogy, thus throwing considerable light on the matter. As the perspirations and other evacuations are generally more copious than in cases of continued fever, where the skin is constricted, and emits very little perspirable matter, it is probable that the sphere of infection is more extended, than in fever and the contagious Exanthemata.

Many writers consider the poison of Cholera as highly diffusive; but there can be

little doubt that it would be perfectly innocuous at a distance of a very few yards, if freely diluted with pure atmospheric air. With the object now expressed, it is not incumbent on the writer to enter into the consideration of the facts which are adduced on the other side of the question;—namely, those which are supposed to be adverse to the doctrine of the contagious propagation of Cholera. It must ever be borne in mind, that that doctrine can only be established by clear evidence, regarding the numbers who take the disease, when fully exposed to its influence under precisely similar circumstances to those who escape.

The positive evidence in favour of the facts tending to establish the doctrine of contagion, cannot be invalidated by the negative evidence afforded by the number of persons who escape:—though each series of facts is highly

important, for the proper consideration and accurate appreciation of the subject. It may reasonably be contended, that no amount of negative evidence can destroy the positive testimony in favour of the doctrine, although it is admitted that a due consideration of the facts reveals important matter relative to the degree of the contagiousness of the disease, and also furnishes data for determining points of difference between those persons who are susceptible of the disease, and those who are not.

Knowledge thus obtained, supplies information of the deepest interest, regarding those circumstances which give immunity from the disease: and it is probable that the information on this subject, already collected by numerous observers, enables us to define more accurately than in most other contagious diseases, the causes on which that state

of the human body, which renders so large a proportion of mankind insusceptible of this disease, really depends.

Persons in the enjoyment of good health, who pay attention to those things best calculated to maintain a healthy state of the system;—who eat moderately of plain nutritious food at proper intervals; observe great moderation in the use of wine; carefully avoid long fasting, great fatigue, and continued watching:—who preserve calmness and composure of mind, and an absence from fear; and who, at the same time, pay proper attention to personal cleanliness, wear warm clothing, and take daily moderate exercise in the open air, are found to be secure from the attacks of the disease, in so large a proportion of instances, as to allay all reasonable apprehension on the subject. Such persons may assist in performing all the services

required by the sick; incurring, themselves, the least possible personal risk.

It is probable that the security thus obtained will be much diminished by a single act of indiscretion, which may do violence to the frame, or lower the healthy excitement of the system beyond a certain point. For it appears certain, that every one who has much communication with the sick, and is brought into frequent and close proximity with those labouring under the disease, receives the poison into his own system; but that that poison will be innocuous in a very large proportion of individuals, so long as healthy excitement is kept up;—and although the period of incubation is comparatively short; varying generally from a few hours to a few days, still great care ought to be taken in maintaining the general health for some time afterwards. For even accidental disorder

of the digestive organs, if it should depress the vital powers of the system to any considerable extent, would at once reduce the strongest person to that state of depression, in which Cholera might develope itself unexpectedly, and perhaps with fearful rapidity.

In cases of this kind, an individual previously in a state of health which was likely to render him insusceptible of the disease, becomes, by a mere contingency, reduced to a physical condition analogous to the condition of those who are found to be previously predisposed to receive it, when freely exposed to its source. The following circumstances depress the powers of the human constitution, and produce a state of peculiar liability to all the various causes of disease, by which mankind are constantly assailed.

These circumstances are alike applicable to the various Fevers, to Cholera, or to any

other malady depending, for its continual diffusion, on a virus elaborated during the progress of an indisposition, by one person, and capable of producing a similar indisposition in another, when conveyed in a poisonous dose, and received into the constitution, either through the respiratory organs, by contact, or by any other mode. They are briefly these :—a scanty supply of food, insufficient to maintain the various vital functions in a state of healthy vigour; unwholesome or indigestible viands; unripe fruits; acid drinks; long fasting; inattention to personal cleanliness; scanty clothing; living in damp, ill-drained, or malarious localities; and in low, small, crowded, and ill-ventilated dwellings; in the vicinity of decaying or putrescent animal or vegetable matter, or of stagnant drains or cess-pools; long-continued habits of irregularity and

intemperance; continued exposure to cold, damp, or night air, with insufficient fuel at home. These, and all other circumstances which tend to depress the natural healthy action of the system, deprive it of its power to resist the influences of disease.

It is probable, that, if the difference of susceptibility to all the causes of disease had been fully considered, much discrepancy in the views and statements of various writers might have been avoided. There are few things more striking to an attentive mind, than to observe, on the one hand, how vast is the majority of healthy persons who escape the attacks of the disease, whilst exposed to its influence, and rendering to the patients every assistance which the urgency of their respective cases may require; and, on the other hand, to perceive how large a proportion of the opposite class—of persons

predisposed in a high degree, by the continued operation of the causes above-mentioned—become affected by it, under similar circumstances.

The different degrees of susceptibility to the attacks of the pestilence, may be, to a certain extent, estimated by the sphere in life of each individual: but, unhappily, this forms no certain criterion; because a particular station in society does not, of necessity, afford any guarantee for the *habits* of those occupying that station. And, on the other hand, we may not unfrequently observe a remarkable exemption, in those whom we might regard as being peculiarly predisposed to the influence. For, do we not often see persons, apparently delicate, performing all the duties required by the sick, with complete immunity to themselves;—these persons, so seemingly fragile, being fortified by moral

courage, and inspired by a high religious principle?

It is very probable, that the striking inequality in the number of cases occurring in different towns, may be accounted for, by the relative numbers of those who happen to be predisposed to the pestilence. For example:—the population of York is twice as large as that of Bilston, in Staffordshire: both places suffered from the disease in 1832; in the former place there were 450 cases, whilst, at Bilston, the number amounted to 2,250. In York, but few of the inhabitants belong to that class, who, from their situations or avocations, can be considered to be strongly predisposed to the malady; whilst a very large proportion of the population of Bilston, comprising many thousands, are engaged in crowded manufactories,—live in small, ill-ventilated houses,—are subject to the usual

vicissitudes depending on the state of trade; and, of course, to all the privations, overcrowding, and, most probably, to the vices, which, for the most part, accompany such a mode of life. There can, in fact, be no doubt, that the relative numbers might be determined by the widely differing circumstances of the inhabitants of the two places.

The disproportion between the relative number of the attendants on the sick, who become affected with disease, in various places, is also to be remarked:—in some places, but few of them become infected; whilst, in others, the number is very much beyond the average, as compared with the amount of population.

This circumstance affords a convincing argument in favour of the communicability of the disease—an argument which no amount of negative evidence can possibly invalidate.

There are also many very striking presumptions in favour of the contagionist, which, although they may not of themselves prove the disease to be contagious, still very materially strengthen and confirm the direct evidence in favour of that doctrine. The permanency of the malady during a period of thirty-two years, and the singular character of identity which it has manifested under every variety of circumstance, give much additional weight to the testimony. For medical history does not record a single example of any disease continuing for so long a period, and maintaining precisely the same character, under every variety of temperature and climate ; excepting, in the case of those diseases which belong to the *true contagious affections*, and possess in themselves a power of generating a peculiar virus, capable of reproducing the same distemper in the human

subject, without any limit or duration. The analogy, in this respect, when compared with Small Pox, &c., is truly remarkable.

If the malady which has actually existed for so long a period, be supposed to arise from any certain condition of the atmosphere, such a supposition necessarily implies a continued state of distemperature of the air during the same period,—an opinion altogether gratuitous, and unsupported by the slightest proof, or by a single solid argument.

No person can entertain a reasonable doubt, that the laws which regulate both pure epidemics and contagions, are as old as the creation ; they are so obscure in their manifestation, that all which we can possibly know respecting them, must be gathered from careful research, extended through the entire range of medical history. The observations on the subject of epidemics, by Hippocrates,

embodying perhaps the opinions of those who preceded him, no less than his own, constitute by far the most valuable portion of his works, and display, in a very peculiar manner, the characteristics of his extraordinary genius. Scarcely any addition had been made to the information derived from the writings of Hippocrates, until the days of Sydenham, who enlarged the boundaries of our knowledge, by accurate observation and acute judgment. He observed, that local epidemics, arising from unusual vicissitudes of temperature, dryness, or moisture of the air, frequently give rise to diseases pervading certain districts, become extensively diffused, prevail for a certain period, and then suddenly disappear. These epidemics not unfrequently occur about the season of the vernal and autumnal equinoxes, and on each occasion of their prevalence, are characterized by

some difference in their symptoms; thus requiring a modification in their treatment, in order to adapt it to the peculiarities of the existing visitation. The mucous membrane of the air-passages is frequently the seat of the malady, or the same membrane lining the stomach and bowels is affected, though perhaps less usually; the amount of febrile disturbance being for the most part inconsiderable, and of a low type. In such indispositions, the prostration of vital power is generally disproportionate to the physical symptoms, particularly when contrasted with cases similar in character occurring sporadically. But observations made more recently on this subject, by carefully comparing many authentic histories of epidemics in various countries, and at different periods of time, have proved that these ephemeral indispositions, though preserving a striking similarity

when occurring at various intervals in the same country, are yet considerably altered by the change of a few degrees of latitude, and that, with a difference of six or eight degrees, the diseases thus produced, become even totally distinct and dissimilar from those of a different clime.

It seems probable, that maladies of this description are produced by sudden alternations of heat and cold, dryness and moisture, and that their form and general character are determined by the physical peculiarities of the different climates in which they prevail.

There are strong presumptions in favour of the opinion, that many diseases of this kind generate a contagious principle during their progress, more especially towards their termination; and thus the malady is spread to a given distance, but it does not appear

to extend very far beyond the climate in which it was originally produced.

That some unknown condition of the air is required, for the rapid dissemination of Epidemics, whether contagious or otherwise, is a fact which has been insisted on by every writer on the subject, from Hippocrates to the present hour. This mysterious state of the atmosphere is termed by Sydenham, the "Epidemic constitution." The prevalence of such a state of the air,—although it does not depend on any known condition, nor on any property cognizable to our senses, nor is capable of being determined by any test with which we are acquainted,—is an inference which forces itself irresistibly on the mind of every attentive observer, after watching the rapid diffusion, or the equally sudden diminution or cessation of an epidemic; all physical conditions and circum-

stances remaining the same. It is impossible to avoid being forcibly impressed, with the admirable provision whereby this change is effected; indeed, but for this, the human race must long since have been swept away from off the surface of the globe. During the absence of this peculiar atmospheric constitution, even Cholera, Small Pox, &c., become comparatively insignificant; spreading so slowly, and apparently with so much difficulty, as to allay apprehension. It is at these periods that you can scarcely infect persons, even by the insertion into the human subject, of the specific virus of Small Pox, by inoculation. It has been observed, that, during the prevalence of the Harmattan winds on the west coast of Africa, malignant Fevers cease to be infectious, and that even Small Pox does not spread by contagion, and can with great difficulty be communicated

by inoculation. Much valuable information, relating to Epidemics, will be found in the works of Sprengal.

The very remarkable analogy which exists between Asiatic Cholera, and those diseases, concerning which there no longer remains any doubt that they are diffused by contagion, furnishes a strong presumption in favour of the opinion, that Cholera is propagated precisely in the same mode. The question, as it regards Small Pox, is now no longer *sub judice*, as it was in the days of Sydenham ; it is now unanimously believed to be a pure contagious or infectious malady : and although, on a sudden irruption of this disease, the origin of the first case may be frequently unascertained, still, this circumstance never leads any one to doubt that it has been introduced by the same mode by which it is subsequently known to be diffused.

Nothing is more difficult to trace, than the successive links of infection, when Small Pox prevails in a large town. Dr. Gregory, whose position has led him to pay more than ordinary attention to the subject, declares that, in nineteen cases out of twenty, admitted at the Small Pox Hospital, "I am unable to ascertain the source of infection." "The difficulty sometimes found in tracing an infectious disease up to its true sources, does no more invalidate the doctrine of contagion, than would an hundred undetected larcenies lead us to suppose that they could be committed without the thief."* The difficulty of tracing the successive links in a series of cases, is precisely the same. But many thousand cases have been traced, as clearly and as satisfactorily as in any other contagious disease. Witness the mode

* SPOONER, on the Asiatic Cholera.

of introduction, by a person going from an infected locality to a healthy country village, where the disease had never previously been known to exist; he becomes the subject of the disease, those near him, being predisposed by their state of health, and other concomitants of such state, sicken also from the malady.

Persons in neighbouring villages receive the infection in a similar manner. Thus the successive links in a chain may be traced unbroken through so many instances, as to carry the most entire conviction of the contagious character of the disease, to all whose minds are not previously blinded by preconceived opinions.

Only employ the same faculties as those which are required in order to ascertain the truth on other subjects, fairly and impartially, in examining the immense body of evidence, carefully collected during the former and

present prevalence of Cholera, and there is no doubt that the result will be a firm belief in the contagious nature of the disease—a belief not to be shaken by the sophistries, or by the bold and too often groundless assertions of the opposite party.*

* Accordingly, if we may trust our own opportunities of knowing the sentiments of the profession, a vast majority of medical men in this country, and amongst these, many who were formerly of a different way of thinking, are now convinced that the disease (Asiatic Cholera) is infectious. The public, perhaps, may not suppose such to be the fact: for here, as in the instance of all other diseases which have given rise to a similar question, the anticontagionists make up by their activity and strength of language, for the paucity of their numbers, and the weakness of their arguments, and thus contrive to persuade many that they speak the general opinion. But we are quite sure that we speak the sentiments of a very large proportion of the medical men, of this place at least, when we say that the Spasmodic Cholera may undoubtedly be communicated by the sick to the healthy." —*Extract from the Medical and Surgical Journal*, 1832, vol. xxxvii, p. 206.

The difficulty of supposing an uniform condition of the air to have continued permanently for a period of thirty-two years, capable of producing a disease, *sui generis*, and manifesting a perfect identity in every country in which it has prevailed, appears quite insurmountable, contrary to all analogy, and to any rational conception that we can form on the subject.*

* "We consider that the facts and reasonings already adduced, go far to prove that the Cholera is not originated and extended by any condition of the atmosphere, nor by any modification of malaria; for we have seen it prevail under every possible state of the former, aud in places where the operation of the latter was quite out of the question. We shall conclude this part of our enquiry, in the words of M. Moreau de Jonnes:—'The negative propositions established by these facts, prove incontestably, that the Cholera does not at all follow the laws of epidemics, the cause of which resides in some intemperature, in a vitiated air, or in some locality. It has evidently no relation to that kind of disease, either in its origin, extension, march, or progress. It does

But, in order to explain many striking anomalies satisfactorily to the minds of those who reject the infectious nature of the pestilence, it has been supposed, that there have been successive generations of the poison. The objections to such a supposition are quite

not result from any fog, vapour, or miasma, floating in the atmosphere, or carried by the winds. It is not produced either by excess of heat, or by extreme humidity; either by the absence of the electrical fluid, or by any other of the great physical agents, whose operation determines the influence of the climate. It cannot but belong necessarily, then, to that class of formidable diseases which originate in a principle, *sui yeneris;* in a germ, the intimate nature of which is unknown, but which possesses the power of developing and reproducing itself, like organized bodies, under special conditions, and which is propagated by transmission, mediate or immediate, from one individual who is sick, to another who is healthy. In a word, it is not an epidemic, as malaria, but a contagion, as the plague of the East.' "—*Report, &c.*, p. 121.—See also *Needham's Observations on Cholera, as it prevailed in York.* p. 104.

overwhelming. If we bear in mind the fact that the physical circumstances of climates varying several degrees in latitude, are sufficient to modify and determine the character and form of a disease created by the peculiarities of climate alone, it is beyond the power of imagination to conceive, that in these successive creations, or spontaneous origins of the specific *materies morbi*, it could possibly be produced by climates so various as are comprised in sixty-six degrees of latitude, and should still in each of these climates maintain its character of identity. Besides, admitting, for the sake of argument, that a cause so general, if not universal, may be capable of producing this specific disease; and conceding also, in addition, that constitution of the atmosphere, which all writers regard as being necessary in order to the extensive prevalence of any disease as an

epidemic, but which constitution, it is believed, never in itself comprises the poison capable of producing any specific disease, such as Small Pox, Scarletina, &c. ; still how does it happen, that when the disease extends to a large town, its ravages are not at once manifested in those localities, in which the inhabitants are living amidst all those circumstances which are known strongly to predispose the human frame to receive infection, from such causes as are thus supposed to be in operation ?

In many instances, the disease has appeared in one such locality, committing its ravages for several days or weeks, before it has been communicated to a similar locality ; and indeed in most large towns, many districts containing crowded and predisposed populations, have escaped entirely, and sometimes, only a single individual has become the sub-

ject of the malady. How remarkable would this be, if the *cause* were so extensively diffused! A single indigenous case was reported at Birmingham, several weeks ago. Are we to believe, that the pestilential element pervading the atmosphere could, out of a population of two hundred thousand human beings, select but one victim? The doctrine of contagion being once allowed, many of the difficulties so embarrassing to the non-contagionist admit of a ready solution. All strictly contagious diseases, such as Small Pox, Measles, &c., owe their permanency to the fact, that they produce a poison during their progress, which is capable of infecting those around them. They are thus independent on any variety of climate or latitude for their existence; but it is admitted by both parties, that a peculiar atmospheric constitution is essential to their extensive diffu-

sion as epidemics; and it appears evident, that in this respect, Cholera follows precisely the same course, and obeys the same laws. On first appearing in a new locality, Cholera generally commences with a single case, soon followed by several more cases which have been more or less brought into contact with the first one; thus, in a few days or a week, new Foci are created, and in a short time, the disease spreads to an extent which is determined by the number of predisposed, and the prevalence of the atmospheric constitution. This, in Great Britain, has been the almost invariable mode of its outbreaks.

From the very short period which elapses between the infection and its developement, or what is called the period of incubation, when all other circumstances are equally favourable for its diffusion, the disease spreads much more rapidly than other contagions,

as Fever, Small Pox, &c. But on the other hand, the contrast in this respect between Cholera and Influenza, is most remarkable. For whilst in Cholera, you can trace the introduction of the first case, and of many successive links with the greatest certainty; the diffusion of Influenza, defying all calculation, may be compared to lightning, attacking in the rapidity of its course, hundreds or thousands out of a large population in the space of a few hours. It is most probable, if not absolutely certain, that Influenza is produced by some distemperature in the air, arising, as it is imagined, from unusual and sudden vicissitudes of weather; though many persons are of opinion, that the malady is propagated by infection also.

Influenza has prevailed over large portions of the globe, in the course of a few weeks or months, whilst Cholera would require as

many years to travel over the same space. Influenza does *not* maintain its character of identity in passing from a northern to a southern clime; the period of its duration is comparatively short, and, after a time, it ceases entirely. And when similar physical conditions conspire to create a new Influenza, its character is always more or less varied, when compared with that of a former visitation. How different is the character of Cholera! What a fearful *identity* has it maintained in every clime! Travelling only in the lines of commercial or human intercourse, it has now preserved its existence for more than thirty years,—frequently arrested in its progress by insulation or by quarantine, but always ready to commit dreadful ravages whenever it meets with a crowded population of predisposed persons, and an atmospheric constitution favourable to its rapid extension.

In the investigation of any department of human knowledge, it is always an object of paramount importance, to ascertain the opinions of those, who, from their standing in their profession, are acknowledged to possess talents of a high order, and to take large and comprehensive views of the various departments of their respective sciences. A strong prepossession will necessarily be felt in favour of the opinions of writers of this class, who, after a careful examination of a subject, ultimately arrive at those deductions and inferences which a thorough investigation of the matter affords.

Asiatic Cholera has engaged the attention of many of the ablest physicians of the age, and the balance, estimated either numerically, or by their influence over the members of the medical profession in general, is decidedly in favour of the infectious nature of the

disease. Among names of the greatest eminence, it will suffice to enumerate those of Sir William Crichton, Professor Lichtenstadt, Doctors Becker, Albers, Delpech, Moreau de Jonnès, Sir Henry Halford, Sir Gilbert Blane, Macmichael, Copland, Russel, Barry and Keir, Abercrombie, Thompson, Alison, Christison, Gregory, Simpson, &c. &c. Many of the above-named are among the ablest writers that ever adorned the medical profession. Nothing short of the clearest and most decisive evidence would satisfy men of such, and such justly acquired, eminence in their profession; and it may reasonably be presumed, that during the progress of the epidemic, testimony of the same character will be presented to the cognizance of future observers.

It is contended, that clear and indisputable evidence is required in order to produce a

conviction strong enough to counterbalance the arguments employed by the anti-contagionists. And it is presumed, that evidence of the most satisfactory and conclusive character, has been collected in such abundance, as to be quite overwhelming, when calmly considered.

The human mind is so constituted, that many examples occur within the circle of our own personal observation, which prove, that to some persons, no amount of testimony will suffice to subvert opinions which have been frequently formed too hastily and exclusively, on this or any other subject. In order to estimate the case fairly, truth requires that the series of facts advanced by each party, should receive due and impartial consideration.

The belief in the contagious nature of Cholera, can be proved by the same kind of

evidence only, as that which has been deemed necessary to establish the contagion of other diseases. At the same time it is fully admitted, that the number of persons who escape the malady, after having been fairly exposed to its sources, ought to be regarded as constituting an important element in the investigation of truth. But it will be conceded, that no amount of negative testimony can invalidate the positive testimony which clearly establishes the contagious nature of the disease, when tested by the laws regarding other maladies which, by the general consent of physicians, are admitted to be infectious. Still, this negative evidence is important in pointing out the degree of contagiousness, and also as assisting in the investigation of the class, the condition of life, and state of health, which, by enabling persons to resist the attacks of the disease when

fully exposed to its influence, serve to point out the causes whence the immunity of so large a proportion of mankind is derived. It is highly probable, that the constitutional condition which imparts immunity in so great a majority of instances, depends on circumstances more clearly and obviously marked, than in any other contagious disease.

The contagions, though spoken of as a matter floating in the atmosphere, are never (as Dr. Cullen observes) "found to act, but when they are near to the sources from whence they arise; that is, either near to the bodies of men, from which they immediately issue, or near to some substances, which, as having been near the bodies of men, are imbued with their effluvia, and in which substances these effluvia are sometimes retained in an active state, for a very long time. The substances thus imbued with an

active matter, may be called Fomites; and it appears to me probable that contagions, as they arise from Fomites, are more powerful* than as they arise from the human body." But it has been contended, that exposure in the locality where Cholera is prevailing, does not afford conclusive proof of its contagious nature, even when a person fully exposed takes the disease; this objection has been strongly urged by those who contend for the prevalence of an epidemic influence in the situation where the pestilence is prevailing, and consider

* "By a fixed attention to this subject for some years past, I am convinced that the body of the diseased, kept exactly neat and clean, is not so liable to impress the taint, as his late wearing apparel, dirty linen, and uncleanliness of any sort about him, long retained in that impure state. I say these last contain a more concentrated and contagious poison than the newly emitted effluvia, or excretions from the sick."—*Lind's Essays on the Health of Seamen*, p. 200.

that influence as alone capable of producing it. On the part of those persons who entertain this view, the objection is a fair and reasonable one: but it must be evident, that any argument founded on this supposition must fall to the ground, if the infected individual removes to a distance, becomes there the subject of the malady, and it is extended, by means of personal communication with him, into new localities, thus spreading over extensive districts. Evidence of this kind, carefully collected, exists in great abundance, and is free from every imaginable fallacy.

That the frequency of the disease is proportionate to the proximity of the source of infection, is a leading fact, insisted upon by the advocates of contagion. The evidence adduced in support of this view, is of the following kind. The breaking out of the disease in a part of the country previously healthy,

shortly after the arrival of persons, articles of merchandize, or apparel which has been worn by a Cholera patient, from a district in which the disease is prevailing at the time. The extension of the malady from a focal point to the circumference, or along lines of frequent personal communication for the purposes of traffic, &c. The fact that the numbers attacked bear a relative proportion to the intimate communication with the infected. The immunity enjoyed in healthy districts, or even in tainted vicinities, by the adoption of restrictive measures, and indeed, in some localities, without any restriction whatever. The insufficiency of any other cause yet assigned, to account for the general diffusion of the disease. It has been very ably argued by Copland, Becker, Moir, Kennedy, Orton, &c., that the disease is propagated exclusively by contagion; and the advocates for

this opinion have been considerably augmented by the recent visitation of the disease. That a large majority of persons always escape, even after having been fully exposed to the infected, is a fact admitted by both parties; but, as it has been before observed, no sound argument against contagion can be reasonably founded on this circumstance, so long as a given proportion of those thus exposed become the subjects of the disease.*

* "The negative proofs," says Dr. Macmichael, in his ingenious pamphlet, "however numerous, ought not to be put in the scale against the positive instances of contagion. No, truly, what should we think of those who, having escaped the carnage of the battle of Waterloo, attributed their own immunity to the innocuousness of musquetry? We were in the midst of the fire, they might say, ran all the same risks as those who fell; had bullets been dangerous and the cause of death, why were we not killed? Had Cholera been contagious, (we are told,) those who were in the most intimate converse with the sick, must have caught it; but as they did not,

It may reasonably be contended, that no disease is so infectious as that all take it who are brought within its sphere; on the contrary, a very large proportion escape infection; particularly if the patients are living in well-ventilated houses, and the persons visiting them are healthy, temperate, and cleanly in their habits. It is probable, that in Cholera, such individuals as are strongly predisposed, take the disease; whilst healthy persons, who are consequently in an opposite

therefore the disease is owing to some pestiferous alteration of the air! We may fairly ask, by what miracle any escape from the action of a cause which is always in operation? Whether sleeping or waking, inclosed in houses, or exposed under the heavens, this poisonous atmosphere we know must be inhaled, by all persons within its range, at least twenty times in every minute. To reject this doctrine of contagion as difficult, in order to adopt the one just stated, appears to us very much like straining at a gnat, and swallowing a camel."—*Quarterly Review*, No. 91, page 206.

state, escape it, in larger proportion than in any other disease; the plague, perhaps, excepted. When the atmospheric condition is favourable for the diffusion of the malady, and the number of those persons who are predisposed is considerable, then the disease spreads with fearful rapidity, and to an extent the most alarming; the period elapsing, after exposure, being so short. The time of duration of the different visitations of the malady, in distinct localities, is invariably dependent on a peculiar atmospheric constitution; when this ceases, it rapidly declines, and becomes comparatively insignificant, spreading like Small Pox, only to a limited extent, and only after the most direct communication. It is, however, under these circumstances, that the contagious character of Cholera appears in the strongest light, particularly in small towns or villages, where

each successive link may be most satisfactorily traced:—for in large towns, and during the rapid diffusion of the pestilence, it is almost impossible to follow up the succession of cases to their true source. It is often practicable to ascertain the origin of an imported case, in a large population, and to trace several successive links; but each link forms a central point, whence the disease is extended; and thus the most painstaking investigator becomes at once perplexed and bewildered in his enquiries. But in a district thinly populated, the succession of cases may often be traced so clearly, as to afford an amount of evidence of the most conclusive kind.

It has been contended, that predisposing causes occasionally become exciting; but it is surely quite beyond reasonable credibility to suppose that the predisposing causes be-

fore enumerated, could ever produce a disease like Cholera, Small Pox, &c., which can arise only from an animal poison. It is, however, fully conceded, that such causes operate powerfully in producing, or increasing, susceptibility to the disease, when the true or specific cause has been applied. In spite of the conflicting interests of mankind, the rapacity of the commercial spirit, the fears and hopes of many; in short, in spite of the strange melange of human passions—in spite of all these, the belief in the contagious character of Cholera has gained ground most rapidly, during the two epidemic outbreaks of the disease in this country. The periodical medical literature of this kingdom, exercises a powerful influence over the opinions of the medical profession:—able and powerful essays are written, embodying the most striking facts, and the most convincing arguments, on

the various subjects of medical science. The following Journals have advocated the doctrine of contagion :—The Medical Gazette, The Lancet, The Foreign Quarterly Journal of Medicine and Surgery, The Edinburgh Medical and Surgical Journal. A very able article was also written on the subject, in the 91st number of The Quarterly Review ; and several powerful essays have been published in The Dublin Journal of Medical Science ; and, still more recently, in The Dublin Quarterly Journal, by Dr. Graves. Opposed to this array, there have been The Medico-Chirurgical Review, edited by the late Dr. J. Johnson ; and Dr. Ryan's London Medical and Surgical Journal ; the latter work has been discontinued for many years.

About the middle of the summer of the year 1817, a fearful pestilence suddenly broke out at Jessore, a town situated in the Delta

of the Ganges. The weather, for some weeks previously, had been characterised by vicissitudes quite unusual in that climate. The sudden invasion of the disease, its speedy extension through the adjacent country, its rapid progress towards its final termination, and its fearful mortality, filled the minds of the inhabitants with the utmost consternation and alarm. Having, during its progress, exhibited many symptoms, strikingly analogous to those of the ordinary well-known Cholera, it was at first supposed to be merely a widely-spreading epidemic visitation of that disease, similar to former attacks of the same malady, which had frequently prevailed in India to an alarming extent; accurate details of which, are to be found in the writings of Curtis, Paisley, Sonnerat, Annesley, &c. As Cholera had never been considered a contagious malady, and as infectious diseases are not fre-

quent in India, the belief soon became general, if not universal, that the disease was a widely-extended Epidemic; and, it was hoped, that, like other diseases of that class, it would speedily exhaust itself, and pass away. For some time after the commencement of the disease, the natives alone were its victims; and, it was, in consequence, hoped and believed at first, that Europeans were altogether exempt from its attacks. But the pestilence continuing to prevail, beyond the usual period of such visitations, and in spite of the reduced temperature of the cooler months, these hopes were of necessity abated; and when, during the spring of the following year, it began to extend towards Bombay,—then despair of its cessation supplanted the sanguine anticipations which had been previously indulged. The members of the Medical Board of Bombay, in the preface to the

reports sent to them, and published at Bombay in 1819, state that the disease had extended from Poonah to Panwell, a considerable village in the main line of communication between Poonah and Bombay. That a man who had left Panwell and arrived at Bombay, a distance of about fifteen miles, was soon afterwards attacked by the disease, and communicated it to those attending him ; that it was traced in the parts adjoining Bombay, and on the island, from village to village, by the arrival of persons affected with it, from places in which it was known to prevail : and that there were places, which being without this sort of intercourse, had, up to the time of the publication of the report, entirely escaped.

From the foregoing, and other data, the members of the Bombay Board (the first to furnish information respecting the disease) conclude, that, "It appears to them incon-

trovertible, that this disease is capable of being transported from one place to another, as in cases of ordinary contagion or infection; and also, to possess the power of propagating itself by the same means that acknowledged contagions do, that is, by the acquisition of fresh material, with which to assimilate." —*Bombay Reports*, p.p. 110, 111.

In the same Reports, we find Captain Sykes stating, that he had ascertained, that the disease did not break out in any village, "until that village had communication with a neighbouring place in which the disease existed;" and he furnishes several instances proving this fact. He states, moreever, that the attendants on those first seized in his company were attacked, and that it spread from one of his servants to five, whilst the gentlemen in the next tent had not one affected; and he remarks, that he

could add similar instances to those now adduced.—*Op. cit.* p. 118.

Mr. Coates, Surgeon, in a letter to the President of the Bombay Medical Board, states, that the idea most prevalent was, that the disease was brought from Jaulna to Aurungabad, and that its progress could be traced distinctly through the villages on the chief road from Nagpore to those places, (p. 145.) He afterwards states, that the information as to the extension of the disease by infection, was not furnished by Europeans only, but that some Brahmins had given similar information, and this too, without any particular enquiry on the subject having been made of them. From these and other facts, he arrives at the conclusion, that the disease is infectious; and that, "if it was occasioned merely by a distempered state of the air, it would have spread over the coun-

try with some regularity ; but the epidemic seems generally to have travelled in lines along the post roads, and always to have required a succession of subjects for its propagation. In Candeish, where there is not sufficient population, and but little intercourse between the villages, its progress was slow. At Pundergoor, it made its appearance at the time of the great Jatra, and was spread at once in all directions by the pilgrims returning to their homes."—*Op. cit.* p.p. 150, 151.

Dr. Jukes states, that the disease travelled along the high road from the Deckan to Panwell, and that he has not heard of any village in the Conkan that has had it, excepting by intercourse with places in which it had been already prevalent. "If it be something general in the atmosphere," he remarks, "why has it not hitherto made its

appearance in some, two, distant places of the province at the same time? Nothing of this kind has, I believe, been observed: it still seems to be creeping from village to village, rages for a few days, and then begins to decline."—p. 173.

Dr. Taylor reports that "whenever the disorder appeared in any particular spot, or family, a considerable proportion of the family or neighbours were attacked within a very short period of each other. On many occasions, I have seen three or four of a family lying sick at once."—p. 195.

Dr. Burrell informs us, that "in the short space of six days, every attendant in his hospital, on the patients affected with Cholera, had the disease."—*Bombay Reports*, p. 9. And Mr. Craw states, "that every one of the attendants, thirty in number, in the hospital of the 65th regiment, were attacked."

The next report published in India, was in 1820, edited by Mr. Jameson, at Calcutta. It contains many statements in favour of contagion, although the writer was an avowed opponent of that doctrine. He states the following very striking fact in a note ;—" A Sepoy died of the pestilence. Five of the corps, who had shewn no signs of illness, were employed to carry the body to the grave. They were all seized with the disorder during the ensuing night, and all died." —*Calcutta Report*, p. 130.

The able report of Mr. Scot, the editor of the reports sent to the Madras Medical Board, is remarkable for its clearness, its transparent candour, and the great value of the observations which it contains ; it has been before referred to, but the following extracts, made by Dr. Copeland, contain some

most important facts; their bearing on the subject will be understood at once

"Bodies of troops in motion, have been attacked, and have retained the disease, while it was unknown to the fixed inhabitants of the country through which they passed. One of two corps in a camp has been attacked, and the other has escaped the disease. Ships arriving from other parts of the world have never suffered under the assumed epidemic constitution of the atmosphere, before reaching the shore. Diseases avowedly infectious, as Small Pox, Measles, &c., have not at all times the power of spreading epidemically: for, while it is certain that their exciting causes are never wholly extinct, it is only at particular periods that these diseases become epidemic; but we are unacquainted with the circumstances under which this power of epidemic propagation arises. The same may be

the case with Cholera. All the atmospheric phenomena, and other circumstances, brought under the head of occasional causes, have, with little or no interruption, existed from the beginning of time until now, without producing Cholera. Consequently, the superaddition of a new cause must be inferred.

"An European, proceeding on his journey to Trichinopoly, on the 15th of October, was taken ill about a mile from the Mount, brought back to the house where he had passed the day, and there died. On the 17th, the wife of that person; on the 19th, the owner of the house; and on the 21st, his wife; all experienced attacks of Cholera, but recovered. Several of the native servants also suffered. The instances in which the disease has appeared at places, immediately after the arrival of corps and detachments which were suffering from it, are numerous. For example,

it appeared at Jaulnah, immediately after the junction of a party from Nagpore, amongst whom it was prevailing. It appeared at Aurungabad, and at Malligaum in Kandeish, after the arrival of parties who had left Jaulnah at the time the disease was prevalent there, and amongst whom it had broken out on the march to those places. It appeared a second time at Malligaum, after the junction of the first battalion of the 5th regiment, in which Cholera prevailed. It appeared at Secunderabad, after the arrival of a detachment suffering from it; and it appeared afterwards in the villages through which the detachment had moved. It appeared at Gooty, where no case had been observed for six months before, immediately after the arrival of the 16th regiment of foot, in which it prevailed with great mortality. It is remarkable, that the same type of the disease

which prevailed in the marching corps, was communicated to the corps at Gooty. It also spread on that occasion to the adjacent villages. It also appeared in a detachment of artillery, previously perfectly healthy, upon their encamping on the ground which had been immediately before vacated by the 1st battalion of the 8th regiment, in which the disease prevailed. The bodies of several persons who had died of Cholera, remained exposed on the ground when it was taken up by the artillery. The prisoners in a gaol enclosed by a high wall, have escaped Cholera, while it prevailed all around them; and the inhabitants of certain hilly ranges have also escaped the disease. These have been said to have interdicted all intercourse with the people below.

"When Cholera is once established in a marching regiment, it continues its course, in

spite of change of position, food, or other circumstances. Its approach to a town has been traced from village to village, and its first appearance in a town, has been in that quarter nearest the track of its progress. The sudden appearance and disappearance of Cholera, however unlike the progress of known infectious diseases, is not admitted as being irreconcileable with infection; especially, if the disease be of sudden invasion after the application of the exciting cause. The relations who have attended on people ill of Cholera, as well as the nurses appointed in military corps for that duty, and in general, those whose employment has led them to be much with the sick, have been observed, in very many instances, to be attacked with Cholera, during or shortly after their attendance. The sick in hospitals, labouring under other diseases, have likewise been observed

to be attacked with Cholera; especially those who lay near the patients ill with that disease. Sometimes whole families have been swept off, successively. Servants have often been observed to sicken after attending their masters."—*Madras Reports*, p. 48, *et seq.*

A general impression has prevailed, however, both in India and in this country, that the vicinity of rivers exerted a remarkable influence on the prevalence and intensity of Cholera: and, in particular, that bodies of troops encamped on their banks, ran much greater risk of being attacked by it, than in any other situation. But in Dr. Lorrimer's Report, it is stated, "that, of 121 epidemic outbreaks, only 37 occurred on the banks of rivers, 52 at distances varying from 1 to 15 miles, and 32 at a distance beyond 15 miles; in short, that 84 out of 121 attacks had no connexion with the vicinity of rivers; which

seems to prove that, after all that has been said on the subject, there was no good ground for the opinion that such localities were more dangerous than others."—*Scot's Report*, p.p. 13, 14.

"There is no instance on record of a ship from Europe having a single case of this disease until it had communicated with the land, but there are many examples of Cholera appearing on board of ships sailing from the continent of India."—*Scot's Report*, p. 82.

"While Cholera prevailed at Madras, the labourers at certain public works, who were protected from the weather, who were well clothed and fed, and who had no unusual work to perform, suffered from it severely; while a body of many hundred people, employed in digging, and clearing out the beds of stagnant, brackish, and extremely putrid waters, equally during the extreme heats of

the season, as during cold and rainy weather, entirely escaped. This immunity is the more remarkable, inasmuch as many of them laboured during the night, for the purpose of preventing the accumulation of water, and were, of course exposed, with very scanty clothing, to the utmost vicissitudes of heat and cold, and to all the exhalations and depositions of the very tainted air in which they worked."—*Scot's Report*, p.p. 80, 81.

Abundant evidence, similar in character, might be adduced from the reports of many Anglo-Indian practitioners; but the above is amply sufficient to prove that a highly respectable body of medical men became convinced of the contagious nature of Cholera, within a comparatively short period from the commencement of the disease at Jessore. It is also a fact, well established, that many whose original reports contained statements

opposed to this view, after more extended observation of the malady, embraced a contrary opinion; among those who thus saw cause to change the sentiments which they had at first expressed, may be mentioned the names of Russel, Gibson, Daun, and Orton. The gentleman last-named, was the author of a work on the subject, which obtained high celebrity in India. It has been considered the most elaborate which has ever appeared on the subject; and its author has taken great pains to ascertain what those physical circumstances were, in which the disease originated, and which subsequently gave permanence to it. Having bestowed so much attention on the subject, the writer is entitled to great praise for his candour; for in a second edition of his work, published in 1831, the circumstances connected with its progress and diffusion, through various regions of the

globe, had convinced him that he was in error; and, after enumerating some of the mere presumptions in favour of contagion, he concludes the passage by this remarkable expression. "These facts appear so clear and strong, that if we looked no further, they would seem to put the matter at rest; but, with regard to the general question of the contagious, or, if another term must be used, infectious nature of the disease, they appear to me as no more than dust in the balance, against those which may be opposed to them." —*Essay on Epidemic Cholera, by Reginald Orton, 2nd Edition,* 1831, p.p. 319, 320.

It would be incompatible with the object of the writer of this slight sketch, to give even the shortest history of the progress of the pestilence; it may, however, be expedient to enumerate some of the principal places and countries which have been visited

by the disease. "During 1818, taking an easterly direction, it passed through the Burmese Empire, the Kingdom of Arracan, and the Peninsula of Malacca. In 1819, it appeared in the Isle of Penang, in Sumatra, Singapore, the Kingdom of Siam, Ceylon, and the Isles of France and Bourbon. During 1820, it reached Tonquin, Cambogia, Cochin China, Southern China, Canton, the Philippines, &c. In 1821, it visited Java, Bantam, Madura, Borneo, and numerous other places in the Indian Archipelago. In the years 1823 and 1824, it appeared at Tonquin, Pekin, Central and Northern China, the Moluccas, Amboyna, Macassar, Assam, and various other eastern countries and islands. During 1827, it prevailed in Chinese Tartary. In all these countries and places, its prevalence and fatality were unprecedented in medical history. In July, 1821, it reached,

in its western course, Muscat, in Arabia; and during the remainder of the year, visited various places in the Persian Gulph. In the following month, it appeared in Persia; and during 1822 and 1823, 1829 and 1830, it prevailed in several of the principal cities of that empire. It broke out at Bussorah and Bagdad, in July, 1821, and in 1822 and 1823, ravaged most of the populous cities of Mesopotamia, Syria, and Judea.

In 1822, it reached to within 150 miles of the Georgian frontiers of Russia; and in 1823, it appeared at Orenburg and Astrachan; beyond which it seems not to have extended, until August 1828 and 1829, when it appeared at Orenburg, the capital of the province of that name, situated on the Tartar frontier, about 400 miles north of the Caspian, and about 1000 miles north of the places where it prevailed extensively in

1822. Its prevalence and fatality, in this province, were great ; upwards of a tenth of the inhabitants having been seized, and about a fourth part of those attacked, having died of it. At the same time that the disease appeared in Orenburg, it was raging in several Persian provinces and tribes, in central Asia, from which it was supposed to have been introduced into Orenburg. At the commencement of 1830, the disease had entirely ceased in the Russian dominions ; but, towards the beginning of autumn, it broke out, with increased violence, on the Georgian frontier of Persia, having appeared in June, in the province of Chilan, on the southern shore of the Caspian; from the various southern ports of which, it extended northwards along the westward Caspian shore, until it reached Baku, Tiflis, Astrachan, and numerous other towns, in its progress

into the heart of the Russian empire. After attacking a number of places, it has continued to spread westward and northward, through Russia, Poland, Moldavia, and Austria; visiting Moscow, Warsaw, and other places in Poland; and extending in May, 1831, to Riga and Dantzic, and in June and July to St. Petersburg and Cronstadt; early in October to Berlin and Vienna, and subsequently to Hamburg, &c.

The distemper appeared, for a second time, in Astrachan, near the end of July, 1830; and before the end of August, upwards of 4,000 persons died of it in the city, and 21,270 in the province. After ascending the Volga, it reached Moscow, became prevalent there at the end of September, and continued till February, 1831. It attacked about 9,000 persons in this city, of which number, more than one half died. It reached Riga in the

middle of May, and St. Petersburg on the 26th of June. From Astrachan, it extended to the northern coast of the Black Sea, and in the course of the rivers, into the central parts of Russia. It reached Poland in January, 1831, followed the Russian army, in the subjugation of that country, and proved destructive in Warsaw, and many other places, during April and May. At the end of the latter month, it appeared at Dantzig. In June, it prevailed at Lemberg, Cracow, and other adjoining parts, extending through Gallicia and Hungary, and reaching Berlin and Hamburg, in August and September, and Vienna in the same month. It appeared at Smyrna in September, and soon afterwards in Constantinople. The Pestilence was conveyed by a Caravan, from Mecca to Cairo, in August, 1831, some thousands having died on the road; and by the middle

of September, 10,400 Mahomedans, besides Jews and Christians, had died of it in this latter city."*

It would be a work of considerable research and labour, to adduce such evidence as has been collected, for the purpose of tracing the mode by which the disease was introduced, in many of the places above-mentioned. Amidst much discrepancy in the various statements, made during its progress through the Russian empire, evidence of a very conclusive character has been afforded; and from such quarters, as to leave no doubt respecting its authenticity, or the competency of the observers. The director of Sanatory Police, at St. Petersburg, Dr. Reimann, in a communication made to the Academy of Medicine, at Paris, by Dr. Marc, says, "The Cholera was brought to Astrachan

* COPLAND, Pestilence.

by ships, and it has spread itself over Russia from Astrachan, by the emigration of the inhabitants, principally those of the lower orders. This is the sole cause of its propagation in Russia; it has never shewn itself in any place, except where it has been brought by travellers, who came from infected places. *We have not a single instance* of a town, or of a village, which, without communication with houses or persons affected, has contracted the disorder. Several places, surrounded by the disease, have preserved themselves from it, by a rigid insulation. It is a contagion, *sui generis*, which we must not assimilate with the Plague, and which will be more or less rapid, more or less extensive, according to the more or less wholesome nature of localities; it has thus been more dangerous to the Jews, who live shut up in small rooms, and in extreme filth.

In the small town of Redislscheft, of eight hundred sick, seven hundred died in one week."—*Dr. Bisset Hawkins on Epidemic Cholera*, p. 226.

Important information, on the subject of the contagion of Cholera, has been published in various reports, by the British government, collected by Doctors Russel and Barry, who were sent to Petersburgh for the purpose of obtaining information regarding the identity, mode of diffusion, and treatment of the disease. They succeeded in tracing it to infection, from the mode of its introduction into prisons and hospitals, and also by its exclusion from other places, by means of rigid insulation. "Twenty-five physicians, out of 264 practising in that city, took the disease, and 18 died; and the proportionate number of attendants of all descriptions on the sick, who have been

taken ill with Cholera, is fully greater than that of the medical men."

"There were 150 pupils on the officers' side of the Military Academy at Cronstadt, which is kept perfectly distinct from the school for petty officers and sailors. The gates were shut on the 19th of June, and as strict a quarantine as possible maintained to the 6th of August. No case occurred among the pupils, who are from nine to twenty years of age."—*Copland.*

"Can we have a better proof of the contagious nature of the disease, than that insulation, or separation from the sick, is almost universally found to preserve from the evil?

M. Gomba, the French consul at Teflis, in Persia, a person who probably was not devoted to any medical theory, writes to Baron Larrey, that "the best and most sure mode of escaping from the calamity, is insu-

lation, and a residence in the mountains. Of nine medical practitioners, who were living at Teflis at the time of the invasion of the epidemic, four died during the first few days."

"Let us hear the history of M. de Lesseps, the consul of France at Aleppo, an individual who probably has never interfered in medical discussions. When the Cholera approached that city in 1822, this gentleman retired, in company with all who wished to be of his party, to a garden at some distance from the city. His asylum was enclosed with walls, and was surrounded with a large fosse. There were only two doors, one for entrance, the other for going out. As long as the malady lasted, he admitted nothing from out of doors, without submitting it to the precautions observed in Lazarettos. His colony comprised 200 persons, and consisted not

only of Franks, more or less acclimatized, but also of several natives. Not a single individual contracted the disease; while, at the very same time, within the city, 4000 beings perished in the space of eighteen days.—*Bisset Hawkins*, pp. 151, 152.

"The Cordons around Zurcozelo and Peterhoff were removed last week. We immediately visited these places, and saw, for the first time, Sir William Crichton and Sir James Leighton. Both these gentlemen separately and positively asserted, repeated the assertions, and permitted us to note it, that no case had occurred within the sacred precincts of either Cordon, since their establishment; though the circle of demarcation was completely surrounded with the disease, and though the enclosure around Zurcozelo contained from 8,000 to 10,000 souls."—*Letter from Dr. Barry.*

The effects of insulation have been most manifest in arresting the progress of the disease, on many occasions, in this country. If quarantine could be strictly enforced, there cannot be the slightest doubt that it would be successful. The difficulties, however, of enforcing quarantine, between countries where extensive commercial intercourse is constantly going on, would appear to be quite insurmountable. Insulation of the earliest cases, when the malady has been introduced into a fresh country or new locality, would limit the extension, or, perhaps, even might arrest its progress.

"Saxony, though Prussia and Austria on either side of it were severely visited, adopted strict measures of precaution, and escaped; the Cholera was neither at Leipsic nor Dresden! Hanover also escaped, with the exception of Lüneberg, 22nd October, 1831.

Sachsen, Weimer, Gotha, Anhalt, Hessia, Brunswick, and some other small principalities, all escaped, and apparently by the same means, viz: non-intercourse with infected places."—*Graves's Clinical Medicine*, vol. i. p. 396.

"In Moscow, 42 clergymen fell victims; and at Teflis, four of nine physicians perished."—*Knox on Cholera*, p. 148.

"The son of a villager in the government of Pensa, who was coachman to a nobleman at 50 versts distance, died of Cholera; the father went to the place, to collect the effects of the son, and brought home with him his clothes, which he put on and wore a day or two after his arrival at his native village. He was shortly thereafter seized with Cholera, and died of it: three women, who had watched him in sickness, and washed his body after death, were also seized, and died

of the disease. The doctor arrived in time to see the fourth case; and, finding that the disease spread on that side of the village, he had the street barricaded on the side where it had not reached, and interdicted all communication to the two sides of the village. In that side in which the disease first broke out, upward of one hundred cases of Cholera occurred, of whom forty-five died, —but it did not appear on the other side of the barricade."—*Dr. B. Hawkins*, &c.

It would be easy to extract, from an immense mass of evidence, collected during the prevalence of the pestilence in Russia, many other striking facts in proof of the contagion of the disease, but it will sufficiently appear, from those already named, that that view has been entertained by some of the highest authorities of the empire. The following extract from an interesting letter written by

a very eminent physician of Berlin, (Dr. Becker,) is also in favour of the same doctrine :—

"*Sept.* 29*th*, 1831.

"I am a most decided contagionist, and it is the force of facts which has made me so ; from the authority of your Indian practitioners, I formerly believed the Cholera not to be contagious. The appearance of the disease in Berlin, and the manner in which it is spread, is also very remarkable, and affords supplementary evidence in favor of contagion. The conclusion at which I have arrived, is, that the efficient cause of the Asiatic or Malignant Cholera is always a virus, the production of human effluvia, and which, according to common medical language, undoubtedly assumes the name of a contagious principle ; but that this virus, in

order to produce the disease, requires first, (like the contagion of the Small Pox, Measles, Typhus Fever, and even the Plague,) a disposition of the atmosphere favourable to its developement; and, secondly, a peculiar disposition of the animal economy in every person who is exposed to it. This disposition appears to be brought on by previous disease, particularly bowel complaints; by excessive fatigue, cold, errors in diet, drunkenness, fear, &c.

"This theory of the cause of Cholera, appears to me to be the only one which can explain the phenomena in a satisfactory manner. It appears to me nonsense to assume, that in the year 1831, one man gets the Cholera because he has eaten cucumbers, and another because he has slept on a damp field; for the same causes never have produced the same effects, at other times, or

in other places. Nor is it the marsh miasma, or, as the phrase now is, the malaria, which produces the disease, for we now have villages with intermittent Fever, and others with Cholera, and others with both diseases, which in no manner interfere with one another.

"The only other possible supposition, is that of a peculiar, moving, epidemic influence, or miasma, which of itself is the sufficient cause, (not as, I maintain, merely a disposition of the atmosphere favourable to the disease,) but the singular manner in which the disease spreads, following no other lines but those of human intercourse, namely—rivers and canals, is quite unaccountable on such a supposition.

"One young physician has been one of the first victims of the Cholera;—a decided anti-contagionist:—he carelessly exposed himself;

died, and as if his case was to be a warning proof of the fallacy of his opinions, his death was immediately followed by that of his landlord and two children, and the illness of the servant maid of the house, the only instances of the disease in that street."—*Dr. Becker's Letter to Dr. Sommerville.*

Hufeland, the most able and learned physician on the continent, published at Berlin, shortly after the cessation of Cholera, a very learned dissertation on the subject of the disease; he concludes the essay in these words:—"First, that the Oriental Cholera is a new disease. Secondly, that it is a disease unknown in Europe, and the same with that which has been observed in India, where it originated. Thirdly, that the cause of this disease is a peculiar principle, the same that has produced, and still produces, Cholera at Bengal. Fourthly, that the Cholera is pro-

pagated by importation, and by infection, in the most extended sense of these words. Fifthly, that with regard to the transmission of Cholera, it belongs to the class of contagious diseases."

The following extracts, from the Reports of Doctors Russel and Barry, presented to the British Government in 1831, are highly important; and comprise a summary of opinions, formed by attentive observation, during their residence in Russia.

"After having meditated on the above facts and documents, from the moment they came to our knowledge; after having weighed them with all the attention of which our minds are capable, and after having compared the opinions which each of us separately and without discussion, had grounded upon them; we find our impressions, as to the mode of origin and spread of the disease,

at St. Petersburg and its neighbourhood, so perfectly identical in all important particulars, that we now agree to and sign the following propositions, containing the heads of our unanimous opinions on this part of the business of our mission.

1.—"That the germs of the disease were brought to St. Petersburg by the boats and barks which arrived from the interior, this year, previously to the 24th of June.

2.—"That those germs were diffused, and the disease propagated, in two ways; one, which may be called personal, by the diffusion over the whole city, immediately after their arrival, of several thousand passengers and boatmen, who had come from infected places, or had been exposed to infection on the passage, or on board these vessels. The other, which may be termed atmospheric, by emanations from the barks, and their contents;

suspended in, and carried by currents of air, to susceptible persons, independently of direct communication.

3.—"That the germs of the same disease were carried to Cronstadt, and propagated there, by boats and lighters, which had been loaded directly from the barks already mentioned, by persons who had recent communication with these barks, or had been in their immediate neighbourhood.

4.—"That the disease was introduced into all the villages round St. Petersburg, in which we have been able to obtain authentic intelligence of its progress, by persons directly from the city, or from other infected places.

5.—"That neither the near approach, nor the immediate contact, of an infected individual, were indispensable to the infection of a healthy individual, susceptible of the disease at the moment.

6.—"That the Epidemics of St. Petersburg did not possess those absolute and indiscriminating communicable qualities, attached to Plague and Small Pox; and that the risk of infection, incurred by the healthy, who approached the sick, was in direct proportion to the want of cleanliness, ventilation, and space around the latter.

7.—"That in a generally infected atmosphere, the additional danger of infection incurred by approaching one or more individuals, labouring under this disease, was not greater than would accrue from approaching one or more typhous patients, under similar circumstances.

8.—"That under favourable circumstances of body and mind, personal seclusion did afford protection against the disease; more particularly if that seclusion had been ac-

companied by shelter from currents of air passing through sources of infection.

9.—"That those continued exempt from the disease, who retired from and avoided communication with infected places; and those who resided to windward of, and those who were protected from the currents of air passing through such places; that the next in point of immunity were those who, though living in the midst of general infection, avoided large accumulations of sick placed in confined atmospheres: the young, the vigourous, those who could afford to live well, yet lived temperately. In short, those who were placed under circumstances the most favourable to health, cheerfulness, and comfort of every kind."

W. Russel, M. D.
D. Barry, M. D."

The summer of 1831 was unusually genial. Sporadic cases of Cholera did not occur with more than ordinary frequency in Great Britain ; but in the autumn of that year, the Epidemic Cholera broke out for the first time in England. In accordance with its usual mode of invasion, the seaport town of Sunderland was the first place at which it occurred ; the first cases were recorded from that town, at the end of October. The general conviction was that the disease was imported from Hamburg ; and it has been stated that cases had occurred in the harbour in foreign vessels. Others supposed that the disease was introduced by the wearing apparel of those persons who had fallen victims to it on board of infected vessels ; but, as the statements of different writers are not agreed, as to the exact mode of its introduction, it seems unnecessary to dwell

on the subject. Within a brief period of the breaking out of the malady, very strong presumptions were afforded of its contagious character. Such was the apprehension that prevailed during the first few days, after it had become known that the pestilence had appeared in the town, that it was thought expedient to call a meeting of the medical profession, for the purpose of putting forth some statement calculated to allay the general alarm. On this subject Dr. Clanny, who was Chairman of the Board of Health, and who wrote an Essay on the disease, observes, "When this pestilence first broke out amongst us, all the medical men of the place considered the disease as not contagious, as we expressed at a meeting at our infirmary, which took place on the 12th of November; but not many days afterwards, we found, by

experience, that Epidemic Cholera shewed itself to be highly contagious."

A very able work was published shortly after the first appearance of the malady at Sunderland, entitled, "History and Medical Treatment of Cholera," by W. Haslewood, M. D., and W. Mordey, surgeon. This work comprises many important facts regarding the character of the pestilence, and its mode of diffusion, as the following extract will shew. "With regard to the first origin of this disease, the contagionists profess themselves to be as much in the dark, as we confessedly are as to that of any of our acknowledged contagious Fevers. From the facts stated in a tabular list of cases which came under our observation, we have no doubt that the disease has propagated itself in this town, and from this to neighbouring places, according to the laws of contagion.

For, in the first place, in the great majority of cases, direct communication was traceable. In most instances, more than one person suffered in the same house, and these were attacked in successive days. This fact would have appeared still more obvious, if the cases which were treated in the preliminary stage had been noted. Many persons took the disease, after having been employed about the dead bodies ; and it would appear, either that the emanations from the dead are more actively infectious, or that mental afflictions have rendered the persons employed peculiarly susceptible. To many of these cases it may be objected, that the subjects were residing in situations where the cause of the disease, be it what it might, was known to be active. To the following, however, the objection does not apply ; the persons attacked never having been in the infected

districts, but, having taken the disease after communicating with those who had been removed from such situations.

"On the 31st of October, two persons died of Cholera,—Rodenburgh, in Monk Wearmouth, and Sprout, in the Infirmary fever ward. Both bodies were examined the following morning; the former by Dr. Haslewood, Mr. Torbock, and Mr. Mordey; the latter, in the presence of those persons and others, by Mr. Penman.

"The nurse of the infirmary, who assisted in removing the body of Sprout to the dead house, and had no other communication with the fever house, was attacked nine hours afterwards, and died.

"Mr. Penman (who wounded himself in the dissection) was attacked the same evening with sudden giddiness and faintness, while walking; and with great difficulty got

home. This was succeeded by violent watery diarrhœa, with cramps and great prostration of strength. He recovered under the use of brandy, opium, and calomel; but continued in a state of low fever for several days.

"On the 6th of November, the wife of Dr. Haslewood was attacked with Cholera; she communicated with her husband on his return home.

"Mr. Torbuck was attacked with the disease on the same day.

"Mrs. E., the mother of a surgeon, who was in constant attendance on Cholera cases, resided in the house of her son, and never went out. She took the disease, and died.

"The person who washed the clothes, &c., used by this patient, took the disease."—*History and Treatment of Cholera*, pp. 133, 134, 135.

Further evidence of a similar kind was

afforded, during the prevalence of the pestilence in Sunderland. Taken altogether, the facts were so conclusive, as to convince Drs. Gibson and Daun of its contagious nature. These gentlemen had been appointed by government to investigate its character, because they had for many years witnessed its progress in India. Dr. Gibson, during the former period of his life, had published a report on the disease in India, in which he had expressed himself strongly, as an anti-contagionist. Dr. Daun's report on the subject was somewhat less decided.

During his residence in Newcastle, Dr. Gibson wrote one or two interesting communications, proving the contagion of the pestilence, beyond reasonable doubt. Within a few weeks after the malady had appeared in Sunderland, it began to spread into the neighbouring villages, and we have some

valuable information on this point, communicated to the Medical Gazette, by Dr. E. Greenhow, of North Shields. He says,—

"All the little towns and villages round about us are suffering under a great mortality, owing to the unrestricted admission of mendicants and vagrants."

"Dennis M'Gwin, who took the disease to North Shields, came from Sunderland. The first case in South Shields was a boy from Gateshead. A pedlar woman took it to Houghton; a traveller to Morpeth; and I have no doubt its arrival could similarly be traced to Durham, Haddington, and Tranent, all towns upon the same high road."

Thus the disease was extended by human intercourse, both by land, and by coasting vessels.

"The first case that was reported in London occurred on the 13th or 14th of Febru-

ary, 1832, in the immediate vicinity of the shipping. In Scotland, the pestilence first appeared at Haddington about Christmas, 1831, and in Leith, and Edinburgh about the 22nd of January following. Although instances were adduced of sailors belonging to ships which had arrived from Riga, Cronstadt, Hamburg, and Dantzig, and on board of which individuals had died of the malady on the passage, being those first affected at the seaports in the North of England, still there is every reason to believe, from the information given me by several captains of ships who had left these foreign ports, during the period when the distemper was prevailing there, that the infection was conveyed to many places in both England and Scotland, in the clothes and bedding belonging to sailors who had died either in these foreign ports, or on the passage of the ships back to

this country; the clothes and bedding of the sick and dead having been preserved without any purification, and given up to the relatives.

"From this country, the pestilence was conveyed in an emigrant ship, across the Atlantic to Quebec, many of the emigrants having died of it on the passage. It appeared at Quebec on the 8th of June, 1832, and on the 10th at Montreal; and thence it extended to Kingston on Lake Ontario, and all the surrounding parts. New York was attacked by it on the 24th of June, and Albany on the 3rd of July. About the middle and end of July, it spread to Newcastle on the Delaware, to Philadelphia and several other cities, and thence to nearly all North and South America. It appeared at the Havannah in February, 1833."—*Copland on Pestilence.*

"It is a remarkable circumstance, and one which ought to have great weight in the discussion respecting the contagiousness of Cholera, that *Cholera has, in no recorded instance, appeared in any place sooner than the ordinary modes of communication might have brought it from some infected station.* Again, it can easily be proved, that *the rate at which Cholera travels, varies with the rapidity of that communication.* A few weeks were sufficient to transport it from the ports of Britain, more than three thousand miles across the Atlantic to Canada, while it took six months to creep along the interrupted line of communication between Oporto and Lisbon."—*Graves's Lectures*, vol. 1, p. 411.

The author of these observations had somewhat extensive opportunities of witnessing the disease, during its prevalence in York, in the summer of 1832. The city was per-

fectly healthy at the time when it first appeared. The streets had been perambulated at stated periods, by persons appointed for that purpose.

These persons were divided into sections, each section having a medical man conjoined with it, and taking the superintendence of a certain part of the city. Their last report, published but two days before the appearance of the disease, was, that the city was in a remarkably healthy state. The mode by which the disease was disseminated, excited considerable interest, and was not unfrequently made the subject of animated discussion, by the medical gentlemen of the city, who were in the habit of meeting together at stated intervals, for this express purpose.

For some time, the opinion most generally received, was, that the disease was not contagious, but that it was propagated by causes

purely atmospheric. The writer, on communicating with the late Mr. J. P. Needham, at that time much esteemed as a very intelligent surgeon practising in York, entered into an agreement with him, to investigate the cases as they might occur; and, if possible, to ascertain the mode in which the malady was propagated.

The results of their investigations, were published in an able monograph, written by Mr. Needham, in 1831; and were considered by most persons, to establish the contagious nature of the disease, in a manner entirely satisfactory. Referring to the period, when the last report had been made to the Board of Health, Mr. Needham says, "No one dreamt that we were just on the eve of a formidable and severe eruption of Cholera; because, as far as human means are available, every thing had been removed, that was con-

sidered likely, or even possible, to generate the disease; and every body felt confident, that, supposing it to be contagious, and to extend itself by that means alone, it would, nevertheless, be met by so much cleanliness, comfort, and temperance, that it could hardly obtain an extensive prevalence among us. And when at last it did appear, in its undoubted character, it was not ushered in by any extraordinary conflict of the elements; —by meteors, lightnings, thunderings, hail-storms, or hurricane; but suddenly and insiduously, almost before the expiration of a week of more than ordinary joyousness and merriment; in short, it appeared just after our races; and was, beyond all doubt, introduced by some of the ragged and beggarly 'gentlefolk,' who had come to be present at our 'festivity,' and to profit as largely as they could, by the folly and vices of other

people. That it was by such means, that the disease was introduced into York, there cannot be any reasonable doubt; especially if we consider, that some of the earliest cases occurred in the persons of vagrants; who, when they were taken ill, would not indeed confess that they had come directly from infected persons, but many of whom were known to have travelled from Selby, Hull, and Leeds; all, at that time, suffering from the prevalence of the disease. Unless we altogether deny the strongest presumptive evidence, to say the least of it, it seems quite impossible to get over the facts of its probable introduction into York; and if we reject them, because they do not amount to mathematical demonstration, we have no alternative left, but to confess that we know nothing at all about the matter, and are determined that we will know nothing about it.

"That the disease cannot be attributed to a malarious origin, at least in this place, is too obvious to require any other proofs, than such as are well-known to every medical man in it. The truth is, that at no time, do we ever suffer from malaria to any extent; and, the districts in which that agent might be supposed especially to reside, have never yet been visited by the Cholera. It has been confined to places, into which it was originally introduced, or into which it spread by infection, contagion, or by whatever other manner we choose to designate that peculiar human effluvium, which, arising from a sick person, is capable, when sufficiently applied to one in health, of producing the same disease in him."—*Needham's Facts and Observations*, p p. 64, 65.

"The first case of Cholera in York, occurred on the 2nd of June, (1832) in the

person of Thomas Hughes, aged 21 years, residing in a court in Skeldergate; on the 7th, his brother, William Hughes, and on the 8th, John Hughes, aged 52, father of Thomas and William Hughes. On the 12th, James Kendle, aged 39, uncle of Thomas Hughes; he had assisted in conveying his nephew home. On the 13th, the daughter of James Kendle."—*Op. cit.*, p. 66.

The above were the first cases which occurred in this city; the series is extended to nearly seventy; in most of which, after the most careful examination, it was proved, beyond all doubt, that communication had taken place. But to extend the list in detail, would be incompatible with the limits of this work.

"It has also been satisfactorily ascertained, in those villages in the neighbourhood of York, which have suffered from the disease,

that it has uniformly been conveyed to them, by persons who had sustained exposure to the affected, either in York or elsewhere."—*Op. cit.*, 72.

"When the disease has once appeared in any place, its progress into new districts is dependent on the intercourse between the sick and the healthy. Although the first case of the disease in this city, occurred on the 2nd of June, it was not until about the 15th, that other parts of the city, than those already named, became affected. Up to that time, the disease was confined to the parts into which it was first introduced; or clearly ascertained to have been afterwards conveyed, by communication with the sick. Thus, not a single case of Cholera occurred in the district to which we were appointed, till the 18th of June; and in all probability, the disease would not have reached us then,

had there been no communication with the sick. Some of the persons attacked, could not be ascertained to have had any kind of communication with the sick, and, in fact, the possibility of their direct communication will not be contended for. But what is the just inference? Are we to suppose, that no sufficient exposure could possibly be incurred, because none could be clearly traced? or should we not rather acknowledge, that many causes would conspire to extend the disease by contagion, which, from their very nature, were not likely to be much dreaded, or, at all events, carefully and completely avoided? Now we think, that no reasonable person, who argues against the contagiousness of Cholera, can account for its being confined so long to the localities to which it was at first introduced, on any other rational supposition. If the disease were really caused by some

peculiar unknown condition of the atmosphere, independently of contagion, why did it not attack simultaneously, persons residing in every part of the city ? Why does it require a period of thirteen or fourteen days, to extend itself to the districts not first attacked?" —*Needham on Cholera*, p p. 114, 115.

CASES.

"When we have thus formed a collection of facts,—authentic, full, and essential,—the statement, in as far as relates to the facts, constitutes Truth."—ABERCROMBIE.

The following series of cases will be deemed highly interesting, by those who are anxious to obtain proofs of the contagion of Cholera, free from all sources that could reasonably be suspected of fallacy. It must be borne in mind, that, at the time when the first case occurred, the malady was not known to be prevailing anywhere in the neighbourhood, nor, indeed, at any place within a distance of thirty miles.

The first cases in the series occurred at Moor Monkton, a healthy agricultural village, situated to the northwest of York, and distant six miles from that place.

John Barnes, aged 39, an agricultural labourer, became severely indisposed on the 28th of December, 1832; he had been suffering from diarrhœa and cramps, for two days previously. He was visited by Mr. George Hopps, a respectable surgeon at Redhouse, who, finding him sinking into collapse, requested an interview with his brother, Mr. J. Hopps, of York. This experienced practitioner at once recognized the case as one of Asiatic Cholera; and, having bestowed considerable attention on the investigation of that disease, immediately enquired for some probable source of contagion, but in vain: no such source could be discovered. When he repeated his visit, on the day fol-

lowing, the patient was dead; but Mrs. Barnes, (the wife,) Matthew Metcalfe, and Benjamin Muscroft, two persons who had visited Barnes on the preceding day, were all labouring under the disease, but recovered. John Foster, Ann Dunn, and widow Creyke, all of whom had communicated with the patients above-named, were attacked by severe premonitory indisposition, which was however arrested. Whilst the surgeons were vainly endeavouring to discover whence the disease could possibly have arisen, the mystery was all at once, and most unexpectedly, unravelled, by the arrival in the village of the son of the deceased John Barnes. This young man was an apprentice to his uncle, a shoemaker living at Leeds. He informed the surgeons, that his uncle's wife (his father's sister) had died of Cholera a fortnight before that time, and that, as she had no children,

her wearing apparel had been sent to Monkton by a common carrier. The clothes had not been washed: Barnes had opened the box in the evening: on the next day he had fallen sick of the disease.

During the illness of Mrs. Barnes, her mother, who was living at Tockwith, a healthy village five miles distant from Moor Monkton, was requested to attend her. She went to Monkton accordingly, remained with her daughter for two days, washed her daughter's linen, and set out on her return home, apparently in good health. Whilst in the act of walking home, she was seized with the malady, and fell down in collapse on the road. She was conveyed home to her cottage, and placed by the side of her bedridden husband. He, and also the daughter who resided with them, took the malady. All the three died within two days. Only

one other case occurred in the village of Tockwith, and it was not a fatal case.

The remarkable cases above related are of unquestionable authenticity. They shew clearly, that the disease may be conveyed from place to place by means of wearing apparel. For what length of time those articles of clothing may be capable of retaining the contagious principle, is not known: but the following letter from the late G. Brown, Esq., a surgeon who exercised his profession with great credit in this city for more than half a century, contains much information on the matter :—

"*June 4th*, 1833.

"I am sure you will be interested with the following case of Cholera. In the month of August last, (1832,) a woman aged 67 died of the disease, during its prevalence in

this city. She expressed a desire to see two nieces, residing at Riccal, 10 miles from York. They were so much alarmed, that they did not obey the summons. At Whitsuntide Fair during this week, the two young women visited their uncle. After some conversation, he opened a drawer, for the first time since his wife's death; he gave his nieces some small trinkets which had belonged to her, and wept over the cap she wore when she died. He began with the disease in the evening, and died the next day. This case proves clearly, to my mind, that the *materies morbi* may be retained by the wearing apparel or foul linen; in this instance, for ten months,—but why not for as many years?

Yours faithfully,

GEORGE BROWN."

CASTLEGATE, YORK.

At the time that the pestilence prevailed in this city, in the year 1832, a considerable majority of the medical practitioners became contagionists, chiefly from their personal observation and experience, during the progress of the malady; and from a mutual interchange of opinions, and comparison of facts. The opposite side of the question had, at first, generally been espoused by them; until they had frequent opportunities of tracing the progress of the disease, and of observing how often those who had been in attendance on their sick friends, became themselves the subjects of the indisposition.

In the autumn of the year 1848, a few weeks after the disease had been reported as prevailing at Hull, or rather on the Humber, immediately contiguous to the town, it appeared in York, on the banks of the

Ouse. The source of the contagion could not be discovered; but there was, at that period, communication between York and Hull several times daily, both by railway, and by steam navigation. Four persons became the subjects of the disease, in a house only a few yards distant from that in which the first case occurred; three of those persons died; as did also the female who had performed for them the last offices: she returned home to a locality somewhat removed from that in which the former cases had taken place, was attacked, and died in a few hours. On this occasion, there occurred about fifteen or sixteen cases, twelve of which were fatal; in most instances, communication was most distinctly to be traced. The malady then ceased; the city remaining quite free from its incursions, until the month of July, in the year following, 1849.

On this last occasion, the disease diffused itself rapidly; less alarm being excited, fewer precautions were consequently adopted. It broke out in the Water-lanes, not far distant from the residence of Mr. E. T. Allen, surgeon. This gentleman evinced so much zeal, and such an unwearied devotion to the cause of humanity in his attendance on the patients, that he became deservedly popular, and was very soon appointed a medical officer by the Board of Guardians, in addition to the four officers permanently exercising their professional duties in certain districts of the city and neighbouring country. The author has great pleasure in bearing testimony to the efficiency of those gentlemen.

The services of Mr. Allen, during the prevalence of the malady, were estimated so highly, that the friends of the poor sufferers spontaneously opened a subscription, for

the purpose of presenting to him a testimonial, expressive of their high sense of his services under a dispensation so painful ; an act, alike honourable to themselves, and to the object of their esteem. But his usefulness soon attracted observation in a wider and more influential sphere, and it was thought proper to mark the sense of his generous and disinterested conduct. And in accordance with this feeling, another subscription was opened ; headed by the Lord Mayor of York, and comprising the names of the most influential persons in the city. The author having requested from this friend, (whose services have been so justly appreciated,) a brief statement of the mode by which he apprehended that the disease was diffused in the city, has been favoured with the following reply :—

"Dear Sir,—You have done me the honour to request, that I should give you, from my own experience during the prevalence of Cholera in this city, my opinion as to its mode of propagation. I should, under some circumstances, hesitate to give a positive opinion; but, with reference to the subject in which you take so deep an interest, it will not, I trust, be deemed presumption, if I state, unhesitatingly and decidedly, my conviction, that Cholera is a contagious disease.

"I deeply regret, that I cannot afford you a statistical account of its progress, shewing you the connection existing between the several cases,—an inability, arising from the incessant occupation of my time, and want of communication on the subject with the other medical men who were engaged in attending Cholera cases. You are aware, that in most of the localities where the

disease raged in this city,—the Water-lanes, Long Close-lane, St. Dennis' Parish, Peaseholme Green, and Bedern,—the inhabitants are of a class who maintain a constant intercourse with each other. Although I am not able to trace, in every case, the disease from one individual to another, yet from the above fact, it is at least, highly probably, that those cases form no exception to the doctrine of contagion.

"In the localities above alluded to, I attend every year, a large number of cases of fever, of a typhoid character, the contagious nature of which is unquestioned; and yet I can very seldom, from person to person, trace half a dozen cases in succession. The link, it is true, is broken, but who can deny the mode of propagation? I may also add, what I consider to be of some importance, that the meteorological phenomena

during the period had little influence over the disease. This can easily be proved, by a reference to the tables kept by Mr. Ford, and the daily progress of Cholera.

"Pray excuse this imperfect and very hastily written communication, and believe me,

Dear Sir,

Yours sincerely,

E. T. ALLEN."

YORK, Dec. 1st, 1849.

The writer has been favoured with the following remarkable cases by his friend Mr. Husband, a highly deserving medical practitioner.

"My dear Sir,—The particulars of the two cases of Cholera which occurred to me at Dunnington, are, as far as the question of the contagion of the disease is concerned, briefly

these. On the morning of Wednesday, July 18th, in the present year, I was requested to go over to Dunnington, about (as you know) five miles from this City, to visit Edward Warrenner, aged 28, whom I found suffering from most of the symptoms of spasmodic Cholera. The Rector of the village had been requested to visit him early in the morning, and had given him some chalk mixture, containing laudanum, and advised some brandy in sago ; so that treatment had been adopted very soon after the commencement of the attack ; and under the use of remedies employed to restrain alvine evacuations, and support his strength, the purging, sickness, and cramps gradually subsided, but an attack of low fever supervened, which lasted for several days. I was asked whether this case was one of the true Asiatic Cholera ; I replied, that as I had

not seen the alvine discharges, and collapse had not supervened, and the man denied that he had been within the influence of Cholera, I should not be justified in positively asserting that this was a case of Asiatic Cholera, but that so much suspicion attached to it, that care ought to be taken to protect those around him.

"From Wednesday to the following Sunday, his father and a little niece (the only persons, with the exception of his mother who came near him) were attacked with diarrhœa, which was immediately subdued, by medicine kept at hand for that purpose. On Sunday, the mother, Hannah Warrenner, aged 60, complained that she had been a little purged, but said that she had been much relieved by the medicine, which I advised her to continue, and to give up her close attendance on her son. This patient

continued tolerably well, until 10 a. m., the next day, (Monday,) when she was attacked suddenly with violent purging, while pursuing her ordinary household duties, which was rapidly followed by violent cramps, and other symptoms of the disease; and when I saw her in an hour or two afterwards, she had passed into the stage of collapse. She appeared at first to be relieved by treatment, but ultimately sank, about 18 hours after the recommencement of the purging. When I visited Dunnington on the following morning, I was surprized to find that Edward Warrenner, on hearing of the death of his mother, had, while exhibiting strong signs of grief, upbraided himself with being the cause of it, and given the following statement. He was in this City on the Saturday preceding his attack, and was standing in the Market-place, looking vacantly on the busy scene passing

around him, when a man came up to him and asked him if he were willing to earn a shilling or two? He was taken into a house in the Water Lane, where the Cholera was raging at the time, and was employed to carry the coffin of a child which had died of the disease, to the Cemetery, for interment. These facts he concealed until his mother's death; but there can be no doubt of the correctness of his statement, for it was afterwards confirmed to me by persons who were conversant with the disease, as it occurred in the Water Lanes. Dunnington was remarkably healthy at the time. No case of diarrhœa, much less of Cholera, had occurred, and the disease thus imported did not spread; most probably from the fact that the house, and every one connected with it, were shunned by the villagers for some time.

"The mother had not been from her own home, for several weeks preceding the attack; and York was the only place near, in which Cholera was prevailing.

Believe me, my dear Sir,

Very truly yours,

W. D. HUSBAND.

ST. LEONARD'S PLACE, YORK,

Nov. 12th, 1849."

The author has been favoured with the following statement from his kind friend, Mr. Reed, a highly respectable medical practitioner in this city.

"July 14th, 1849. John Slater, aged 47, residing in Ramsden's yard, through Walmgate Bar, was attacked in the middle of the day, whilst hay-making, and died early the following morning, about half-past 12 o'clock.

His mother, aged 83, who was living with him, was taken ill on Tuesday the 17th, and died the next day about 5 p. m. John Fowler, aged 48, and Ann Fowler, aged 58, the son in law, and daughter of Mrs. Slater, who were living at Crocky Hill, about four miles from York, visited the Slaters on the 15th 16th and 17th, and were both attacked on the morning of the 19th ; Ann Fowler died about four o'clock the next morning, and John Fowler on the morning of the 22nd, about five o'clock. William Slater, the brother of John, living at Bishopthorpe, about three miles from York, died from the disease, August 8th, after having taken home some of the clothes belonging to his brother, and which the latter had on when taken ill.

"Mrs. Kilner, living in the Groves, daughter of the Fowlers, went to Crockey Hill, on the 19th of July, to attend her parents, and

returned home the following evening, apparently in good health, but was suddenly attacked in the night with the usual premonitory symptoms ; urgent vomiting, purging, and severe cramps, which were arrested at the commencement. At the period when the patients were attacked, the villages of Bishopthorpe and Crockey Hill were free from the disease."

The following cases have been forwarded to the author by Mr. Gaggs, a very respectable surgeon at Howden.

"*Howden, Nov,* 21*st,* 1849.

"My dear Sir,—The cases we had in the Union, most unquestionably were brought from Selby by a vagrant's child ; it was taken into the ward in the evening, and died the following morning. This child had been

all the previous night in a house in Selby, in which a person was lying dead of Asiatic Cholera. An inmate of our Union, a very inquisitive body, went into the vagrant's ward, and during the next day she sickened, and the following day died. The attendant upon this woman, a fine stout healthy looking girl, with a child sucking at her, sickened and died within twenty-four hours.

"The child was given to another in the house to nurse; she frequently took it to its mother, to see if it would suck; the child refused. This poor woman took the disease and died; and so on in succession, until there were eleven died. No cases elsewhere,—wholly confined to the Union-house. I think I have given you a fair specimen.

Believe me,

Yours truly,

T. Gaggs."

The following cases have been obligingly forwarded to the writer by Mr. Isaac Newton, of Knaresbro', a respectable medical practitioner, who has been actively employed in the treatment of the disease during its recent prevalence in that place.

"My dear Sir,—I have great pleasure in complying with your request, and now furnish you with a few facts which came under my own observation, during the prevalence of Cholera in this town, and which, in my opinion, prove the disease to be propagated by contagion.

"On the 26th of October last, I was called in to attend a young man of the name of Ewbank. I found him in a collapsed state, and the case terminated fatally about one o'clock the following morning. His mother attended him during the whole of his illness;

she was the next seized, on Sunday night about twelve o'clock, and died in about forty-eight hours. She was attended by her daughter, who came from a distant part of the town; she also had a slight seizure, but from timely aid she recovered. The husband, Robert Ewbank, had a very narrow escape; and I attribute his recovery to his immediate removal from the house on the appearance of premonitory symptoms. A woman of the name of Ibbetson, a maker of shrouds, who came to lay out the body of Ewbank's wife, was soon after seized with Cholera, and died very shortly.

"On the 28th of October, I was called to a child, residing in Finkle-street, three years of age. It had been suffering from premonitory symptons for a few days; when I saw it, the disease was far advanced, and death took place the following day,—when I

was requested to visit another child, aged eight years, but the means used in this case proved successful, and the child apparently going on well. On Wednesday, the 31st, the mother was next attacked with a most violent form of the disease, which proved fatal; and it became necessary, on account of the mother being taken ill, to remove the other children, and they escaped. The father had a slight attack, but it gave way to remedies.

"Excuse the hurried manner of putting together the above few remarks, and believe me,

My dear Sir,

Yours very truly,

J. NEWTON."

KNARESBRO'
Friday, Nov. 30, 1849.

The following is perhaps one of the most remarkably convincing series of cases which, in proof of the contagion, it would be possible to adduce. The first, is that of a person who came direct from Hull, where the disease was prevailing, to Pocklington, where it did *not* prevail: he travelled part of the way by train, the remaining distance he walked. Subsequently, the malady was conveyed from Pocklington to York, where it had at that time entirely ceased to exist; and from York, it was re-conveyed to Pocklington. The first portion of these cases was seen by Mr. Danson, a respectable young surgeon at Pocklington, who has favoured the writer with some particulars relating to them. A man came from Hull, by trade a painter; his name and age are unknown. He lodged at the house of Samuel Wride; was attacked on his arrival, on the 8th of September,

and died on the 9th. Samuel Wride himself was attacked on the 11th of September, and died shortly afterwards. These comprise the first cases.

The next, was that of a person named Kneeshaw, who had been at Wride's house. But as this forms one of a series, connected with the former, furnished by Dr. Laycock, who has very obligingly taken the trouble, to verify the dates and facts of the latter part of the series, it will be best to give the notes of these cases, in that gentleman's own words.

"My dear Doctor Simpson,—Mrs. Kneeshaw was attacked with Cholera, on Monday, September 9th, and her son William, on the 10th. He died on Saturday, the 15th; she lived three weeks; they lived at Pocklington. On Sunday, September 16th, Mr. and Mrs. Flint, and Mr. and Mrs. Giles Kneeshaw, and two children, went to Pocklington, to see

Mrs. Kneeshaw. Mrs. Flint was her daughter. They all returned the same day, except Mr. M. G. Kneeshaw, who stayed at Pocklington until Monday, September 24th, when he returned to York. At three o'clock on the same day, he was attacked with Cholera, and died Tuesday, September 25th, at three o'clock in the morning. On Thursday, September 27th, Mrs. Flint was attacked, but recovered. On Saturday, September 29th, her sister, Mrs. Stead, came from Pockligton to York, to attend upon her; was attacked on Monday, October the 1st, and died October the 6th.

"Mrs. Hardcastle, of No. 10, Lord Mayor's walk, York, was attacked with Cholera, on October 3rd, and died the same day. Miss Agar, residing with her, died of Cholera, on October 7th. Miss Robinson, who had come from Hull to take care of the house, after the

death of Mrs. H. and Miss A., was attacked, and died on October 11th. Mr. C. Agar, of Stonegate, York, went to see Mrs. Hardcastle on October 3rd, was attacked next day, and died October 6th, early in the morning. (one o'clock, A. M.) On Monday, October 8th, Mrs. Agar, the mother of Mr. C. Agar, was attacked, and on the same day, one of the servants; both recovered. They had lived with Mr. Agar. All the above dates and facts I have verified.

I am, dear Doctor Simpson,

Yours very truly,

T. LAYCOCK.

LENDAL,
December 1st, 1849.

The writer has received a long and interesting communication from Mr. Forge, a respectable young surgeon at Appleton, of which the following is an abstract. "A man,

of the name of Frazer, who resided at Acaster Selby, five miles from York, went to Cawood, and had communication with an infected family, returned home intoxicated; on July 21st, had an attack of the disease in a severe form, but recovered. The wife of the above, died of the malady, on the morning of the 22nd. Mrs. Simpson, attacked August 5th, recovered; she was sister to Mrs. Frazer, and had visited her mother, who was suffering from premonitory symptoms; she returned home to Appleton, began with the malady, and was the first case in that village. Mrs. Cooper, living two doors off, was attacked, and died; a son of Cooper recovered. Miss Weighley and Mrs. Jewitt visited Mrs. Cooper—both took the disease, and died; Mr. Jewitt was attacked, but recovered. A son of Mrs. Simpson was attacked, and died; as also her daughter. The

malady was clearly conveyed to the neighbouring village of Bolton Percy, where several persons were attacked, but recovered."

The disease now rapidly subsided in the village of Appleton, and soon entirely disappeared. But, on September 6th, a case occurred during the night, which proved fatal in a few hours, and was speedily followed by two other fatal cases. These three persons had all slept in the room in which Mrs. Frazer had died. The apartment had been unoccupied from the time of her death. It had been thoroughly cleansed and whitewashed, previously to its being used as a sleeping room, by four persons from York, who were engaged for the building of a church, in the neighbouring village of Acaster. All the furniture of the room had been changed, with the exception of the bed. The man who had been engaged to convey two of

these masons (when labouring under severe premonitory indisposition, soon followed by death,) to York, was himself attacked on his way home, and sunk into fatal collapse, near the village of Bishopthorpe.

Many similar cases might be adduced, but let these suffice. They are attested by men of unquestioned veracity, as realities, which have fallen under their own personal observation. It is possible that the author, who has not much leisure, may have failed to arrange them in the most perspicuous form. But let not his deficiency impair their force. They are still *facts*. They are *arguments*, not *assertions*; and "assertion is like an arrow shot from a long bow, the force with which it strikes, depends on the strength of the arm that draws it. But argument is like an arrow from a cross-bow, which has equal force, whether shot by a boy or a giant."—*Ld. Bacon.*

The preceding observations and facts, may be briefly summed up, as follows, Asiatic Cholera originated in the Delta of the Ganges, in 1817. Resembling ordinary Cholera in some of its features, it is in others, peculiar and distinct. It possessesthe power of extending itself, in every clime. Its origin, like that of Small Pox, Measles, &c., is totally unknown.

This pestilence has, from its commencement, preserved a *fearful identity* of character, spreading through every variety of temperature and climate ; and advancing with an equal pace, both when opposed to the wind, and when in the course of its current.

Those diseases, which arise solely from distemperature of the atmosphere, are sudden in their invasion, they attack whole countries simultaneously ; their duration is limited ; and they cease for ever. On the contrary, Cholera, Small Pox, and other con-

tagions, are gradual and progressive in their march and diffusion, and permanent in their duration. This gradual advance of the pestilence, is totally subversive of the supposition, that its cause can ever have existed in the atmosphere; if this were the case, the prevalence of the disease must be co-extensive with its cause, among all predisposed persons: but, we find, on the contrary, that it is uniformly progressive. Many powerful writers, have long ago considered the pestilence, as exclusively the product of an animal poison. Recent experience has augmented their numbers. That a certain state of the atmosphere, is essential to the diffusion of contagious diseases, is agreed by both parties. But the doctrine which is founded on the belief, that the *specific cause* of any *specific disease*, can ever be created by, or exist in, the great mass of the atmosphere, is a violation of the

principles of reason, and an insult to the human understanding. The only source of an animal poison, must be an animal body; but, it is so limited in quantity, as to exert no sensible influence on the mass of the atmosphere. The almost perfect immunity of one class of persons from Cholera, and the strong predisposition of another class to re-receive it, depend on causes, more obviously marked in this, than in any other contagious disease. Immediate separation of the sick, and subsequent insulation in any new locality, where the disease is introduced, would limit its diffusion, and not improbably suspend its existence altogether.

In conclusion, the author would address those who are still unconvinced, in the words of an eminent statesman, "Gentlemen, truth travels slowly; in time it will reach you."

COULTAS, PRINTER, YORK.