The laws and progress of the epidemic cholera, illustrated by facts and observations / by Thomas Hancock.

THE

LAWS AND PROGRESS

OF THE

EPIDEMIC CHOLERA,

ILLUSTRATED BY

FACTS AND OBSERVATIONS.

BY

THOMAS HANCOCK, M.D.

"Dein hyems atrox, seu parum provisi commeatus, et ex utroque tabes."

TACIT. ANNAL.

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PREFACE.

IT is with reluctance that I add another pamphlet to the many that have issued from the press on the Epidemic Cholera. Having for several years past been interested in the inquiry into the laws and phenomena of pestilence, I could not be indifferent to the progress of the disease in question, even if it had not visited the shores of Britain. In the course, therefore, of the last year, I collected some general facts on the subject; and, very recently, communicated them, in a paper which I read, to the Literary and Philosophical Society of Liverpool. Some of the members expressed a wish to see the paper printed: and it is now submitted to the public, with many additions aud alterations.

As my business is not with the medical, but

the natural history, of this disease, I have little to plead in excuse for my attempt, but the desire to bring some of its phenomena within the established laws of other pestilential epidemics, and to show, that, notwithstanding its course is marked by many eccentricities, it is still subject, in its movements, and the extent of its ravages, to certain physical laws; which seem, much more than any casualties, to influence its progress and propagation.

With this view, I have endeavoured, at least in the first instance, to leave disputed points out of sight; and, if I may be allowed the expression, to fix upon the *elements*, or data, in the difficult problem of its mode of propagation, that are generally allowed. Afterwards, I have reasoned, from the facts which are admitted, to the questions which are in dispute, and have given my opinion freely as to the theory on which I think the weight of argument appears to preponderate. My object being to exhibit a condensed view, and to avoid every thing extraneous, I have made my quotations as short as possible. I am aware,

this may expose me to the charge of making partial extracts; but am not conscious of doing so at the expense of truth. It is competent, I believe, to almost every reader, to see whether each of the facts I have adduced, does not stand on its own basis, and so far independently.

To contemporary writers I am under many obligations. The works of Dr. Hawkins and James Kennedy, especially the latter, have afforded me some valuable information. I have also gleaned from the London and Edinburgh ~~weekly~~ periodicals many important facts: and I cannot avoid noticing the observations by Dr. J. Johnson, in the last number of the Medico-Chirurgical Review, p. 304, as coming very nearly to my own views. Though many tracts have been published on the Pestilential Cholera, there is, I have remarked, scarcely one, from which we may not gather some fact or observation worthy of being recorded.

T. H.

Liverpool, 2d Mo., 1832.

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ON THE

EPIDEMIC CHOLERA.

It is an imperfection belonging to medical science, that, in the controversy between the contagionists and their opponents, whether on the subject of Plague, of Yellow and Pestilential Fever, or of Cholera, the same rules of distinguishing truth from error do not seem capable of being applied, which are adopted with success in many other branches of human knowledge. The friends of humanity and of truth, attached to the profession of Physic, lament exceedingly this imperfection, and, still more, the evils and disputes which take their rise from it. They lament to see that dissensions among the faculty, must not only have the effect of lowering the dignity of the science, but of distracting the councils of statesmen, on a subject of vital importance to the community; and they cannot doubt, that, until some established principles prevail generally, there will continue to be doubts and difficulties, in every succeeding pestilential visitation, similar to those, which, for centuries, and especially for the last fifty years, not to say the last few months, have been so remarkable in the civilized world.

In all cases, we can only draw conclusions, either from experiments, or from observations, or from facts:

where these are uniform, we entertain no doubt that our conclusions are right. Experiments, we know, may be many times repeated, so that there can be no fallacy in the inference; and observations may be so often made, that the conclusion they lead to, amounts to the highest degree of probability. But what are called *facts* in medicine, are frequently nothing more than incidental results, or casual occurrences, which may have many hidden causes besides those ascribed to them, and many complicated relations, requiring extensive and laborious research,—which, in short, are only *assumed to be facts*, according as prejudice selects them for some particular theory, or as alarm gives them circulation:—in other words, the incident may have occurred, but not from the cause ascribed to it. Besides these, there are vague rumours fabricated by terror, which not only magnifies the image created by itself, but exaggerates the reports and apprehensions of others: and the same tale is so often repeated, that the vulgar take it for unquestionable truth, and, at length, even the learned build upon it as an axiom. There is no subject, I may venture to say, on which idle tales have more frequently passed for acknowledged truths, than that of the origin and propagation of pestilential epidemics through the medium of contagion.

I have long thought, that, while it is necessary for the purposes of science, of commerce, and of humanity, to take a comprehensive view of the phenomena or effects of pestilential epidemics, in their several relations, yet we do not regard these events with sufficient

simplicity as to their causes. For, we are accustomed to look at these, with minds more or less preoccupied with the notions of a virulent contagion, and of atmospherical impurities, as well as with the fears natural to us all. It is quite impossible, from the very nature of such diseases, but that there should be many facts to countenance the views of both contending parties. We must understand that no epidemic disease ever falls upon a nation or community *at once*, however universal or widely diffused may be its causes. Those who deny this fact must be ignorant of the progress of almost every epidemic pestilence recorded in history. For, in every disease of the kind, some countries and cities are invaded sooner than others; and some families and individuals in a city or town yield to it sooner than others. Therefore its successive and gradual progress must, in some degree, resemble the progress made by a disease propagated solely by contagion. And, on the other hand, it is an acknowledged fact that numbers escape an attack of epidemic pestilence, who are in many ways exposed to the disease by intercourse with the sick. This has always been the case in every epidemic pestilence. Hence, while in the progress of an epidemic pestilence, it is extremely difficult to obtain a positive proof of contagion, the negative proofs against it are numerous. For, when two or five out of twenty exposed to a sick person, or to some other reputed source of contagion, are attacked with the disease, there is a presumptive reason that contagious intercourse was the cause of it: but there is not complete evidence. Because, in an

epidemic season, the two or five may, by possibility, have contracted the disease in another way; and the escape of the eighteen or fifteen out of the twenty is a negative proof also in favour of the same view. Now, many of the circumstances which happen in pestilential visitations, whether of Plague, or Yellow Fever, or Cholera, on which proofs of contagion are founded, are of this description;—the escape of multitudes, during the progress of the epidemic, in any place, and the absolute extinction of all contagion at the decline,—so far at least as it has power to act or to diffuse itself in the same place,—affording collateral evidence also against the operation of contagion, as the exclusive medium.

Should it, moreover, be said to be a clear inference, that contagion is the sole propagating medium, when a place that is isolated entirely escapes, we must remember that numerous places, such as clean districts, and houses abounding in comforts, *which are not isolated,* do also frequently escape: and, besides this, that towns and cities, to all outward appearance in every way fitted to spread the disease, holding at the same time free intercourse with *infected* places, from the influence of some inexplicable causes, are often entirely exempt. Details, to illustrate these several points, from the annals of pestilence, might be furnished in abundance.

Again, when crowds of human beings, predisposed to disease, in consequence of some causes acting in common, such as irregular seasons and extremes in the weather, and living on scanty and unwholesome

diet, in close, filthy situations, are found to be more liable to an epidemic pestilence than those who are solitary or at a distance from each other, the inference is reasonable, that individuals thus predisposed by low living and bad air, are more ready both to receive and to communicate a pestilential taint than others, so as to propagate the mischief, amongst themselves, who are, as it were, the *pabulum* of pestilence, to a far greater extent than would otherwise be the case. For we cannot suppose, that our poor and wretched fellow-creatures, thus circumstanced, breathing a vitiated air, impoverished by bad diet, and exhaling unnatural secretions from their bodies on the verge of disease, can crowd themselves together with impunity. The wonder is, not that so many die, but that from such abodes any should escape with their lives.[1]

In the following inquiry, I wish to confine myself to general facts, and to have as little to do with supposition as possible.

Towards the expiration of the year 1830, I read a paper to the Literary and Philosophical Society of Liverpool, on the subject of Epidemic and Pestilential Diseases. In that paper, I took a general view of what I considered to be the laws of such diseases. These laws or general facts, applicable to almost every form of pestilence, I endeavoured to separate from the disputed question of contagion; for I need not say that as warm disputes have arisen about the contagious property of the Pestilences of Egypt, of Spain, and of the United States of North America, as of that of the Epidemic Cholera. To some per-

sons, I am aware, this question is the most important consideration that belongs to Pestilential Diseases. But, as it will never cease to be agitated at such a crisis, so long as the present notions continue to be entertained, we are, I think, bound, by all the rules of scientific inquiry, to seek for other data, about which there is no controversy, if possible, to settle this very question. It is to me perfectly obvious that no safe conclusions can possibly be drawn, nor any settlement of the question ever be attained, from the *ex parte* statements either of the contagionists or their opponents. While I make this declaration, I am as well satisfied, that much more stress has been laid upon contagion, in all the diseases above mentioned, than ever belonged to it.

The principles laid down in the paper I have referred to, which I considered to be applicable to pestilential visitations in all parts of the world, whether the Levant Plague, the Yellow and Pestilential Fever, or the Cholera, were arranged under the following general heads :—

First,—The natural signs, which are either the antecedents or concomitants of Epidemic Pestilence; such as irregularity or intemperature of the weather and seasons, affecting sometimes the ordinary articles of human sustenance, mortality among any species of the lower animals, uncommon abundance of some of the insect and reptile tribes, death of birds, &c.

Secondly,—The singular changes which have been observed to occur in the common or reigning diseases

of the place, before, during, and after an Epidemic Pestilence.

Thirdly,—The varieties in the symptoms, or type and character of the Epidemic Pestilence itself, in its beginning and decline.

Fourthly,—The facts relating to the connexion of Epidemic Pestilence, with offensive, close-built cities, low filthy situations, and a condensed ill-fed population, in all countries; and, on the other hand, the exemption of those places where due attention has been given to cleanliness, to a rational system of Health Police in its various branches, to the necessities and common comforts of the poor, and to the rules of sobriety and temperance.

Fifthly,—The facts given in evidence from Quarantine Establishments and Lazarettoes.

Each of the foregoing heads I illustrated, by facts or by general observations, recorded in the annals of pestilence, many of them recognised by the warmest advocates of contagion.

The general conclusions, from these different classes of facts, which my inquiries led me to adopt, in the sketch alluded to, were these: viz.—That some unusual changes or extremes in the weather and seasons, commonly precede and accompany Epidemic Pestilence, together with mortality among the brute animals, disease among birds or domestic fowls, and sometimes great abundance of insects; but that these phenomena are apt to be much varied, both in different countries and in the same;—that Epidemic Pesti-

lence first breaks out among the poor and miserable, subsisting on deficient or unwholesome food, who are also the chief victims;—that pestilential diseases generally show some heralds of their approach in the state of the reigning diseases of every place where they prevail, often superseding for a time, and then giving place to, other maladies;—that they are severe and fatal at the beginning of their invasion in each place, and mild and manageable at the decline, running their course in a limited period of a few weeks or months, according to the nature of the Epidemic, whether medical care be extended and means of prevention be used or not;—that the close and filthy parts of cities, inhabited by a condensed population, are the situations in which Epidemic Pestilence commits its ravages;—and, finally, that the evidence deduced from the practical operation of quarantine laws, cordons of armed troops, and lazarettoes, proves that these means have generally been ineffectual, not to say burthensome and injurious; and that in no one instance in Great Britain, for the space of one hundred and fifty years, has a death occurred, at any quarantine station, in the business of fumigating or expurgating goods imported from countries where pestilence has been raging.[2]

Having thus committed myself, as well as in my former work, on the subject of the Laws of Epidemic and Pestilential Diseases, I have watched, with no less solicitude, than with, I trust, a love of truth, the course of the Epidemic Cholera on the Continent; considering that my leading principles would either

be confirmed or refuted by its phenomena. I have therefore collected, from time to time, such details as have transpired, within the last year, in the public journals, and in other documents, relative to each of the points above noticed; and, though I could not avoid drawing some conclusions myself, must leave it to others to decide how far these details serve to illustrate this difficult subject, and to establish any better views than those which are commonly entertained at present. For it is a question of great practical importance, and involving many serious interests, whether indigenous causes or an exotic contagion produce the phenomena of an Epidemic Pestilence, —a question not belonging only to the present disease, and the present time, but to every form of Epidemic Pestilence, to every age, and to every country.

We seem now, in truth, to be at sea on the subject, without any sure light of science to guide us. It is plain, from what has lately occurred, that statesmen cannot tell, upon any well-established principles, how far it is right and safe to enforce the quarantine system, for the very sufficient reason, that physicians, whose business it was, have not laid before them such unequivocal facts as should solve the problem. For, while some argue that there is no necessity for restrictions of any kind, others contend that the system of exclusion is our only safeguard. Who can decide from contradictory facts and assertions? Science, as yet, has not afforded that clear and decided help, which the real security of the people, and the prosperity of trade demand; and it is a most important problem,

how these may be best reconciled, which nothing but impartial evidence, and facts of another description, can solve. Those of the contagionists and the anti-contagionists, so far as they are exclusive, have been tried long enough, and have signally failed. It is time, therefore, for the members of the profession, who stand aloof from the combatants, to do their part in elucidating the matter, and, indeed, for the contending parties themselves to agree upon a plan of investigation, so comprehensive, that it shall unite them together in the pursuit of some general principles, which must needs embrace and reconcile their present discordancies; unless we are to acquiesce in the conclusion, that doubt and discord, and state-perplexity, are for ever to bear rule when pestilence of any kind is threatening an invasion.

But, in regard to the very details which I have selected, the same objection may possibly be made, that has been urged against the conflicting statements about contagion. May not these details also be tinctured with prejudice? And how, then, can they be relied on as a proper basis for scientific conclusions? I do not know any better rule for judging whether observations, made independently of each other, are true, than by their coincidence. And, if there should appear to be no concurring evidence from different sources to sanction this coincidence, I am willing to bear the imputation of having laboured in vain in making the selection. But it hardly admits of doubt, that independent facts and observations, which lead even remotely to some general principle, tend far more to

the advancement of science, than a mass of incongruous statements, such as the question of contagion has accumulated on both sides. We must not, however, imagine that there should be much coincidence in the phenomena of the weather and seasons. The climates and countries traversed by this Epidemic, have not only been very various, but, in many of them, the mortality has not exceeded the usual amount to such a degree, and in so general a manner, as to constitute a very pestilential and wide-spreading visitation. Therefore unusual signs of a "*corrupt air*," or of unfriendly elements, could hardly be expected. On the subject of the weather generally, as well as the kind of diet, whether of deteriorated quality or not, used in common, or for some time past, by that class on whom the Epidemic has fallen with most severity, in the north of Europe, I regret that the information is so meagre. I also regret that the gentlemen of the faculty, whether resident in the *infected* cities, or those who have been sent from different places to investigate the phenomena of this pestilence, have given us so few particulars of the character of the reigning diseases, as they existed, for some time *before*, and *after*, its visitation. Possibly, some facts of this description may have escaped my research.

I shall arrange the details in question under the five heads already noticed, in treating of the subject generally, and shall give them, with little exception, in their authors' words. 1st. The weather, and its concomitants. 2d. The state of the prevailing dis-

eases, and general health. 3d. The nature of the Epidemic itself, as to its change of character. 4th. Its connection with filth and poverty, and the persons chiefly liable to its attacks. 5th. The Quarantine regulations.

I. *The Weather, and its concomitants.*

"At Orenburg, up to the time when the Epidemic appeared, the preceding seasons had been irregular, and marked by great atmospherical vicissitudes: the moisture especially had been great and sudden, after long continued heat and excessive drought. Besides this, there was a large quantity of fruit of indifferent or bad quality; and the people (from some cause not stated) were without their usual drink, called *Koumis*, made of mare's milk fermented, as well as without a similar beverage, but better, made of sheep and cow's milk. Gourds and water melons were in such *unusual* abundance, that the local magistracy of Orenburg prohibited the sale of them, or the introduction of them from the adjacent country."—*Rapport sur le Cholera, par Keraudren, &c. p.* 110.

"During the summer of 1830, the Tartars, who frequent Moscow, predicted the approach of a pestiferous malady; which the inhabitants would not credit. Suddenly, however, the atmosphere was filled with dense masses of small Green Flies, *which in Asia are the forerunners of pestilence*, and are called *Plague-flies*. The streets swarmed with these insects, and as soon as the inhabitants quitted their houses, they were covered from head to foot."—*Englishman's Magazine.*

Dr. Jachnicken, member of the Temporary Council of Medicine at Moscow, asserts "that both at Taganroy and at Moscow, it is universally admitted, that several species of animals died with the symptoms characteristic of Cholera, such as geese, turkeys, fowls, and crows."—*Bisset Hawkins on Cholera, p.* 108.

"In Warsaw, some examples of a disease resembling Cholera were also noticed among the lower animals."—*Lancet, Nov.* 19.

"At Marienburg, in Prussia, this year (1831), the fish in the large ponds, in that government, are all said to have perished *during the prevalence of the Epidemic*, and forty tons of them were buried from the single pond of Dinperburg." (*Ibid.*) If, however, it be the fact, "that a similar mortality has several times occurred, at the same season;" and that "into the lake where the loss was greatest, the inhabitants of the adjoining town had emptied an offensive drain as a sanatory measure," the account must be received with this accompanying explanation. The remarkable circumstance is, that the death of the fish in the other ponds should be synchronous with the prevalence of the Epidemic. I have no wish to lay particular stress upon the matter.

"Accounts from the Red Sea, to the 12th of July, state, that the country about there had suffered greatly from sickness, scurvy, fever, and cholera. The violent rains had produced great damage in Arabia. Half of Suez has been washed away. The locusts covered the water for miles and miles."—*Morn. Chron., Dec.* 29.

The author of the able article in the Westminster

Review tells us, that "on its first appearance in India, a great number of cattle died, in a most extraordinary manner, in the grand army. During the October of 1827, many of the dogs in the streets of Calcutta were attacked with Cholera symptoms, and killed. Mr. Chambers remarks, that in the towns near the hills, when the Epidemic was so fatal, a disease occurred among the cattle, which kept pace with, and often exceeded in mortality, that of the human species. According to Dr. Ranken, goats and camels died of it at Rajputana; and it would appear that at Vercelli, in Italy, the same phenomena sometimes occur, *when the ordinary Cholera is more than usually severe.*"

Dr. Gibbs, first surgeon of the Naval Hospital at Petersburg, reports, that "the Cholera appeared in that city on the 14th of June. The heat, for six weeks, was great, with want of rain, and the wind, with scarcely any variation, from the east: the trees were much blighted; *and, it is remarkable,*" he adds, "*that since that period, almost all here complained of a tendency to diarrhœa, in some cases profuse.* Nearly all the cases of Cholera may be traced to eating flatulent and crude vegetables, as cucumbers, melons, radishes, &c. of which the Russians are so fond, to the use of ardent spirits, and afterwards drinking iced water or quass, their common beverage, well iced, and this, too, during a state of perspiration. One of the Russian Fasts, of a fortnight's duration, during which time the lower classes are very badly nourished, has just finished: and this too, no doubt, has aided the progress of the Epidemic."

Whatever we may think of the reasoning in the following extract, the facts are worth notice. "The opinion is gaining ground at Vienna, that the Cholera is entirely *telluric*, and created by mephitic vapours formed in the earth, and first communicated to the water. From this supposition has arisen the generally prevailing belief among the people that the wells have been poisoned. In some places the poultry and pigeons died in great numbers. A mortality has also been remarked among the fish in several rivers. Numerous facts, moreover, prove that the Cholera follows the course of rivers, and breaks out chiefly in the neighbourhood of waters."—*Morn. Herald, Dec.* 27, *from the Leipsic Gazette of the* 16*th Dec.*

Dr. Baum, physician of the Town Hospital at Dantzick, says that the Cholera, which began the 27th of May, in that city, "was preceded by a remarkable change of weather: the temperature often differing in some hours' time nearly 10° R. It was preceded by immense quantities of fish being caught, and of so low a price, that all the poor people had lived the whole months of April and May on almost nothing else. Esox bellone and Clupea sprattus were the most common."—*Med. Chir. Review, Jan.* 1832.

Inspector Dyrsen states, that "the breaking out of the disease at Riga was at the commencement of *unusually* hot and sultry weather."—*Med. Chir. Rev. July* 1, 1831.

"In a great number of places, the Epidemic was preceded by epizootic diseases, more or less fatal, in different kinds of animals."—*Rapport, p.* 121.

II. *The state of the prevailing diseases and general health.*

Dr. Onufrief, physician to the Circle of Orenburg, says, "*During the prevalence of the Epidemic, there was scarcely a single inhabitant of the city of Orenburg, who had not some symptoms of disordered digestion*— one complaining of oppression and pain in the breast, another of headache, another of slight sickness, nausea, looseness of the bowels, and the like. These trifling symptoms of disease were usually ascribed to errors in diet. But to me it appears *that their cause was a general invasion of the system by Cholera*, which, however, was prevented from developing itself in its perfect character by a regular manner of living, and other circumstances of the kind." — *Edin. Med. and Surg. Journal, July*, 1831.

Dr. Walker, though he reasons warmly in favour of the opinion that the contagion was imported into the city, says, "The greater part of the medical men believed the disease (at Moscow) was not contagious, but produced by some peculiar state of the atmosphere; *proved by almost every person in the city feeling, during the time, some inconvenience or other, which wanted only the exciting cause of catching cold, or of some irregularity in diet, to bring on Cholera.*"

Dr. Becker informs us that "the great majority of persons attacked with Cholera in Berlin, consisted of those who were exposed to the usual causes of disease, as cold, fatigue, &c., or *were labouring under pre-*

vious disease, particularly diarrhœa."—Dr. Becker's Report.

I may refer again to the report from Petersburg, by Dr. Gibbs, that, after the extreme heat and easterly winds, "*almost all complained of a tendency to diarrhœa, in some cases profuse.*" Dr. Lefevre, physician to the British Embassy, in that city, confirms this fact, stating, "Certain it is that, during the larger portion of time during which the Cholera prevailed, there was a general indisposition, a certain *malaise*, which affected almost every individual. People complained of uneasy sensations in the bowels, &c., and a loss of tone in the whole system." — "It subsided with the decline of the disease."—It is fair to add, that Dr. Lefevre queries whether it was the effect of *fear.—On Cholera, p.* 23.

Dr. Jachnicken, indeed, states the fact more generally, that "the invasion of the Cholera, not only at Moscow, but *elsewhere in Russia*, was *preceded* by a particular disposition to diarrhœa, vomitings, &c., *which continued throughout the whole of the disease*, and which seems to prove the existence of a particular epidemic state of the atmosphere."

The authors of the luminous and impartial Report, laid before the Royal Academy of Medicine at Paris, state, that "wherever the Epidemic Cholera prevailed, in India as well as in Russia and in Poland, the physicians (de toutes les doctrines) were careful in remarking the *general* epidemic influence which appeared at the same time ; in so much that few escaped its effects, even among those who had not any of the

symptoms of the true Cholera; almost every one, living in the places attacked, complaining of some or other of the following symptoms, viz. lassitude, giddiness, and prostration even to syncope, with sickness, constipation, diarrhœa, and universal disturbance of the digestive functions." They go farther, and state, "that in these two classes of phenomena, the nervous prostration and debility of the digestive system, we have, in reality, the rudiments, germ, or epitome of the perfect disease."—*Rapport, pp.* 40, 194.

C. Searle informs us, in a letter from Warsaw, dated July 4, that "the connexion between Cholera and Fever was remarkably exemplified in that city. At least I have been told that Intermittent Fever was prevailing to some extent *before* the Cholera. *On this appearing, the former vanished, and reappeared on the cessation of the Cholera.*"(3)

A singular fact is noticed in the public reports from Dantzick, dated June 9, 1831:—"Last week, we see, by the bills of mortality, that 41 persons died of the Cholera; and in the corresponding week of last year, the deaths were 48." The comparison between these two numbers seems to have been drawn, in order to show, that the presence of Cholera in that city did not at all increase the ordinary rate of mortality. And we find a statistical report from the city of Hamburg, dated October 25, which confirms the same observation;—"It is some consolation," say they, "to ourselves, and ought to be so likewise to those countries which have not yet received the dreaded visit, that hitherto the mortality of 1831 falls *here* consider-

ably short of that of 1830, although we are now in the third week of Cholera, which, in most places, has proved the worst. The following table shows the comparative mortality in Hamburg during the two years:—

	1830	1831
From Jan. 1, to July 31,.....	3472	3250
During August.....	382	387
September	341	385
October	362	

For the mortality to correspond at the end of October, it would be necessary that 536 deaths should occur at Hamburg, during the present month (October). Down to yesterday (the 24th), the deaths from Cholera amounted only to 189."—*Globe, Oct.* 1831.

This report corresponds with the statement made by Sir Matthew Tierney, at Brighton, on the authority of Prince Lieven, the Russian Ambassador, that "the Cholera, during its rage at Petersburg and Moscow, did not increase the mortality beyond the average of former deaths." Indeed, the ambassador is said to have asserted, that "*by the official returns, the number of deaths taken as a whole, during the prevalence of the Epidemic at Moscow was absolutely less than in ordinary times.* This is attributed to the people refraining from drinking, and other habits of dissipation. *Where the disease has raged most violently, the average number of deaths has never been more than doubled.*"

It is only within a day or two that I have seen a letter in the public journals, from Dr. Lefevre,

Physician to the British Embassy, dated Petersburg, Nov. 26, N. S. 1831, which contains an observation on the bills of mortality, that confirms these testimonies. "It is necessary," says he, "to consult the bills of mortality, during the prevalence of the disease, and see *if the average number of deaths from common diseases was not very much diminished during this period.* If this is really the case, and we find no cases of dysentry, diarrhœa, consumption, apoplexy, indigestion, &c. *it is but fair to deduct from the sum total of Cholera, as many as would occur of these complaints in the same space of time, and under ordinary circumstances.*"

In connection with this subject, though it is anticipating the consideration of the Epidemic at Sunderland, I may refer to the state of the mortality in that town, during a period which includes nearly two weeks from the commencement of the disease, in its malignant form, viz. from Oct. 26, to Nov. 8, by comparison with the two preceding years.

In	1829, from Oct. 8, to Nov. 8, died	83
	1830, ...	98
	1831, ...	98

Out of twenty-five cases of Malignant Cholera, which occurred up to the latter date, eighteen died; which, of course, are included in the number ninety-eight: yet it does not exceed the mortality of the similar period in the former year. Now it appears, by the official return of cases and deaths up to November 30, that out of 319 cases, 97 died. So that if we deduct 18 from 97, we have 79 for the mortality from Nov. 8, to the end of the same month. What may be the

additional mortality from other diseases, we are not informed. But *as Typhus Fever has been unusually rare at Sunderland since the Cholera has prevailed,* it may be supposed that few have died of that disease.[4]

The *Newcastle Courant,* of January 7, 1832, contains the following statement to the same purpose: "It is remarkable, as regards our sanitary state during the last year, that the increase of burials in 1831 over 1830 (exclusive of the New Cemetery at the West Gate) is only six." The disease began before the 9th December; therefore, the mortality of three weeks' duration of the Epidemic is included.

We can only account for facts like these by the singular law I have elsewhere noticed, that when an Epidemic Pestilence falls upon a place—and Cholera, when malignant, if not in the extent of its destructive power, certainly in the rapidity and intensity of its prostrating influence, well deserves the title—it puts to flight for the time other mortal distempers, or at least absorbs other fatal diseases in itself, and *in so far seems* to arrest the mortality from other causes. Upon what principle an adventitious disease, casually introduced by means of a foreign contagion, can produce this effect, I am at a loss to say; and yet there are other things more difficult still to be accounted for, on that supposition. There is good reason to think that similar reports might be produced from Berlin and Vienna, to those from Petersburg, Moscow, Dantzick, Hamburg, and Sunderland on this point. And I am here reminded of an analagous circumstance, relative to the Pestilential

Fever or Plague of the years 1720—21 in the South of France, which I quote, on the authority of the learned Suavages, that "during the year in which the town of Alet was visited by the Pestilence, the mortality was not greater than was usual in other years, from different kinds of diseases, being about 300, or equal to the number of births: and it was remarkable that all other acute diseases vanished *during the Plague*, and that all the acute diseases partook of its character."*

We are now prepared to consider two circumstances, which have been strikingly exemplified by this Epidemic, and which agree with the phenomena of other forms of Pestilence:—First, Its accompanying or kindred diseases; and Second, The absence of other acute maladies, except these kindred diseases, during its prevalence.

And here it may be observed, that although the present state of science may not enable us to explain their causes, it seems hardly necessary to apologize for noticing and classing together, circumstances, which have been so often united, notwithstanding some may consider the connexion casual, and may, perhaps, smile at the simplicity of viewing the mild and malignant features of a disorder as of the *same*

* "Intra annum quo Pestis Alesiæ inhæsit, *non plures* obiere Peste, quam cæteris annis morbis sporadicis seu diversi generis abripi consueverant, circiter trecenti, et quam intra annum nati sunt: sed hoc observatu dignum fuit, omnes alios morbos acutos, durante Peste, siluisse; et omnes morbos acutos e Pestis genere fuisse."—*Nosolog. Method. Tom.* 1, *p.* 415.

origin and family, modified only by outward situation and modes of life.

Now, it is very remarkable that, in so many places, the Epidemic Cholera should have had its host of attendants, in other words, its preceding and accompanying kindred diseases, nausea, diarrhœa, &c.: so that, from the mildest form to the most malignant type, one epidemic influence was manifested. And from this fact, which is not a new thing in the annals of pestilence, the question has been started in almost every place, whether the disease was native or foreign. If Cholera, or an epidemic tendency to it, in its milder form, had not in so many instances been prevailing *before* the malignant type appeared, there could have been no ground for disputing upon the subject. And, surely, every one who has read the histories of Plague, and Yellow Fever, and the Bilious Pestilence of Spain, must be aware that the same scenes have been acted in Moscow, and Petersburg, and Berlin, and Hamburg, and Vienna, and lately too in Sunderland, as occurred at London, Venice, Messina, Marseilles, Cadiz, Barcelona, Philadelphia, and New York, from a similar combination of circumstances, — that is, from the state of confusion into which the faculty were thrown, when they attempted to make technical distinctions, which nature disavowed, between the *kindred* forerunners and attendants of the pestilence and the pestilence itself. A volume might be filled with such controversies: but it is to be hoped

the time may come, when they will vanish in the light of a better knowledge of the subject. The practical difficulty, in fact, is this: that the actual presence of a native epidemic, and the fear and consequent uncertainty about a foreign contagion, combine together to produce distraction about a *name*—about *identity*—about *contagion*—and about all the consequences of these different questions, which the admission of domestic origin would solve at once. In truth, when members of the profession differ in this way about names and identities, and are so divided in opinion on technical points, as to authorize the belief that there are no clear principles of science to appeal to, we cannot wonder that others should exercise the right of judging according to the rules of simple observation. And simple observation would have determined the question long ago, if *the fear of contagion* had not acquired an ascendancy over people as well as their rulers, which cannot be easily removed, and against which few dare assume the responsibility to act. What we want, at present, is a gleam of science on the side of plain observation. And to this end, many enlightened members of the profession, I am happy to say, are labouring at the present time.

The second point adverted to — a fact pregnant with moral instruction — is the state of *unusual health* just before the invasion of pestilence, or the absence of *other* acute and mortal diseases during its prevalence. This has been singularly the case in Sunderland: "the mortality having been *less than usual for many weeks before, the few cases of sickness and deaths which did*

occur arising from bowel complaints." And the bills of mortality would seem to confirm the observation, if we wanted authentic information, which we happily possess, that their ordinary scourge, Typhus Fever, was rarely seen during the height of the Epidemic.

If the same law had not operated, likewise, on the Continent, the mortality, in every place, must have been so much greater, in proportion to the deaths caused by the Epidemic, instead of being less than, or only equal to, the usual amount. I need not refer to history to confirm this law. Thucydides, in describing the Plague of Athens, says, "this year was universally allowed to be the healthiest and *freest from other diseases of any.* If any was sick before, all his illness was converted to this." And, according to Sydenham, "the very same year (1665) that proved fatal to so many thousands, *was otherwise very mild and healthy;* and such as escaped the Plague never enjoyed better health." In Malta also, "during the Plague of 1813, *all other sickness ceased,* and chronic valetudinarians got better." "By the testimony of almost every author," says Chenot, "when a place is visited with pestilence, it is generally free from other diseases, *except those which have some resemblance, or affinity with it.*"

III. *The nature of the Epidemic itself, as to its change of character.*

It is not peculiar to the Epidemic Cholera, that it has been severe and fatal at the beginning, and has assumed milder symptoms at the decline; consistently

with the observation of Sydenham, that *all* epidemics at first are more violent than afterwards. (Sect. 4. Chap. 3.) The Plague, the Pestilential Fever of Spain, and the Yellow Fever, observe the same law.

"The mortality at Moscow varied greatly, at different periods of the Epidemic, being at first nine-tenths, and afterwards sinking gradually to seven-eighths, three-fourths, a half, and at last one-third."—*Edin. Med. and Surg. Journal, July* 1.

"Dr. Darbal, a French Physician at Moscow, affirms, that though in twenty hospitals, different and even opposite modes of treatment were employed, the number of deaths was nearly in the same proportion at all of them."—*Hawkins on Cholera, p.* 117.

Kennedy, who is good authority, tells us that the remarkable law of Cholera is this—"soon after the Epidemic has appeared in a town,"—we must understand, *in its malignant form*—"it assumes a more virulent type than at any later period.....The uniformity of this law in every climate yet traversed by Cholera is singularly striking. In the various divisions of the East India Company's troops in India, it held an analogous course. The same course was observed at opposite extremities of the globe—in China and Russia—in the cities of Canton and Pekin, Astrachan and Moscow. Latterly it has been exemplified in Warsaw, and Wilna, and at present is undergoing the same process in Riga, the period of decline having already commenced. *The symptoms of Cholera in the period of decline, always*

assume a comparatively mild character, and prove fatal to very few."—*Letter in the Times, June* 23.

The duration of the Epidemic, in its fatal career, is seldom shorter than five, or longer than eight weeks, in any place. In many parts of India, and lately in Egypt, it has run a more rapid course.[5]

Chamberet, of the Warsaw Medical Commission, stated before the French Academy of Medicine, "that the mortality was not greater among those left destitute of medical aid, than among those who enjoyed medical assistance — *in the whole it was* 50 *per cent.*" This has been pretty much the case throughout Europe.

The impartial observer cannot shut his eyes to these important facts: 1. The law of duration. 2. The law of severity and of mitigation in the character of the Epidemic. 3. The law of mortality.

It is indeed wonderful that so much uniformity in these laws should appear in the movements of an Epidemic, traversing so many climates and cities, affecting such varieties of the human family, and subjected to such different modes of medical treatment; to say nothing of the unerring aim with which it seems to select its victims, nor of the prepared *predisposition* with which they meet the enemy.

Every thing, in short, demonstrates that laws and powers are in operation, which neither laws of Quarantine, nor rules of the healing art, can oppose availingly, of themselves, *when the evil has commenced*, but which, habits of cleanliness, ventilation, and comfort, with wholesome diet, can in a very considerable

degree counteract and prevent. And this is consistent with the principles of a wise economy in other things. If people for a long time neglect *what is practical* in matters of civil, moral, or political duty, then the evil or punishment for this neglect comes with an overwhelming force; and they find that at last there is something *not practical* or efficient in the means of relief, *until* the limits of that evil are attained;—limits which are appointed by the goodness of the same Power, that originally annexed happiness and blessing to the performance of duty.

As in cities, or large assemblages of human beings, there is a ratio of mortality, from year to year, proportioned to the number of inhabitants, when things take their usual course, and medical skill even is exerted in every judicious way to save life struggling against various forms of disease; so, in unusual circumstances, like those lately experienced by the visit of the Epidemic Cholera, this ratio of mortality appears to have been in many places still maintained. Hence, although thousands in a city may experience mitigated effects of the common evil, yet the victims who fall under the *one* disease, in its violent and fatal form, instead of the many, are still the aged, the infirm, and the dissipated, in so uniform a proportion to the numbers attacked, under all the various modes of treatment employed, as to take away the opprobrium from medical science, which some are apt to cast upon it, when its efforts are not successful; without considering that these efforts may possibly be made in opposition to insurmountable laws. The fact, however, seems to

be as it is stated, reason upon it as we may. These things are evidently, therefore, not so much left to casualty, as some imagine. Yet this law of mortality is wisely hidden in its operation; that so, neither science may fail in its exertions for the good of others, nor benevolence, in its humane assistance, nor sobriety and temperance, in the observance of such rules as may ward off the destroyer, in a manner consistent with the laws of health, which the same wise Providence has appointed to be antagonists to the laws of dissolution.

It is a curious fact, that at the beginning of the malignant spread of the disorder—as often indeed happens in the Plague and Yellow Fever—it frequently occurred that only one individual in a family took the disease. And the rare cases in cities seem to have borne a proportion to the rare cases in families, so as to prognosticate a longer duration of the Epidemic than the more simultaneous attacks in both. For if the disease is long in threatening, with considerable intervals between the first cases, and circumstances favour its propagation, unless it should be overpowered by some other epidemic, it will be longer in attacking after the severity has commenced. And if multitudes are attacked suddenly, the duration will be short, though multitudes may still remain to be attacked.* Epidemic Pestilence, indeed, will sometimes threaten a place in one season, then retire, and fall with severity upon it in another season.

* "Mais, chose digne de remarque! autant l'invasion du mal fut subite, autant la cessation arriva promptement."—*Rapport*, p. 84.

IV. *The connexion of the Epidemic with filth and poverty, &c.*

"The Cholera appeared suddenly at Orenburg, among the poorest class of people, in individuals exhausted by labour, and debilitated by wretchedness." —*Rapport, p.* 114.

In his Memoir of the disease at Moscow, Dr. Jachnicken remarks, that "the Epidemic is severe among the lower classes in the low, wet, and dirty habitations; and, consequently, in the quarters where this population abounds, drunkenness, debauchery, bad quality of food, incontinence, exposure to colds, predispose more especially to it."

"In Austrian Gallicia, a better diet, furnished to the lower orders at the expense of the Government, contributed as much as any other measure to prevent the spreading of the disease."—*Dr. Walker.*

While "its attacks were favoured (at Moscow) by depressing passions, a fear of the disease, great fatigue, low, bad living, and bad air, in crowded dirty dwellings; it was observed that those who were the least timid, and pursued their out-door avocations as usual, generally escaped."—*Ibid.*

"Riga, May 31. The English captains and sailors seem more subject than those of other nations, *we believe*, because they are more careless and more addicted to drinking."

"Dantzick, June 2. The surest preventive of the disease seems to be a regular life and good food, which the poorer clasess are not able to procure. They and

the soldiers suffer most, and *those who are addicted to drinking.*"—*Times, June* 21.

Dr. Gibbs writes from Petersburg, that "the aged, infirm, and those of broken constitutions, especially the ill-fed, and habitual drinkers, are the victims: in short, that in ninety-nine cases in a hundred, the common victims are the irregular, dissipated, and badly fed:" and accounts from other parts, where the disease prevailed, confirmed this general observation, "that the Epidemic, in ninety-nine cases out of a hundred, only attacked those who were predisposed by poor or intemperate living."—*Edin. Med. and Sur. Journal, and Liverpool Times, July* 26.

At Hamburg, we are told, by a British resident there, that "it originated in a miserable resort, called the *Deep Cellar*, (lately routed by the police) which was frequented by beggars, vagrants, and other abandoned objects of both sexes; and to this profligate class of people it has hitherto alone been confined, as in Berlin and other cities in the N. of Germany: and people of sober and regular habits consider it now scarcely worth reflection."—*Times, Oct.* 4.

Something like an exception to the rule I have stated, occurred at Vienna; but an explanation is given. We are told "that in this city the higher classes have been peculiarly singled out for the ravages of the Epidemic. But, if the local peculiarities of Vienna be taken into consideration, it is not difficult to explain why the higher orders have particularly felt the severity of the disease, and also why the city has been its principal haunt. Vienna,

the city, is small, compact, and surrounded by suburbs, from which it is separated by a wide glacis. The streets are very narrow, and the houses immoderately high. Yet, it is here that the higher classes reside, though their first floors are generally destitute of both air and light. The lower classes, meantime, enjoy the upper stories, as well as the more spacious and airy suburbs."

Brierre de Boismont, in his account of the Epidemic at Warsaw, says, "At first, it seized those poor and hapless individuals who fed on indigestible aliments—who adopted no precautions against atmospheric changes—who dwelt surrounded by filth, in narrow, damp, and unwholesome places."—*Lancet.*

"In Berlin, the disorder was completely confined to those spots where the houses were crowded together, and the currents of air of course obstructed."—*Morn. Chron., Nov.* 11.

Dr. Becker, a Prussian physician, has stated, as a reason why the mortality in Berlin was so small, that "it has few crowded or narrow streets: a great proportion of the lowest class of the populace inhabit the outskirts, where the streets are large and distant from one another."—"In that part inhabited by the people in easy circumstances, the cases generally remained solitary, and the disease did not spread in the streets where it had thus appeared; but in those parts inhabited by the labouring classes, the disease, once having occupied one house of a street, was observed to attack others in succession."—*Medical Gazette.*

From the Registry of the Berlin Police, we find

that in September it attacked 893 persons, of whom 125 were in hospitals, and 768 in their own houses. The number of houses in which the disease appeared was 409: in 273 of these, only one individual was attacked in each house; in the remaining 136 houses, from four to five. Now it was calculated that the 409 houses contained 4200 families; reckoning, therefore, four individuals to each family, 16,800 persons are supposed to have been brought into near contact with the disease. But only one in eighteen so circumstanced was attacked with it.

On reviewing the circumstances under which the Epidemic Cholera of India, in 1817 and subsequent years, prevailed so widely and destructively, we find, that although medical men were divided in opinion on the subject of its contagious quality,—for out of fifteen reporters, two thought it contagious, eight were of a contrary opinion, and five were doubtful,—yet, "on *the predisposing causes*, practitioners were unanimous: and these were, rapid atmospherical vicissitudes, low marshy situations, indigestible food, a condensed, dirty, and ill-fed population."

"The classes of people attacked (in the Mauritius), were those who used poor vegetable diet, ill-cooked:" when the disease, therefore, appeared at Port Louis, and gained ground, a medical practitioner remarks (see Edin. Med. and Sur. Journal, Oct. 1821,) that he gave the poor a large quantity of nourishing soup, besides taking some precautions of a medicinal nature, and "*the people remained healthy on that plantation,*

whilst all around were suffering under the disease — even their nearest neighbours on each side." This is an important fact, and agrees in its effects with the experiment tried by the Government in Gallicia, above noticed.

And in Siam, in 1821, "it was feared that the commercial intercourse would not for that season be on a large scale, in *consequence both of the failure of the crops in that year, and from the ravages of the Cholera Morbus among the lower orders.*" Here cause and effect seemed to go hand in hand — the failure of the crops, therefore irregular seasons, and the Cholera among the poor.

It is hardly necessary to add, that almost all the Indian Reports of this Epidemic connect together, low living, fatiguing marches, low swampy situations, and filthy crowded abodes, with strong predisposition to the disease.

One or two facts may be interesting: "The following," says Kennedy, "is an illustration of what care and temperance can perform, in the way of preserving Europeans from the attacks of the Cholera. Two bodies of men, one amounting to 300, the other to 100 persons, were located in adjoining situations, when the Cholera arrived. The smaller body immediately determined to live temperately, and, by avoiding the night air, and other predisposing circumstances, which are obvious, to endeavour to escape the distemper. The plan succeeded so well that only one individual was seized of the one hundred. The

larger body adopted no precaution. They lived in their usual way, and one-tenth of their whole number perished."—*Kennedy on Cholera, p.* 91.

"In the north of India, the Mohammedans used a more nutritious diet, and were better clothed than the Hindoos, and, in general, they were less liable to the malady. That this did not depend on the stronger constitutions of the Mohammedans, is seen in the effects which succeeded to a temporary exhaustion. When the Cholera prevailed at Delhi, it happened to be the period of the year in which the Mohammedans observe their annual Fast, or Ramazan. During the Fast, all orthodox Mussulmen abstain from food while the sun is above the horizon. Persons of this sect, therefore, suffered more extensively during the Fast than the Hindoos, who lived after their ordinary manner." *Kennedy, p.* 223.

"In our armies in India, the camp followers were generally the first attacked, (as being the worst fed,) then the native troops, next the common European soldiers, then the officers, and last of all the civilians." *Westminster Review, Oct.* 1831.

"When Cholera prevailed in Syria, at Tripoli, which is a very clean and well ventilated town, 31 only were taken ill, out of a population of 15,000; of these only five died: and the disease tarried only a few days; while at Antioch and Gesra, which are low and badly aired, it continued for a month, and committed frightful ravages."

V. *The Quarantine and other regulations.*

Respecting the effects of the Quarantine regulations, we are informed that Russia tried them amply, and to its cost; so that they were soon abandoned. "The cordons of Vienna nearly occasioned a civil war."

In the proclamation of the King of Prussia, (dated from Charlottenburg, Sep. 6) he complains "that the Asiatic Cholera had penetrated into his dominions, in spite of measures the most rigorous, precautions the most active, and vigilance the most sustained, which had all proved useless in averting or even checking its progress." And he adds, "The rigorous measures of isolation by cordons, established on the frontiers and in the interior of the country, have hitherto acted unfavourably on the industrious habits of my people; and threaten, if they be maintained much longer, to destroy the comforts of numerous families, and, in short, to become more ruinous to the country than the malady itself."—*Med. Gaz. Oct.* 29.

While the King of Prussia was thus complaining of the total want of success of his precautionary measures, by means of cordons and Quarantine regulations, and decreeing their abolition, or modification; the French minister, not aware of the fact, was urging *their success in Prussia* as a plea for the grant of one million of francs, to enforce the same system in France!—*Med. Gazette.*

A British resident in Hamburg states, that "Experience has proved the Quarantine regulations fruitless, embarassing, and expensive. Millions of dollars

have been vainly expended for military cordons on the Continent — all intercourse strictly interdicted, and thousands of the labouring classes consequently thrown out of employment, to arrest the progress of the malady, but all to no purpose. Hence, the Prussian government abandoned nearly the whole of her territorial blockade before the Cholera reached Berlin. The Hanoverian authorities wisely followed this measure, and it was hourly expected the other German states would adopt the same example."—*Times, Oct.* 24, 1831.

"According to the *Journal de Debats,* of the 24th, the Emperor of Austria, in a letter to his High Chancellor, dated Schoenbrun, Oct. 10, and published in the *Austrian Observer* of the 12th, formally acknowledges that he had committed an error, in adopting the vexatious and worse than useless Quarantine and cordon regulations against Cholera, and admits that these regulations have been found, after full experience, to have produced consequences more calamitous than those arising from the disease itself. He makes excuses for still maintaining a modified Quarantine system at certain points, in consequence, as he states, of the opinions still existing in the dominions of some of his neighbours: for otherwise, his commercial relations would be broken off. To secure his maritime intercourse, he must do as they do!"—*Med. Gazette.*

SUMMARY OF THE FACTS.

I have thus attempted to illustrate, by the preceding facts on Epidemic Cholera, each head or principle which I laid down last year, on the general subject of Epidemic Diseases; and if some of my details are scanty, I can only say that I have earnestly sought for all the impartial information I could procure, and wish to press no fact to a prominence that does not belong to it.

Hence, in drawing conclusions from these facts, we may not perhaps have sufficient data, on each point, from every town and city, to warrant a universal induction; yet we have a remarkable coincidence in well authenticated testimony from several.

1. With regard to the weather, &c., we have no particular details, except from Orenburg, Moscow, Petersburg, Warsaw, Dantzick, and Riga: and these shew that there was something unusual. There may indeed have been many peculiarities in other places, of which no information has reached us. One general fact is, I believe, acknowledged, that the whole summer season was unusually hot and dry throughout Europe, as it was in England. The insects at Moscow, aud the swarms of locusts swept away by the rains in Arabia, the long prevalence of easterly winds, the mortality

among animals, fishes, and domestic fowls, and the great heat, are to be noticed. I am quite aware that nothing can be inferred from the phenomena of the weather, &c., in regard to its actual connection with the Epidemic in any place. We must acknowledge that these phenomena are very various. All that can be said is, that they point to indigenous, unusual, circumstances, and ought not to be overlooked.

2. On the state of the reigning diseases, we find, that, in many places, stomach and bowel complaints, to an unusual extent, preceded or accompanied the malignant Cholera in its progress, as was the case in Sunderland: that at Warsaw, the Cholera superseded, and again gave place to, Intermittent Fever: and that in other places, though the fact is not specifically announced, it must have suspended, if not included under its name, the mortality from other diseases, because nearly all the deaths are referred to Cholera. It therefore appears, in most places, to have been the concluding disease, which carried off those who had been labouring under other debilitating maladies; and hence, in few places did the presence of Cholera increase the average mortality. For we may observe that, as there was a universal tendency to that complaint at the time, in all who were debilitated by any cause whatsoever, other mortal diseases assumed, towards their termination, the symptoms of Cholera, consistently with the general observations of writers on the Plague, that whatever disease appeared during the Plague, it turned to that form of disease; and, in this way, these diseases came to be included

under the head of Cholera, in the bills of mortality. It is evident, the mortality would become more remarkable, if *one* form of disease appeared to produce it, than if ten or twenty different diseases were united to cut off the same number: and on this ground there would be room for much public misapprehension. In point of fact, it was not, in many places, so much a pestilential visitation, as a different and unusual mode of filling up the ordinary amount of human mortality. The usual autumnal Dysentery in the city of Vienna, which the inhabitants scarcely ever escape, was, this year, *merged* in the Epidemic Cholera.

3. As to the character of the disease itself, there appears to be no exception to the rule, that it was severe, and generally fatal, at the beginning, and mild and manageable at the decline, of its prevalence, in every place; and that its duration, *as an epidemic*, seldom exceeded two months. Sporadic cases seem to have occurred in many cities for some time after.

4. On the subject of its usual victims, and of the localities in which it seized them, there is one universal testimony, that they were the poor, ill fed, and wretched; and that it broke out in the low, confined, filthy places, in which the population was most dense. In addition to this, it seized some who, though living in better situations, were intemperate, or dissolute, or exposed to fatigue, and otherwise debilitated or depressed in mind. But it affected few others of the better classes, living in clean and airy dwellings. Under all the varieties of medical treatment in almost every country, about one half of those attacked with

the disease died, by far the greater proportion of fatal cases being at the beginning:—a very extraordinary and inexplicable fact, if we consider the uncertainties of human intercourse, on the principle of a fortuitous, contagious transmission, but in some degree reconcileable with the notion, that the most predisposed should be the earliest and the principal victims.

5. On the head of evidence on the subject of Quarantine regulations and armed cordons, it appears, that these measures were found to be not merely expensive, and totally inefficient for the designed object, but highly injurious and vexatious: so that Russia as well as Austria and Prussia were compelled either, in great measure, to abolish, or else to modify them; under a considerable degree of apprehension that, even in those despotic governments, the people would have been roused to insurrection, had the regulations been continued.

GENERAL OBSERVATIONS

Though it is foreign from my purpose to say much on the controverted point, whether the Epidemic Cholera is contagious, I can scarcely omit to notice some of the leading circumstances on both sides of the question. And if there be one subject more than another, in which it is necessary to exclude fear, and fancy, and prejudice from the mind, it is that relating to contagion. For, until these are excluded, neither the first narrator can make a true report, nor the physical inquirer an honest search, nor the writer a faithful record. And whatever author, with the best intentions, is at the mercy of all these, already prejudiced to their own particular views, in vain can he hope to convey authentic information, much less to spread the truth, if his reader is not also prepared to receive it with a mind equally unbiassed.

There is such a disposition among medical men to adopt an exclusive opinion, on one side or the other of this question, that they will neither make terms with their opponents, nor with any who do not go as far as themselves. In short, they will insist either that the Epidemic Cholera is entirely propagated by contagion, or entirely atmospherical. And, seeing that *eye-witnesses*, or, more properly, observers on the spot, give us contradictory statements in regard to

the same event; those who are at a distance are the more at liberty to canvass the subject, according to the best evidence they can procure. Without prepossession, therefore, it would seem reasonable to conclude, that, when both parties carry their opinions to the extreme limit, they are wrong, and that both have some truth in them.

Pestilence, now, as formerly, "walketh in darkness." The prophet's declaration is confirmed by the testimony of ages. This obscure and insidious march is its peculiar characteristic. If we were able to trace an unbroken chain of morbid communication from man to man, we should disrobe it of that quality which it has possessed in every age of the world. Its approaches in every place are still dark and invisible. If pestilence, in every form, may be considered to be one of the Almighty's judgments, are we to regard our fellow creatures, in almost every case, as the instruments by whom the judgment is carried into effect? Does the Sovereign Ruler make use of none of his natural agents for this special purpose? Can we place war, the effect of moral disorder, and mutual crimes, and bad passions, in the same category with pestilence, the effect of physical disorder, and often of the abuse of natural things and natural blessings? We know that famine, and drought, and caterpillar, and blight, and mildew, and the offence of local filth, and pestilence, have been united, in former times, to complete the series of Divine judgments. Why should they not in the present? The following is a striking illustration: "I have given

you....*want of bread* in all your places.....And also I have *withholden the rain* from you.....I have smitten you with *blasting* and *mildew:* when your gardens, and your vineyards, and your fig trees, and your olive trees increased, the *palmer-worm* devoured them.....I have sent among you the *pestilence,* after the manner of Egypt.....and I have made *the stink of your camps* to come up into your nostrils: yet have ye not returned unto me, saith the Lord." *Amos* iv. 6—10.

But I am aware that this is a physical inquiry. And while I treat it as such, I cannot shut my eyes to the existence of laws, which, whether we consider the origin, progress, or decline, of pestilence, are alike mysterious and incomprehensible. Well may it be said, in relation to these laws, that "his judgments are unsearchable, and his ways past finding out." Is this the reason why human inquiry has been so often baffled in the search for an outward, or tangible source of pestilence by means of contagion—why supposition has so often passed for reality—and why uncertainty, discord, and error, have so universally taken the place of system, harmony, and truth?

Except some of those laws or ultimate facts which I have attempted to trace, almost every general principle that has been set up, theoretically or practically, in relation to it, is overturned by the phenomena of this Epidemic. When a series of observations might have led us to suppose that we had established a rule, that rule has been broken by the capricious

or eccentric movements of this distemper. Hence arises the difficulty of forming any scientific conclusions. But it is remarkable that every thing we are permitted to know of its laws, teaches us lessons of practical utility. And all that is concealed can have no other effect upon a religious mind than to make us adore the Being who in all his judgments remembers mercy. We cannot form the most imperfect idea of the physical operation of that law which limits its duration. But, without presumption, we seem enabled to discover, in the progress and ravages of the pestilence, some of the *final causes* by which instruction and warning have been conveyed so extensively to all classes of society, already in parts of three quarters of the globe.

If we say that Epidemic Cholera is a disease of warm seasons and climates, we know that it has appeared in winter, and in high northern latitudes. As to the weather and country, it has respected no rule, but has allied itself to the most opposite extremes: for it has prevailed, in drought and in rain, in storm and in calm, in cold and in heat, in high grounds and in low, in dry soils and in moist. Do we assert that it is universally epidemic, and the cause of it entirely in the air? It spares multitudes, and appears also, in some cases, and under peculiar circumstances, to extend itself gradually from man to man, and from place to place. Do we say that it is contagious, and depending on contagion for its diffusion? It has sprung up in numerous places where no contagion could be traced by the most diligent inquiry. Do we

maintain that sanitary cordons have defended cities against its invasion? It has fallen upon many which were vigilantly watched in this way, and has spared others which kept up regular intercourse with those already attacked. Towns, that were near and took no precautions, have escaped its ravages, while others at a great distance, that thought themselves secure, have been visited by the calamity. The fearful it has pursued, and the bold it has respected: it has reached the selfish in their seclusion, and has couched at the feet of the humane, who, with minds warmed by active benevolence, have made themselves familiar with its den of horrors.[6]

Yet, with all its anomalies, or natural deviations, it has been true to one moral code. It has released from their misery, thousands of the wretched who had none to help, and has been the scourge of the disssipated, whom no preacher could correct. It has sounded an alarm from one kingdom to another, in a language all may understand, and with a universal effect none could have imagined possible from such a cause.

To return to its natural appearances, it remains still to be the fact, that the beginning of Pestilence is insidious. As no individual can positively say, 'who has been the smiter;' so no particular city can say, 'what outward cause has smitten.' Though many hundred towns and cities have been subjected to the ravages of this disease, each, it is to be presumed, has been the scene of doubt; and conjecture has always been more active than the herald of truth, in making

a record of the invasion. It would be a strong proof of the power and communicability of contagion, if any one case of transmission could be brought forward, so marked in the beginning, as to produce the Epidemic, in a place where no signs existed before, *and where the common diseases maintained their usual course at the same time*, and clear enough both to admit of no doubt, and to be recorded as a true event by the local authorities: but I have looked in vain for such an instance.

I shall advert to the appearance of the disease in a few of the principal cities.

With regard to its origin in Orenburg, the authors of the French Report (p. 108—114) show clearly that there was no evidence at all to prove its introduction either by the caravans from Boukaria and Khiva, or by the neighbouring hordes of the Kirguis. It broke out in a common soldier, who was attacked in the garrison on the 26th of August, 1829. "And for some time after it appeared (see Edin. M. & S. Journal), the physicians there not only did not entertain the notion that it was contagious, but encountered many facts, which appeared to them incompatible with this opinion. As the Epidemic, however, increased, " some were staggered in this opinion, and a few became decided contagionists." This, we may conclude, would probably be the case in every large city, at the height of the disorder, when numbers were ill at once, and many in a family.

Dr. Jachnicken states, that "minute research established incontrovertibly, in Moscow, that the disease

was not imported into the capital, but developed itself spontaneously." And Dr. Walker, though he seems to discredit the account, says, that the physicians at Moscow certified "that a strict investigation had been made into the four first cases; and it was proved that they had neither themselves been in any infected place, nor had communication with any one coming from such a place." I observe that Sir W. Crichton calls in question this statement, without giving us any thing but supposition in its stead.

Notwithstanding the interposition of a triple cordon, and the observance of strict quarantine between Moscow and Petersburg, the disease insinuated itself among the poor of the latter city in the manner already stated; and Dr. Gibbs, of the Naval Hospital at Petersburg, says; "I have every reason to think, with other medical men of my acquaintance, that it is an epidemic, not contagious, but acting on the predisposition, habits, and constitution of the persons so predisposed."—*Edin. M. & S. Journal.*

In Berlin and Vienna its origin was equally obscure and unaccountable.

Chamberet, of the Warsaw Medical Commission, says, that "it broke out in Warsaw on the 10th of April, after the great battle; but that weeks and months *before this* it had prevailed sporadically in the country—that one physician noted three cases, and that of nearly one hundred physicians, French, English, and German, about the sick in Warsaw, none suffered from the Cholera."—*Med. Gaz. Oct.* 29.

A plausible story was circulated in regard to its

origin in Riga; but we are informed in an official document, signed by Rolsenn, the chief magistrate, addressed to the editor of the Prussian State-Gazette, that "it has by no means been ascertained that the Cholera found its way to Riga from the interior of Russia, through the channel of the river navigation. So far from this, *the cases of illness on the breaking out of the Cholera*, in the opinion of the medical board, lead to the belief, that atmospheric and other local causes have generated and developed the distemper here in the place itself."—*Times, July* 11.

"It remains a problem to this day, in what manner the Cholera originated in and about Dantzick. It is corroborated by the statements of several physicians, *that cases similar to Cholera had been observed previous* to the arrival of any vessel from Russia, and that the weather had been so remarkably unsettled since the commencement of spring, that malignant disease might be reasonably anticipated. The two first cases were on the 27th of May. It spread without any marked order, from personal contact or proximity, in low, damp, and dirty or close situations, all over the city, among the destitute and poor." — *See Dr. Hamett's account in the Med. Chir. Rev., Jan.* 1832.

Dr. Baum, physician of the Town Hospital in Dantzick, says, that the disease made its appearance in that city, without communication with any unhealthy place. Five physicians were in favour of its contagious property, twenty against that opinion. — *Ibid. p.* 319.

By all the abortive attempts to trace the origin of this disease from a distant source, and to control its progress, we may be reminded of the ancient language: "May one turn again the arrow, that is shot of a strong archer? The Mighty Lord sendeth the plagues, and who is he that can drive them away?.... Behold, famine and plague, tribulation and anguish, are sent as scourges for amendment." — 2 *Esdras* xvi. 8. 19.

I have observed, that two or more different sources or channels have sometimes been announced, as the means by which the contagion of this disease has been brought into the same place, and each source circumstantially reported. If we may credit the narratives, too, in some late histories of its progress—and all the dates of its invasion may be correct, though each channel of transmission might be a fable—the route it has followed from India to Russia in the last fourteen years, is given, with a most extraordinary precision: so that the mystery of its contagious flight seems lost in the plain and undisguised character, which it is said to have assumed, in its course from one mass of people to another. I have now ceased to wonder at such statements.

We know that there is a considerable degree of doubt in this country, at the present time, whether contagion was introduced, as the cause of the Epidemic: but, from city to city, in the East, and from country to country, with a distinctness — not proportioned to their nearness, but to the distance from us— through jungles and deserts, over mountains and

sandy plains, along the borders of the Indian Ocean, and from one island to another, the contagious intercourse is traced with most imposing detail of circumstance! And, its sudden starts,—its retrograde and zig-zag courses,—its movements with armies, pilgrims, caravans, and barks, along roads and rivers,—its entrance into cities, sometimes with the crowd, and sometimes by the lonely stranger,—and its easy repulse by the bayonet or the garden wall,—these narratives record with a very plausible show of accuracy! They tell us, in short, the way in which the contagion, in other words, the disease, found entrance into the cities it ravaged, and the consternation it produced; but they are silent upon almost every thing it is important, in a scientific and statistical point of view, to know, such as, the preceding and existing state of the weather and seasons,—the state of the reigning diseases,—the state of such cities, and their ordinary mortality,—the situation and diet of the poor,—the course of the disorder in its beginning and decline;—besides overlooking the singular law assigned to the spread of the disease, and the sudden extinction of all *contagious* power at the moment when its sources were incalculably multiplied.

Some warm advocates of contagion do admit, that the disease arose spontaneously in the Sunderbunds, or Delta of the Ganges, in 1817, but seem disposed to assume that it has been propagated by contagion every where else, since that time. Another thing is also assumed, that one form of Epidemic Cholera is contagious, and another form of it not contagious:

making some supposed specific difference in the disease necessary, in order to account for facts, which difference in outward circumstances might explain sufficiently.

Another opinion, which is somewhat novel, and goes half way between the notions of the contagionists and the advocates of atmospherical impurity, is *that* of near approach to a contagious source being not necessary, in order to produce the disease, and "currents of air passing through sources of infection," accomplishing this end without it. This hypothesis serves extremely well to explain any doubtful case of contagious transmission, and to give an ampler range to the doctrine. But, as to practical purposes, it seems to stand very much on the same ground as the doctrine of a vitiated atmosphere. For, a contagion that may be wafted by currents of air ten yards or a hundred, may be wafted twenty times as far; and is, therefore, as unlikely to be restrained by any human precautions, as a noxious atmosphere universally pervaded by a pestilential virus: of which latter opinion, the phenomena scarcely afford a satisfactory proof, if we consider the confined and filthy haunts in which the disease mostly appears and spreads.

For, the unknown change in the atmosphere, whether arising from miasmata evolved in a more intense degree than common, from damp and marshy grounds, and the borders of rivers, or from some mephitic vapours emitted from the bowels of the earth in certain places, or from sudden vicissitudes in the state of animal electricity, occasioned by unusual alternations,

affecting the body, more particularly, under circumstances of impoverishment;—whatever it is, which, in, or before, a pestilential visitation, produces so much general indisposition among the inhabitants of a place, yet which, in its concentrated degree, so many are enabled to resist,—seems scarcely entitled to the appellation of *atmospheric corruption* or impurity, that has been assigned to it by some philosophers. Each of the preceding views has its supporters; and there may be some analogies to favour each. But, the state of darkness in which the subject is involved, leaves little room for any thing but conjecture. And to contend with eagerness for an hypothesis, where so little is known, is to pursue an *ignis fatuus* before us, as if it were a steady light. The last opinion, however, respecting the operation of electricity, seems to claim some notice. This pervading principle may have various degrees of injurious and hidden effects on the human body, as well as on those of animals, besides that of its sensible or manifest operation in a thunder storm, when it destroys life suddenly. It may also modify the hurtful agency of other things, such as a long course of very unwholesome diet, either in food or drink, and the chronic influence of confined and vitiated air. We know little medically of its power. As a therapeutic agent, and highly diffusible stimulus, in a sensible form, its effects in the cure of some diseases are acknowledged; but its secret and undermining effects in *causing* disease, are entirely unknown.

It is very generally supposed that the *malignity*

of the disorder, evinced by its quick and fatal stroke, is from the virulence of a poison, either primarily in the air, or in contagious effluvia from the body. But, if we argue upon one supposition or the other, we can scarcely come to this conclusion. For, if we take into consideration the facts, that, on the first hypothesis, a general or purely epidemic cause produces numerous cases of very slight indisposition, as well as the fatal ones; or that, on the second, a contagious fomes produces a multitude of very mild attacks at the same time with the severe; we are scarcely warranted in drawing the inference that a virulent poison operates in either case. So far, therefore, as I can judge, we have reason to conclude, that the human body itself is chiefly in fault, and that there is actually a state of *predisposition* 'nigh unto death' in some, at the very time the *visible* seizure takes place.

We must acknowledge, that *predisposition* is a word very often used on these occasions, which *seems* to be well understood; but which covers our ignorance of many things relating to this subject, and blinds our eyes, if I am not mistaken, to the real state of the case. Although we have no other name than *predisposition*, for that state, to which the bodies of some are brought, in a season of epidemic pestilence; and although we cannot term it, from outward signs, actual disease; yet, in point of fact, it is so closely on the verge of disease—and that too a quick and fatal one—that a very slight exciting cause is found to be sufficient to extinguish the feeble spark of life. In this view, and in relation to such cases, *predisposition*

can mean nothing less, than a state of the constitution, harassed, exhausted, and almost undermined, by a train of previous circumstances, which may have been some time in operation.(7)

With all our ingenuity, therefore, we cannot make *predisposition* a condition of the body of little importance—a mere *proclivitas ad morbum*—in which, no system of structure, nor any one of the functions, is at all impaired. It is the handle, upon which, both the contagionist and his opponent rest, for the propagation of the distemper. When it is intense, it easily invites the pestilence; when it is worn out, or does not exist, it bids it defiance. It is strong in all those who are weakened; and it is feeble, or entirely wanting, in those, who are blessed with the means of adequate support, and with the prudence not to abuse them.

Surely, then, when a multitude of human beings are in such a state, that any of these exciting causes, —fear with one, cold and moisture with another, fatigue with another, excess, or weakness of any kind with another, night-watching with another, *the application of a contagious virus with another,*— is sufficient to bring the latent spark into a sudden flame; it must be an abuse of language to say, *that there was previously a state of perfect health.* And, so far as we can judge from the facts, the last of these exciting causes, or *contagion,* seems to act the same part, as any of those preceding it, in an epidemic constitution. But, if a state of predisposition, like that which has been noticed, be nine-tenths of the diseased action, and if all must be brought to

this state, during an epidemic constitution, for contagion to operate upon them (supposing contagion to be the *sine qua non*); then we have a curious picture of that singular adaptation, or physical agreement, according to which the *constitutions* of the people, of one country, meet the contagious virus of a disease from another! — a coincidence that I take to be unnatural and improbable. Besides this, we know, that predisposition, like a state of actual disease, if we give it time, will wear itself out; and the time it takes to wear out, is precisely the time when the contagion loses its power and takes its departure! So that, when predisposition disappears, as at the decline of an Epidemic, contagion disappears with it; just as, at the commencement, without the former, the latter must be considered a non-entity, at least, as to its effects. I say nothing about the notion, that the contagion of Cholera may be retained in merchandize, so as to constitute a *fomes* for spreading the disease; because it it is built upon the most vague supposition. It is difficult to draw any other conclusion from numerous facts, on such a theory, than that predisposition and contagion *come and go together;* as if there was a closer alliance than the advocates of importation would be willing to grant! As to those *contagions* which are palpable, and often sporadic, we cannot draw such conclusions.

The idea has been suggested, and supported with considerable ability, in several works, that the Epidemic Cholera, in its course, has followed the great channels of human intercourse, in the lines of the

navigable rivers and the high roads, as a proof that contagion was the sole propagating medium.

This is an imposing argument, and, if the facts be true, it should have its full weight. But when we come to speak of the great channels of human intercourse, between the cities of the East, most of them being centres of communication in various directions, it is much more easy to believe the story than to prove the fact. A period of fourteen years, since the malignant Cholera broke out in Jessore, affords an ample space of time for extensive and frequent mutual intercourse between the chief cities of the East and other parts. In that lapse of time it has appeared and disappeared again and again. Why it did not follow the great channels of human intercourse at an earlier period, and why it has made a steady progress westward within the last few years, are questions not more easily answered, than why it assumed uncommon virulence at Jessore, or why it has not also taken a course *eastward* in the last year. If an explanation be good and sufficient, it should be applicable to similar cases. And if I am told that contagion travels westward and produces an epidemic disease wherever it comes, but does not travel eastward nor produce an epidemic in that direction, I am at liberty to doubt the first position, so far as the question of contagion is concerned, unless a good reason be assigned why the disease should not spread towards many parts of the east and south that have been left untouched: and no such reason has been given. If I am asked, then, why an epidemic disease

should diffuse itself so gradually in a particular direction, if contagion were not the medium, I answer that, for centuries, the same thing has often been noticed in the career of an epidemic pestilence; but that I know nothing of the cause. All great epidemics have affected some particular geographical direction; such as, the great plague in the reign of Justinian, and the black pestilence of 1348, and the English sweating sickness, that was months in Shrewsbury, but staid only three days in Amsterdam, attacking 500 in a night in that city. The phenomena of the progress of these and similar diseases, not excepting the plagues of former centuries in Europe, and the yellow fever in America, appear to be inexplicable by any knowledge of natural agents hitherto attained. But, I believe, a similar remark might be made of the progress of those epidemics, when there were no cordons and quarantine laws, and of the uncontrolled progress of modern plagues, when these laws are enforced, to what Dr. Russel made, in his Treatise on the Plague of Aleppo, as to their *decline*, that "there was no observable difference in the manner of a plague's termination, in cities where purification was practised, and where it was not:" so it appears, that there is no material difference, now, between the progress of a pestilential disease, in countries where there *are* quarantine laws, and where there are *none*, other circumstances being equal.

Every one must perceive, that contagious intercourse, taken by itself, and considered as a mere casualty, should obey no law, and observe no order

in its manifestation. The points of the compass can have nothing to do with the humours and the objects of men; who are continually moving, in all directions, to parts of the world both near and distant. Therefore, if contagious intercourse were the sole propagating cause of a pestilential disease, one mile, or a hundred, or a thousand, or a northern or southern climate, or a mountainous situation or a low, or an airy dwelling or a confined one, would make no difference. But we should have fitful and uncertain appearances of pestilence starting up in various places, without any warnings of its approach; and we could look for no limits, either to its duration, to its malignity, or to its class of victims, nor for any change in the state of the reigning diseases. Are not all the phenomena of an Epidemic Pestilence opposed to these reasonable suppositions of the natural course of a contagious virus? Providence has been mercifully pleased to order these things better, than either human fear or human power is accustomed to calculate upon, in the present day. For, fear runs as far to the extreme of caution, as power to the display of its impotency,—what if I say, its occasional cruelty; while, in the mean time, true internal policy, which might effect much, in the way of prevention, is disregarded — too much so, in every civilized country in the world.

When we consider, how much a predisposition to a widely-diffused epidemic, has to do in preparing the body for any one of the exciting causes, such as fatigue, night air, cold and moisture, and excess of

any kind, we cannot wonder that such a disease should follow the march of great armies, and should appear especially in the line of the great thoroughfares of human traffic. But, as ships to all parts of the world must have sailed from India and China, in 1817, and in subsequent years, with sailors and passengers, more or less predisposed to the Epidemic Cholera, when there was no restraint upon their landing in different ports of Europe and America; and as many travellers by land must have left the ravaged cities, bound for places situated in longitudes far to the westward of the confines of India, Persia, or Asiatic Russia; surely, if contagion *alone* could have propagated the distemper, then, amongst the thousand casualties by which it might have been conveyed, some one or more would have planted it in these parts of the globe, instead of that slow, and, with all its irregularity, systematic progress westward, which has occupied nearly fourteen years.

From the circumstance just noticed, one might be led to believe that, in some tracts of the air, a kind of *leavening* effect (if I may so speak, for want of a better knowledge of the peculiar state of the atmosphere of climates traversed by this disease, and favourable to its diffusion,) is actually produced, according to some unknown laws. If others can prove that contagion is this leavening principle, I cannot say that I should be rejoiced, because I am sure we should all run greater risks than we do: but I should be glad to congratulate science on the establishment of truth, in whatever way the great

object might be attained. Of one thing, however, I am assured, that if contagion does act in this way at all, other causes act in combination with it, so powerfully and invariably, yet in a manner so entirely hidden, both relating to the body and the state of the air, as to constitute a fit subject for scientific research; because, such causes impart to contagion (upon the supposition,) all its efficiency. A complaint, therefore, like the Epidemic Cholera, which, in its malignant form, as it has appeared in Europe at least, in many cases, seems to *creep rather than to fly*,—though, in other cases, it may deviate from this law,—and which selects crowds, filth, poverty, and confined air; must be viewed in its career with reference to these its habitudes, if we would form a true estimate of the course it would naturally take.

It must have victims of its own selection, and these predisposed or prepared to receive it. It must have them also in its own way, and in the situations where it lurks for them: for, Pestilence knows both its prey and its hiding place. How, then, or where shall it find them, but where the predisposing causes have been acting, where low living has been undermining the bodily vigour, where filth has been contaminating the secretions, where multitudes are collected, and where miserable crowds have been breathing together and vitiating the confined atmosphere; and, more especially, where some general cause, atmospherical or dietetic, has been acting extensively upon the community?

And, surely, it is not in the unfrequented town, or

the quiet thinly-peopled village, that we should expect to find such scenes and such victims, in the first instance, but in the most populous cities, where wealth and poverty are in extremes, and where misery, and vice, and hard labour, are breaking down the strength of the poor. And where are such cities placed, but in the great channels of human intercourse,—on the sea shore, — on the high roads of the interior, — on the banks of the great navigable rivers? And, without insisting upon the fact that the Epidemic Cholera has been known to creep along the course of rivers *not* navigable, visiting towns or villages in succession; what situations of all others have been found most unhealthy, but cities near the mouths of great rivers, where fresh and sea water are mixed together on the marsh or slimy ooze, or along the low banks of the great rivers in flat countries;—situations, that pestilence, in every age, has been known to invade, when extraordinary circumstances have developed its causes?

In many of the recorded instances of a supposed transmission of the Epidemic Cholera, from one place to another, by contagion, no clear information, as I observed before, has reached us, whether those, who were thus visited with the disease, were not themselves already under the Epidemic influence, or on the verge of it, in consequence of other causes, at the time the intercourse took place. If statements, in Europe, to this effect, are liable to much misrepresentation, as has been proved, surely, statements in Asia,

are also liable to the same, where, we may conceive, fears would be more predominant, among the natives, than a cool and deliberate spirit of inquiry.

In respect, however, to strangers entering cities or camps, in sickly seasons, it has been observed, that they are liable to be attacked with disease from two causes.

In the first place, it must be unnecessary to remind any one of the influence, upon all strangers, of the swampy shores of Sierra Leone, or the oozy banks of the Senegal, Mississippi, and other great rivers in hot climates, in the sickly season. Now, it frequently happens, when an epidemic influence, or tendency to some particular disease, is impending over a city, town, or camp, in any part of the world, that strangers, entering such place, are the first to be susceptible of it, though labouring under no disease before, whether coming from sea after a long voyage, or by land from a distant country. I am aware that the case appears to be sometimes reversed, and that strangers, entering a place already attacked with an epidemic pestilence, having themselves a difference of constitution, and therefore a want of predisposition, remain quite exempt, though maintaining intercourse with the inhabitants: but the two cases are not parallel. When, therefore, we contrast the purity of sea-air, and that of the country, except in marshy districts, with the air of the town, we cannot wonder, that persons should often suddenly fall into disease, when they come ashore, even when there is no great degree of local or atmo-

spherical impurity, and that the confined air and filth of a town, or a crowded encampment, should subject such individuals to disease.

Secondly, strangers, whether soldiers, travellers, or sailors, may have been subjected to some epidemic influence in distant parts, a considerable time before their arrival among others; and we well know, that the constitution will often retain for many weeks, or even months, a morbid tendency from such a cause; so that, the fatigue of travelling, different modes of living, and even a different kind of air, may be sufficient to develop a disease that has been thus latent, especially, if diet, in the mean time, has been deficient and unwholesome.

Let us now consider the consequence of the visits of strangers under these two circumstances.

In the first case, although the strangers are first attacked, and from an obvious cause, yet they did not bring the disease with them, though they *seem* to have imported it. In the second, the disease certainly dies with those who brought it, unless there exist, at the same time, a predisposition on the part of the inhabitants, induced by causes, which are sufficient both to originate, and to propagate the same disease.

Each of these two cases might afford a plausible argument on the side of contagion; and yet both may be explained on other principles.

Where facts, of a seemingly opposite character, are presented to us, there must needs be difficulties in establishing principles in science. Let us look at the difficulties which occur, according to the doc-

trine of a specific contagion, as the cause of the Epidemic Cholera, although, at first view, it appears to afford the readiest answer to the question of its origin.

It seems to be matter of fact, that the epidemic tendency, in most of the large cities, which have been lately visited, was to vertigo, nervous debility, and stomach and bowel complaints, such as nausea and vomiting, with diarrhœa, &c. before, and at the time, the Cholera, in its malignant form, appeared; and it might be supposed that a preparation was thus made, as it were, for the reception of a contagious virus, and for the invasion of this pestilence; which seems directly to affect these same organs, but with greater violence. It is not, however, easy to understand, how the presence of an exotic contagion should interfere, in so singular a manner, with the native or vernacular diseases of any place, as nearly to extinguish them. And, supposing that, by its diffusibility in the atmosphere of any place, it could produce this effect, it is still more difficult to understand, on the principle of contagious transmission, how it should be limited as to the sort of victims,—limited as to duration, —limited as to its degeee of fatality,—and, finally, as completely extinguished, as if it had never existed. But another difficulty also presents itself, how a pestilential contagion, which has become so mild as to lose all its power over the inhabitants of one city, in which it is on the decline, should commence its ravages, in another, with all the fury of an original invasion. According to my own modified,

and I hope not incorrect, views of the doctrine of contagion, in which I regard it only as a subordinate power, acting chiefly on those predisposed, and not by any means the sole cause of epidemic pestilence, I see few difficulties, compared with those of the *ultra-contagionists* — if, without offence, I may so designate many candid and zealous medical observers. I am in truth not able to reconcile with that unity of purpose and of operation, which may be noticed in most of the phenomena of nature, such an extraordinary preparation in the indigenous circumstances of one country, and especially in the state of its reigning diseases, for the reception of a foreign poison; which foreign poison is to follow the same laws of beginning and decline, to attack the same sort of victims, to change from severity to mildness, to lose its power and to revive again, in the same way, as in the country of its acknowledged birth.

In regard to the possibility of the preparations or phenomena in one country, coinciding exactly, as to time, with an imported contagion from another, it cannot philosophically be denied. Yet if a state of predisposition makes up nine-tenths of the epidemic malady, (for if this be absent there can be no pestilence,) it is easy to see how much stronger the arguments are, in so doubtful a case, for the entire domestic origin, than for the foreign. In the first place, the course of the reigning diseases is changed by it; in the next, the contagion, or the malignity of the disorder, is positively extinguished by some

domestic causes; and, in the third, the people lose their predisposition. Now these are all indigenous operations. And though, added to them, there is strong probability that the disease itself is also indigenous, from the perpetual doubts about its origin in every place; yet, many involve themselves in inexplicable difficulties, rather than give up the idea of a foreign germ of contagion, as the sole cause of all these various, complicated, and *coinciding* phenomena. Let us add to this, that it is not in one instance or in a hundred only, that such a marvellous *coincidence* must have taken place, in the late career of the epidemic, but in a number of instances, falling not very far short of three thousand.[8]

It is very true, as was observed before, that we are obliged to take some of the phenomena of an epidemic pestilence for granted, as ultimate facts, of which no explanation can be given. All that we can say is, that the Provident Intelligence which presides over, and controls, natural and moral evil, has fixed limits to their destructive power; and these limits are laws which are hidden with the Sovereign Ruler himself: that man may adore the mercy, while he trembles at the power, in his utter ignorance of the cause.

Let us look at the fact, that, in almost all the places where Epidemic Cholera appeared, most of the deaths were by Cholera; and yet, in many places, all the deaths scarcely exceeded the ordinary mortality. If we suppose that human vigilance, by means of sanitary cordons, &c., could have excluded

this destroyer, what then would have been the result? Either human mortality would have taken the usual course, or it must have been diminished by some very extraordinary combination of circumstances. It is very clear that human vigilance of this kind could have nothing whatever to do with either of these two cases—in arresting, for example, the ordinary course of mortality, or in producing an extraordinary combination of circumstances.

Can we suppose, then, that the want of human vigilance, in other words, a violation of the quarantine laws, by permitting the introduction of a foreign contagion, *allowed* human mortality to take its usual course, at a time when domestic causes would have otherwise produced a remarkable exemption from the ordinary claims of death? I am disposed to think that the same combination of circumstances, which produced the predisposition in individuals, whether the poor or those debilitated by previous maladies, and the general tendency to the disease, in its mitigated form, in the whole community; subjected the former class to that aggravated and fatal invasion of the complaint, which carried off so many individuals as compensated for the slumber of other fatal maladies, such as typhus fever and the ordinary epidemics.

So much confidence do I place in the truth of these principles, that I have no doubt at all, if any city or country, which has been in the line of devastation this epidemic has pursued, and has, not-

withstanding, escaped its ravages,—unless it escaped them by some peculiar advantages of situation, or of diet and other comforts,—had we accurate reports from that city or country, we should either find that some analogous distemper had prevailed, or some other epidemic had for the time supplanted it. It is only by comparisons and researches such as these that the light of science can be thrown on this obscure subject.

We are apt to congratulate ourselves more than we ought, in the idea of possessing the power to arrest the course of human mortality. Unless the rules of temperance are strictly applied, in all periods of life, this does not appear to be the case. It has, for instance, been generally conceived, that the substitution of vaccination for the small-pox, has added much to the population of this country. But the fact has been ascertained, by careful registers in some places, that if the plague of small-pox has spared the young, other plagues of infancy, such as measles, scarlet-fever, and hooping-cough, carry off so many more than they used to do, as nearly to make up the deficiency. Where the seeds of debility are planted in the frame, and the constitution is undermined by any cause whatever, it seems to be of little consequence whether one form of active disease, or another, concludes the struggle of life. If there be real innate vigour in the constitution, it will survive the malignity of small-pox contagion, as well as that of measles, scarlet fever, or hooping cough; and if

there be not this vigour, any one of the ordinary diseases of childhood may be sufficient to cut down a feeble plant.

Applying this reasoning to the case before us, it is highly probable, that many, whose deaths have been registered under the head of Cholera, would have died from other diseases, unless we suppose that the rate of mortality, in different places visited by this Epidemic, could have been arrested, had no Cholera prevailed; which is an improbable supposition. The victims were, the poorly fed, the miserable, the dissipated and intemperate, and those who were debilitated by previous diseases. Now, it is well known, that the best means of resisting the Cholera, for those who had still the energy of life to sustain them, were sufficient food, temperance, sobriety, and gladness of heart, with cleanliness and pure air. And, with respect to the influence of other diseases, there can be no doubt that these, in different forms, would have acted their part in destroying life—not perhaps in cutting off precisely the same individuals — such as ordinary fever, dysentery, inflammations of the liver and bowels, and acute diseases of the brain or chest, besides the various classes of chronic affections, if the epidemic tendency to Cholera had not suspended them, in the different countries which it has lately visited.

The malignant Cholera agrees with other forms of pestilence, in the curious fact, that at the commencement of the Epidemic, when the proportional mortality is greatest, the indications of contagious property

are most obscure; because it was observed to be rare for more than one individual of a family to be attacked at that period, though surrounded by many attendants.

Upon the whole, it appears to me, that, if we entirely exclude suppositions, by far the strongest arguments lie with the anti-contagionists. Yet, I conclude, that, with such a number of statements on the other side, it is a just and necessary inference, that individual cases of the disease have arisen, in each *infected* town, in two ways: First, sometimes by transmission, or contagion, *always in a predisposed state of the body, in a fit locality, under epidemic influence;* and, secondly, more especially, and universally, by the epidemic influence itself. Moreover, it appears to be fairly deducible from the facts, that where the epidemic influence was wanting, the distemper, howsoever introduced, proved only sporadic or local, and did not, or could not, diffuse itself.

With regard to the term, *Epidemic or pestilential influence,* it is used to express an ultimate fact, of which the proofs are many,—what if I say, a combination of circumstances, — which were formerly referred to one source, and termed by Sydenham, an "Epidemic Constitution," by Russel, a "*pestilential,*" and by Mead, a "*corrupted*" state of the air: but to enter into the inquiry of what it is that constitutes this Epidemic influence, according to the view I take of it, would involve an ample discussion of various and complicated phenomena, not within the scope of my present purpose. In a word, this Epidemic influence seems to include a consideration, of the previous and present

state of the weather, and their united effects on certain individuals; of the state of the body itself as to diet, habits, and previous infirmities; of the state of the soil, whether acted upon by moisture, or contaminated by filth; of the localities and dwellings in towns and cities favourable to the production of vitiated air, and the concentration of animal effluvia; and lastly, of the laws already adverted to, which indicate a progressive movement from place to place, in the whole series of causes, that combine together to make up an epidemic pestilence. It thus includes, a state of the air, of the human body, and of the soil, under circumstances, which display the operation of peculiar laws, that we can only recognise as ultimate facts, of which no explanation, in our present state of knowledge, can be given.

It occurs to me here to remark, that, when we procure accurate histories, from every place visited by this Epidemic, as to the state of the reigning diseases, before and after its invasion, with the ratio of mortality; and, more especially, when we have accurate histories of the state of disease in those places, which, by any chance, have escaped its ravages, being notwithstanding in the line of its career; *then*, we shall be in possession of data of immense importance towards the complete and satisfactory solution of the difficult problem of its real origin. I am conscious of expressing myself with an appearance of doubt upon the subject, as if my own opinions were not firmly established; and I have done so, because I could not expect that others, who may have only formed their

conclusions from the phenomena of this Epidemic, and from a hasty view, should see the subject in the light I do myself, after devoting more than twenty years to an examination of all the most remarkable plagues recorded in history; and, therefore, I would not willingly startle any, by the avowal of an opinion which may be opposed to that of many thousands in the country. For, I wish truth to make its own way: and see plainly that it is of no consequence at all what my own opinions are, except in so far as they support *it*. Yet, if I had any reason to question the truth of the principles which I have adopted, before the Epidemic Cholera made its appearance in Europe, every thing that I have since heard of its laws and progress, would tend to confirm them. And after weighing all the testimony as impartially as I am able, and giving the most mature consideration to the subject in its comprehensive bearings and relations, I am more and more convinced that the causes of pestilence are domestic, wherever it prevails, and that each country and each place has its own crisis.

THE

EPIDEMIC CHOLERA IN BRITAIN.

The Epidemic Cholera, after some warning signs, and many alarms, is now confessedly pursuing its pestilential career in Britain. And, though any historical notice of an event, which is only beginning, as it were, to unfold itself, may seem to be premature, yet a few things have already occurred which are worth our consideration. This pestilence is distinguishing both between places and between persons, as it has done on the Continent. It is disclosing to us scenes of human misery, which might have otherwise long remained hidden, and which, for the credit of our country, should not exist in England. While the poor, and the wretched, and the dissipated are swept away before it, with a quick and awful summons, those who enjoy the comforts of life are generally exempt. But if the selfish and careless are disposed to indulge any self-complacency in this exemption, the thoughtful may well ask themselves, in thankfulness and humiliation, why are we so privileged as to escape from the calamity? And it is right for the better classes to indulge this feeling; for, although Cholera may now spare them, there are forms of pestilence which may reach the affluent, if

they neglect their duties, as well as the poor, who often suffer from faults not their own. It is, indeed, full time that the former should know the real state of the latter; yet it is an afflicting consideration, that the discovery should be made by the medium of so dreadful a calamity.

With respect to the origin of this pestilence in England, doubt is thrown upon it by the first authority in the state, and a member of Parliament, high in office, says, (see P. Thompson's speech, Even. Mail, Dec. 14.) "The doubt which existed, fully justified the declaration in the King's speech, that it was not known, whether the disease was imported from abroad, or had sprung up in this country....From the most minute observation which it had been possible to make, it appeared that every person who was on board the (suspected) vessels, when they left Hamburg, was, on arriving at Sunderland, and remained, up to the time of the last accounts, in perfect health."

In proportion to the doubt and the difficulty of proving the disease to be foreign, is the probability, on the other side, that it is domestic. For all our anxieties, prejudices, and fears, have a natural tendency that way, and enlist every argument, and shadow of a reason, on that side. When we, therefore, look at the very strong assertions, in some medical writings, in favour of its importation from abroad, we cannot but allow that our state-authorities have evinced both their wisdom, and their impartial inquiry, in coming so near the truth, as even *to express doubts* upon the subject.

We have the fact, attested by Dr. Brown, of Sunderland, that Cholera, "raging in all degrees of intensity," so as to excite some alarming apprehensions, had been prevailing to an unusual degree in the town, some weeks before the disease threw off the disguise, and became pestilential. Drs. Clanny and Orton corroborate the fact. The former states that they had their "usual autumnal Cholera," and, in the month of October, "dropping cases of Spasmodic Cholera," one of which, about the middle of the month, exhibited a new character and intensity, that caused him and his brethren to "look about most anxiously for the coming storm."[9] Dr. Brown, in a letter just published in the *Med. Chir. Review*, dated Nov. 10, speaks of "*the insensible gradations*" by which "the autumnal disease passed into the intense form which has produced such lamentable consternation throughout the empire." I need not refer my readers to the histories of the plagues of London, Nimeguen, and Marseilles, for evidence of "the insensible gradations" by which the precursor, pestilential fever, in each place, passed into the true plague.

Official reports from Sunderland state, that for many weeks before any cases of the Malignant Cholera appeared, the prevailing complaints were those of the stomach and bowels, common in autumn; and "the few cases of deaths which occurred, for six weeks before, arose from these diseases." It also appears, that, when the malignant form of the disease had established itself about two weeks, save and except this Epidemic, and its attendants, which were named

in the reports, "Diarrhœa and Common Cholera;" "*the town was in a more healthy state than was usual at that season of the year:*" in other words, their ordinary epidemic, Typhus fever, had nearly withdrawn itself. And it appeared singular, that, at the same time, Typhus fever was announced to be unusually prevalent and fatal in the neighbouring town of Newcastle — a circumstance I shall have to notice hereafter.

We have little before us in regard to any peculiarities in the weather, except that the summer-heat had been great and long continued, as it is well known to have been in other parts of England. When the heat abated in Sunderland, Dr. Brown says, that the cases of fever which occurred, commenced with vomiting and purging, showing the Epidemic tendency to the Cholera *constitution*. But after this period of the season, when Remittent or Typhus fever usually became predominant in the town, the Pestilential Cholera reigned almost exclusively in their stead. Why this Epidemic assumed the new character of a more fatal disorder than it had ever been before, why it has chosen a new season, as it were, on the verge of winter, for its first appearance and malignant spread in this country, and why it has followed, so far, the decided course of an Epidemic Pestilence, amongst a particular class of the community, I cannot attempt to explain. It might seem, indeed, to be a sufficient reply to state, that contagion from the Continent affords the only clear and satisfactory explanation of the case. But, it is evident, that the difficulty is only

removed a step by the supposition. For, as a continuous chain is wanting in many important links, we are driven at last to the acknowledgment of our utter ignorance of the causes of its rise and extraordinary virulence, in the year 1817, at Jessore. And if the causes must be very aggravated, and intense even in a tropical climate, to *produce* such a plague, the circumstances, whatever they be, must be intense to an extraordinary degree, to *propagate* it, in a temperate one, in the winter season. In either view, a field of inquiry is before us, which the patient and impartial observer will have to traverse. For this branch of science is in its infancy; and none other exceeds it in practical importance.

As to the peculiarities in the town of Sunderland for the fit reception of such a visitant — if not for the birth of such an offspring — they are unfortunately too many. Poverty, dissoluteness, filth, and a dense population, in close, ill-ventilated houses, opening into confined alleys, have attracted it there, with a force nearly equal to that of any local causes, that have operated to protract its stay in places where it has raged, in other countries, which are much less favoured in other respects by the bounty of Providence, and inhabited by people far less enlightened.

Majendie, in his report to the Academy of Sciences, relative to his visit to Sunderland, says, that the principal cause of the extensive ravages of the disease may be supposed to be the horrible state of poverty of the lower orders. In the lower town, near the river, containing 17,000 inhabitants, some thousands are in

a state of pauperism. This part of Sunderland, according to his description, "consists of an assemblage of alleys, scarcely four feet wide, each room in which rarely exceeds ten feet square, containing a whole family huddled together day and night"—"forming a picture of wretchedness, filth, and poverty, which he could not have believed to exist, in the present age, in any part of civilized Europe."

It ought, however, to be noticed, that the Editor of the *Sunderland Herald* complains of Majendie's statement being greatly exaggerated, both as to the number of paupers and the nature of their lodging-rooms. I have little doubt that the description is too highly coloured. Yet, with this abatement, there is every reason to conclude that the state of things is bad enough.

A contrast to this, in the same town, is the exemption of those parts situated on the heights, where there are 800 spacious houses, abounding in comforts, "in which scarcely a single case has occurred."

Dr. Daun and Col. Creagh, have both given us their official testimony as to the miserable state of the people; and accordingly we find that "that part of the town where the disease was most prevalent, was inhabited by persons *steeped in poverty*, through dissipation and idleness:—and in thirty dwellings, in a confined space, only two blankets were found for the whole of its inhabitants." At an advanced period of the epidemic, Dr. Daun reports that "the only sufferers, hitherto, have been the aged, infirm, and intemperate." In about nine weeks from the com-

mencement, it nearly finished its career: the deaths being 199, out of 530 cases: or from Oct. 26 to Dec. 31:—a rate of mortality amounting to less than 1200 in the year, in a population of 40,000. And the remark of Dr. Hodges, relative to the plague of 1665, in London, may be applied to this epidemic at Sunderland, that "it did not cease for want of subjects to act upon; but its decrease was, like its increase, gradual."

About the beginning of December, the Cholera appeared epidemically in Newcastle. But so far back as the 26th of October, a very suspicious case occurred, in the death of a man, named Oswald Reay, an engineer, who had been ill previously, and, a little before, had moved his residence from an airy situation in the outskirts, to a confined one in the town. Yet, as the circumstances, under which a disease takes place, seem to have more weight in determining its true character, than the actual symptoms, when the mind of the observer has any particular bias; because the case did not occur in Sunderland, and because no contagious intercourse could be traced, it was reported to have nothing to do with the pestilential Cholera!

Before I proceed further, it is proper to notice the state of Newcastle as to the prevalence of Typhus fever, both at this time, and when the pestilence appeared in Sunderland. And it would seem, from the facts I am to mention, that Typhus fever and Cholera, sometimes are at variance, and sometimes coalesce. But the more malignant the former, the more does it

dispossess the latter: and the milder it becomes, the more they coincide. The fact is, that Typhus fever was reported to be very general and fatal at Newcastle; (see *Sunderland Herald, Nov.* 12:) and it seemed to be contrary to all the laws of an epidemic pestilence that it should admit a rival, and should seize upon a place when another malignant disease was already maintaining the ascendancy. I was therefore struck with some surprise, on hearing that the town of Newcastle was *also* invaded; so far as to express a very decided opinion, that if Typhus fever should continue to rage in Newcastle, with any degree of severity, the inhabitants need not fear the invasion of Cholera; and I looked anxiously for an explanation of the anomaly. The correspondent of the London *Courier* has communicated an observation, which throws a good deal of light upon the subject; and which I give in his own words:—"It is worthy of remark, that the Typhus fever, which was so very prevalent *here* a few weeks ago, *among the middling and upper classes of society*, or, to speak topographically, in the high and airy situations of the town, never extended itself to the low, crowded, and miserable parts of the town, *where now, on the other hand, Cholera is found exclusively to prevail.* But for the discrepancy in point of time, one might have supposed them to have been distinct modifications of the same epidemical disease."—*Courier, Dec.* 21. "In Newcastle, the disease (Cholera) is observed to thread its way into all the close, dirty, and obscure alleys of the town, which, as I have said before, entirely escaped the ravages of the Typhus

fever."—*Ibid. Dec.* 31. Upon this important fact I could make many comments, but shall reserve what I have to say for another occasion.

As to the symptoms and character of the disease, on its first breaking out, the first medical authorities, when summoned to Newcastle, to consider the peculiar features of a suspicious case of the complaint, were influenced by so much caution as to say, that if such a case had occurred in Sunderland, they would not have hesitated to call it the Continental or Indian Cholera. I know not that their penetration could be justly called in question from this circumstance. But if no such thing as *contagious transmission* had preoccupied their minds—I do not presume to say, unreasonably so—and with that idea, the great responsibility of pronouncing a verdict, which would either affix the fearful name of a *foreign pestilence* upon the disease, or absolve it from every importance, even though it might be the true herald of a *domestic plague*, they would have found no difficulty at all. My impression is, that difficulties are created by the present system, or mode of viewing the subject, which would have no existence, if plain observation were allowed to prevail, both with rulers and the members of the profession. And I believe that the latter are often required, in such cases, to declare, what, as men of science, they have no clear principles, acknowledged at the present time, to enable them to determine;—a painful situation for an honourable and enlightened mind, in a momentous crisis!

Persons, not of the profession, can scarcely be aware

of the technical difficulties which the science of medicine, while it helps its followers in some things, imposes upon them in others: so, that to avoid seeming heretical and ignorant, they often decide in the midst of doubts, and pause where others decide.

There is a mixture of fact and of plain reasoning in the following passage from a Newcastle Journal, which is worth our notice, and which will be better understood after the observations already made, though the writer may not have been fully aware of some of the laws of epidemic diseases:—"The official reports," says he, "assume the numbers stated there to be *all* cases of Malignant Cholera, while we upon the spot know that a small proportion of them only possesses that character. Though many persons are attacked with, and even die in ordinary times, indeed at all times, of fevers, we are convinced that they are now ranked as cases of Cholera; and persons whose age and infirmities, whose intemperate habits, whose continued diseases and broken constitutions, rendered them liable to be cut off in a moment, are regarded as illustrations of the virulence of this disorder. Though it is taxing the credulity of the public too much to say that every case of *diarrhœa* is the beginning of a case of Malignant Cholera, we believe there are several instances in which it has been a preliminary. The reason probably is, that every thing, which weakens the body, predisposes to an attack of Cholera wherever it prevails."—"The persons attacked have been, with very few exceptions, the drunken, ill-fed, ill-clothed, ill-lodged — those who lived in close, nar-

row, dirty, filthy, ill-ventilated streets, or were infirm and weak in constitution." — *Newcastle Mercury, Dec.* 26.

All that I shall say upon the preceding passage, is, that if any fevers occur at such a time, they generally exhibit the Cholera-constitution, and other forms of disease partake of the same character, whatever may be their remote causes: and, moreover, that *diarrhœa*, — I do not say, ordinary diarrhœa, — is found to be the usual premonitory symptom of the Epidemic. The correspondent of *The Times*, at Newcastle, whose letters show him to be a man of shrewd observation, in a letter of so late a date as the 3d of January, says, "that a large proportion of the Cholera cases have diarrhœa as a premonitory symptom for some time." Dr. Holland, of Sheffield, in a letter from Sunderland, confirms this observation, stating it "not only on the authority of his own individual inquiries, but on that of the best informed in the profession *there*."

Now, as further evidence seems quite unnecessary to prove this fact, we must admit that the fearful character, which has been claimed for what is called the Continental Cholera in this country, of its rapid and fatal stroke, without warning, immediately followed by the cold surface, and imperceptible pulse, and death-like visage, as if the body were struck by a poisoned dart, cannot be maintained by the appearances of the disease at present raging amongst us. It is evident that such a fearful character was ascribed to the pestilence, chiefly in order to prove the malignant power of that *contagion*, which in so rapid a

manner could prostrate the vital energies of a *sound* constitution. And the facts demonstrate the contrary: —viz. that it is only, or chiefly, the infirm who are laid hold of; and, that even these are *previously* weakened, by *many days'* disorder of the digestive system.

In Newcastle, the mortality to Jan. 19, out of 788 cases, from the commencement, is reported to be 246; and at this date the disease was rapidly subsiding.

The population of Gateshead, on the opposite side of the river, is said "to bear the proportion of about one-third to that of Newcastle, with comparatively *double the wretchedness.*" Hence, the sudden and violent irruption of the distemper, in that part of the former, called Pipewell-gate, which is stated to be "at all times an utter abomination," immediately after the customary excesses, at the close of the year, could scarcely be matter of surprise. But, in proportion to the suddenness of the invasion of the Epidemic at Gateshead, it was a probable conjecture, would be that of its decline: and of this, there are already strong indications.

Whoever may have inspected the early Reports from Sunderland, must have noticed three forms of the Epidemic, under the heads, "Diarrhæa, Common Cholera, and Malignant Cholera." But it was soon found, that professional men, with the best intentions, were often placed in a difficulty—one of the many difficulties experienced on such occasions—when they were called upon to report, as to the classification of their respective cases, under these three heads; lest it

should result, that, a mild case having been arranged with a malignant one, under the idea that it was of the same nature, alarm might be needlessly increased, when the numbers were exhibited to the public. They had their "usual autumnal Cholera," by the testimony of Drs. Clanny and Brown, and, *by supposition*, they had the Continental, or Asiatic Cholera;—or, to speak plainly, they had cases of a disease exhibiting the true characters of a malignant Pestilential Cholera, occurring at the same time, and often in the same families, with the mild features of the disorder.

It must have been a natural question with every ingenuous mind, however skilful in the science of Diagnostics, 'what is English, and what is Asiatic?' Is a case of Diarrhœa to be ranked with so formidable a disease as the Pestilential Cholera? Hence, there was considerable hesitation, on the part of the medical practitioners, attributed, I believe, improperly, to the desire of concealment; and it was concluded, with the sanction of Dr. Daun, "that the different forms of Cholera, then prevailing in Sunderland, were one and the same disease,—*that disease being the Indian Cholera!*"

It was a natural and a fair conclusion that the three different forms, then prevailing in Sunderland, constituted one epidemical disease; and the suggestion, which, by the way, appears to have been made by the correspondent of the *Times Journal*, tended much to simplify the view, and to facilitate the business of transmitting reports. But it was, unques-

tionably, going far beyond what either the evidence or the state of science could warrant, to assert that the disease was the Indian Cholera. I conclude, therefore, that the appellation was only meant to imply, a disease, in most, if not all, its features, *resembling* the Indian Cholera.

It appears to me an undoubted fact, that the Cholera which prevailed so extensively over England, and in many places, with such peculiar characters, in the beginning of autumn, lingered longer and later in the season, at the town of Sunderland, from some peculiar local causes, than in other places. And, therefore, one of the following conclusions must be adopted: either, that the whole disease was English, aggravated by the same uncontrollable general causes, which have been also acting in Arabia, Syria, and Egypt, as well as on the continent of Europe; or that a foreign contagion mixed itself with the English disease, in some cases, and modified its symptoms and character; or, lastly, that the English malady ceased altogether, at some point of time, *before* the foreign Pestilence began. For reasons elsewhere assigned, and from a review of all the circumstances, I apprehend, that every one must be convinced that the first conclusion only can stand. We find, from the public journals, that very few persons in Sunderland entertain the notion that the disease was imported.

At the time when its malignant nature first appeared, it is obvious, that the government of this country, upon the sort of evidence communicated

officially to them, could not have acted otherwise than they did. It was indeed a painful dilemma to be placed in. And, from the warmth of feeling and of opinion, which was exhibited at Sunderland, no one could reflect, without dismay, upon the possibility of a similar state of things becoming general in our large provincial towns.

Doubt on the question of imported contagion was followed by doubt on the utility of Quarantine; the profession was divided in opinion; and positive assertion, on one side, was opposed by positive assertion, on the other. While life was in jeopardy here, property was at stake there,—conflicting perils, that rouse the warmest emotions. Those, who were already distressed, were brought to greater distress, by want of employment, and by the stagnation of trade. For, it is the positive interest of every town in the kingdom to keep alive its industry: and, when regulations are enforced, which put a clog upon the wheels of labour, and weaken even the springs of bodily vigour, such regulations are apt to be regarded with suspicion or discontent, the truth to be concealed, and the victims of a pestilential disorder to be increased in consequence.

I cannot doubt, that, whatever means are proposed to be adopted for the public good, unless the government, the profession, and the public, act together in harmony, the evils that would ensue, would very far exceed those, which, we have every reason to think, from the experience of the career of this epidemic on

the Continent, would occur, if it were permitted to take its course, unshackled, except by such municipal regulations, as ought at all times to be employed against Typhus fever—a disease far more contagious in its nature, I believe, than Cholera; such as good and sufficient diet to the poor, care to enforce cleanliness amongst them in their habitations, to remove filth of every kind from their vicinity, and to spread the same numbers over a larger space; extending, prospectively, even to a control over private cupidity in the construction of their houses, by imperative parliamentary enactments.

As to the discussions about the proper name of this disease, we can only recognize in them an indication of the reproachful controversies, which have marked almost every pestilence on record, within the last three centuries. The Plague, the Yellow Fever, and the Pestilential Fever of Spain, wherever, and at whatever time, they have prevailed, have afforded so many occasions for disputes respecting the proper appellation of each of these diseases, and about its contagious nature and origin. I need not mention the disputes about the origin of the Plagues of London and Marseilles, of Venice, Moscow, and Messina; nor what feuds arose in Spain and the United States of America, amongst the physicians, who advocated, some, the domestic, and others, the foreign sources of their respective Plagues. They stand on record, as memorials of blind prejudice, and as beacons of warning to future times.

Let us hope, therefore, that the question, whether the name of English or of Asiatic Cholera more properly belongs to the distemper, now raging on the Eastern coast, will never be thought worthy of a moment's debate amongst us.

VIEW OF THE PRESENT INDICATIONS.

As the question cannot be without deep interest, whether a disease, so rapidly fatal, and so alarming, is likely to extend itself in this country, I shall make a few remarks on the indications, that present themselves to my view on the subject; aware, notwithstanding, how presumptuous it would be to hazard any vague anticipations respecting the future course of an Epidemic, which has been so eccentric in its movements.

I know not, that we have any thing like what might be called the Prognostics of Pestilence, arising from any other source, than the very general prevalence of disease, both abroad and at home.

The Cholera pestilence traversed great part of Europe last year (1831). In Warsaw, it appeared in April; Dantzic and Riga, it visited in May; Archangel and Petersburg, in June; Pesth and Bucharest, in July: it reached Berlin, in August; Vienna, in September; and Hamburg, in October. And, notwithstanding it might reasonably have been conjectured, that many streams would have flowed westward and southward, from all these sources; there seems, at the decline of the year, to have been

a conflence to one point, on the eastern coast of England: for great part of the west, and south of Europe, still remains untouched. But these parts, though exempt from Cholera, have not been free from other maladies. In France, we are told, that the Pulmonary Catarrh, or Grippe, has been raging to a considerable extent, and has even reached Italy, creating much alarm at Rome. At Lisbon, a malignant Ague, accompanied with severe affection of the stomach and bowels, has been very general and fatal.

Diseases, in truth, seem to have experienced remarkable interchanges of climate and season. While Europe has had Cholera, as it appeared in India; some parts of India, as Calcutta, have been afflicted with a disease, which they call, "a new epidemic," like the Influenza, or the Grippe, lately prevalent in France. Cholera, a disease of autumn and of heat, has shown itself in the cold of winter. The Plague, itself, has been dislodged from cities, which it has held for ages, as its own peculiar domains, by this usurping stranger; and the whole territory of Lower Egypt, together with Smyrna and part of Arabia, have been recently swept by it, with a fearful destruction.

As to that part of Europe, which has escaped the scourge, as well as the cities in the northern coast of Africa, can we reasonably expect, with such indications in 1831, that, in 1832, they will be secure from a pestilential invasion?

In turning our attention to this country, no one can

doubt, that, setting aside the appearance of the Pestilential Cholera in England, the general state of our diseases, in almost every part of the kingdom, has been very peculiar in the last year.

Several of the northern counties were visited by an Epidemic Catarrh, or Influenza, in the spring: and, what is out of the usual order, the appearance of the same disease has been announced in some of the southern parts, both of this country, and of Ireland, so late as in the autumn.

Cholera, *without question of native origin*, was almost universally epidemical, in the summer and autumn; and I believe, it might not be overstepping the truth to say, that, in most parts of the country, it presented both unusual symptoms, and a considerable aggregate of severe and fatal cases. In the populous town of Liverpool, numbers of these cases might have borne a fair comparison with many of the malignant species; with, however, this characteristic distinction, that they mostly occurred in the classes of society, raised above indigence, and in parts of the town, where neither pure air nor the gleams of sunshine are excluded from the dwellings of the people; and it was not unusual for three or four in a family to be attacked, within the space of twenty-four hours.

Since the Cholera has abated in different parts of the kingdom, Typhus fever has been uncommonly prevalent; in some places, severe and malignant, in others, exhibiting the *Cholera*-tendency. In the city of Edinburgh, in various parts of Yorkshire, Lancashire, and Derbyshire; in Gloucestershire, Sussex,

and in other places, the public journals announce this distemper to be raging. Small-pox has been, also, unusually fatal. In the mean while, the Pestilence, itself, is making a steady progress towards the north.

While the aspect, abroad and at home, is thus formidable, from the state of disease, it is natural for us to query, Whether we are now at the beginning of a pestilential visitation, or the winter season is likely to conclude the present epidemic constitution, in this country?

I should gladly encourage the supposition, that the very unusual prevalence of Cholera over the country, last year, whilst the more malignant disease was traversing the Continent, might be an indication that we had, already, experienced the effects of the general Epidemic influence, in such a mitigated form, as was adapted to our climate and constitutions; and might, therefore, be our protection against a more severe infliction of the scourge, next summer and autumn. I would also willingly rest a hope upon the possibility, that so favourable a state of the weather, in the present winter and ensuing spring, might intervene, before next summer, as to break the chain of morbific causes, which seems now to be commencing the circuit, and even pervading the interior, of our island. But, I own, that neither of these consolatory apprehensions is sufficient to outweigh my fears.

If we only regard the pestilence itself, we see that it is selecting its victims, as it did upon the Continent, with a discrimination and a malignity, which the epidemic of the late season did not evince; that it is

intense enough in its character to begin this unusual march on the verge of winter; and that, against all probabilities, it is pursuing its prey, even in the winter, towards the north.

It is an old observation, that, when a plague begins late in the year, it shows a more intense degree of, what has been termed, *the pestilential principle*, than if it arose in a season otherwise favourable to its production and propagation.—*See Diemerbroeck and Webster.* 2, 248. What is unusual, is ominous, when the aspect of things is gloomy; and, certainly, it is unusual for a complaint, primarily and essentially affecting the stomach and bowels, to appear, in a fatal form, and to spread, so late in the season.

In one main point, however, there is ground for encouragement; that, whereas, on the Continent, the mortality was in the proportion of one half of those attacked; taking a view of the cases and deaths that have occurred in this country, the proportion, hitherto, of the latter, is about one-third.

But, although Cholera prevailed in the country, last year, more extensively, and fatally, than usual; and although, in many places, where Typhus fever has been raging, it has been stamped with the Cholera-character: yet, I consider, that these indications were only the forerunners of the malignant disease; and that the Cholera, in its true form of an Epidemic Pestilence, actually commenced at Sunderland.[10]

It must appear singular to every one, that, in Sunderland, for some weeks before, fever should have almost withdrawn itself from the habitations of the

poor; as if to make way for some other malady, that was insidiously gathering strength, like the tiger lurking in a state of repose, before his fatal spring. And this fact was still more strongly marked in Newcastle, where the poor had been exempt, for some time, from the attacks of Typhus, which was invading the rich. Was this a fortuitous occurrence? Was it not, on the contrary, a natural effect of causes that were *some time* in operation? These towns used to have their fever, continued or remittent, about the same season: indeed, it is a fact, that some of the cases of malignant Cholera have terminated in fever.

And, now, while Sunderland and Newcastle have been visited in this way, Typhus fever, in many other places, is raging with severity, and assuming a *Cholera*-character. For, so far as the natural tendency to Typhus fever in this country will permit, the Cholera-constitution is at present predominant over England.

As a proof of the singular connexion that seems to subsist between these diseases, I may advert to a few facts; the knowledge of which, I trust, will enable us to understand, more clearly, the actual situation in which we are placed, and the principles by which we may be guided in forming *some probable conclusions* on the subject, next season.

Dr. Baird, physician to the Fever Hospital, in Liverpool, has obligingly favoured me with the following statement, viz. that immediately after the Cholera had ceased, early in the autumn, the fever cases, admitted into the hospital, were doubled in number;

and whereas, at the beginning of the epidemic, they were marked with irritation of the brain, at the decline, they were characterized by irritation of the stomach and bowels.(11)

An intelligent surgeon, who has nearly all the practice in one of the populous neighbourhoods on the Cheshire coast, opposite to Liverpool, informed me, at the time when Cholera had been for many weeks prevailing so generally in the latter place, that he had not attended a single case of Cholera in Cheshire, but that he had, for months previously, and at that time, many cases of lingering fever, in respectable families.

A most important confirmation of the general spread of the Cholera-constitution, over England, appears in the *Lancet*, of *Jan.* 14*th.* "At a meeting of the Medical Society, Dr. James Johnson stated, that the fever, after the blue stage of Cholera, in the north of England, was of exactly the same character as the fever, which was to be seen at this moment, in the London Fever Hospital. In that Institution, the medical officers had observed, that the cases, *since about June last*, had assumed an entirely new character, fully justifying the supposition, that a material change has lately been produced in the atmosphere of this country. During the last six months, fever, in that Hospital, has exhibited a severe typhoid form, and has been particularly fatal to elderly persons. This severity has been accompanied with great gastric irritation, so that almost every case presented an affection of the alimentary canal; so much so, that the physicians of the Fever Hospital have been pre-

vented from prescribing purgatives, from the prevailing gastric irritation."

Looking at this fact, and the present appearance of fever in other places, we may say, without extravagance, that, if a contagion from India has, indeed, visited our shores, the character of our native diseases has been so changed and assimilated to the *genius* of the visitant, as to meet it with signs of fraternal amity: not only English Cholera, but English Typhus, has been complimenting the guest by wearing its livery!

Even in Sunderland, by Dr. Brown's statement, the cases of fever, which intervened, when the heat abated, between a less general prevalence of the autumnal Cholera, and the appearance of the malignant disorder, commenced with Cholera symptoms. This physician had observed, in some preceding years, that "the number of cases in which Remittent Fever commenced with Cholera, in Sunderland, was very great."

This affinity between the diseases does not appear to be peculiar to England. I observe, that the French physicians, in their Report on the Cholera, (p. 158) lay some stress on the consideration, that "since the Cholera has established itself in Europe, Typhus fever constitutes one of its terminations:" and as they escaped Typhus fever in Paris, in 1814 and 1815, when it was surrounded by hostile armies, who filled their hospitals with the disease, owing, as they argue, to the excellence of their health police, they state, that such facts add to the chances of their pre-

servation from this pestilence. I hope their expectations may not prove too sanguine!

That the causes which seem adequate to the production of fever, in some classes of society, may produce Cholera, in persons of different constitutions, many facts appear to demonstrate.

"In the month of March, 1818, the Cholera, in its westerly course, reached Allahabad, situate at the confluence of the Jumna and the Ganges, and is said to have remained there till the month of August. Thence, it arrived at Delhi, Jagpoor, and a camp, consisting of 15,000 natives, and a company of European artillery men. Its ravages were principally among the poor creatures, who had not even rice to eat. Nevertheless, the Europeans, in proportion as they escaped the Cholera, were attacked by intermittent fevers, which prevailed at the same time; (succombaient d' avantage aux fièvres intermittents qui règnaient simultanement.)"—*Rapport p.*158.

The observation, made by Searle, relative to similar facts in Poland, and referred to in Note (3), is also deserving of attention.

It would not be difficult to multiply facts of this description: my object is to show the principle.

From the present state of diseases, therefore, originating from whatever cause, and prevailing at a season of the year, by no means favourable to the spread of mortal epidemics, we cannot, I fear, augur a healthy season next autumn. Yet, I would willingly hope, that there is nothing so strongly marked in these signs, as to apply to them Lord Bacon's prognostic,

made at a time when our towns and cities were very differently circumstanced, both as to their filthiness, and the common prevalence of diseases of a more malignant type, from what is the case at present, that the "lesser infections of small-pox, purple fever, agues, &c., in the preceding summer, *and hovering all winter*, do portend a great pestilence the summer following: for putrefaction rises not to its height at once."

But, whatever form of disease may prevail in Britain, if the mortality should prove to be little above the common average, it would be absurd to look for any very unusual signs of noxious principles, acting in the elements of life, as food, air, water, or soil.

As to the past state of the weather and its concomitants, although no prognostics of pestilence may be derived from any thing unusual in these phenomena, such as disease among cattle, wild animals, or birds, or a supply of unwholesome grain, or any prospect of deficiency; yet, it is plain, that a good deal must depend on the nature of the ensuing weather in spring and summer, in fostering a tendency to aggravated distempers. There is, perhaps, no fact more universal, in the premonitory signs of a PESTILENTIAL CONSTITUTION, than an irregularity of the seasons; when they appear, as if thrown out of their usual course,—the weather peculiar to one season, occurring in another.

So far, we have nearly reached the end of January, without experiencing any of the usual severity of cold, which belongs to the winter season, at this period. And it is not unlikely, from this cause, that the cold

weather will be protracted, so as to encroach upon the spring. If summer heat should rapidly succeed, accompanied with drought of long duration, there is much probability that disease will prevail extensively over England. In fact, irregularity, and extremes of whatever kind, are always productive of disease; more especially, in a state of things otherwise unfriendly. I believe there never was long-continued heat and drought in this country, especially after severe cold, without cholera, dysentery, or malignant fever supervening.

I pretend not, however, to say any thing, by way of prediction, relating to the weather, beyond the few data that are now before us, of which others can judge, and many better than myself.

It is, indeed, possible, that all our anticipations of evil may be rendered void, by the mercies of a benignant Creator, if the warning, now sent, shall have accomplished its purpose, in the removal of some of those abuses and evils, in the system of diet and outward accommodation, allotted to the labouring poor, which, for the sake of the rich themselves, call loudly for redress: though in too many instances, the cause of their misery lies, it must be acknowledged, at their own door. But the poor can neither make bread cheap, nor does it rest with them to open channels of labour, and multiply sources of industry: this must be the work of those whose business it is to think for them. It is possible, however, that a genial spring, a mild and temperate summer, and a bountiful harvest, may be once more added to the list of blessings, which

are showered upon our country; so as to turn away the violence of the threatening storm. But, if the wealthy will not make sacrifices, out of their luxuries,—I will not say, their comforts,—upon a broad and liberal scale over the whole kingdom, for the relief of the poor and miserable, who have the claim of Christian charity (and now the claim of urgent physical necessity, if we look to the safety of the ranks above them from a pestilential visitation); it is not unlikely, that, if we were to put out of view the calculations of a moral retributive justice for omission of social duties, even physical causes might turn upon them likewise, and exact a severe penalty, by physical suffering, as they have done already upon the dissipated, the idle, and intemperate.*

As the Typhus fever, in Newcastle, invaded the better classes, in their airy dwellings, while the poor were exempt; a very slight modification of Cholera, or a slight change in the state of predisposition, would soon turn the malignity of the Pestilence upon the affluent. And, it appears to be an undoubted fact, that Typhus fever, in different places, is lately looking more to the higher classes, than has been usual with this complaint, in former times. Hence, if Malignant

* "Tot facinoribus fœdum annum etiam dii tempestatibus et morbis insignivere. Vastata Campania turbine ventorum, qui villas, arbusta, fruges passim disjecit, pertulitque violentiam ad mœnia urbis. In qua, omne mortalium genus vis pestilentiæ depopulabatur, nulla cœli intemperie quæ occurreret oculis. Sed domus corporibus exanimis, itinera funeribus complebantur. Non sexus, non ætas periculo vacua. *Servitia, perinde ac ingenua plebes* raptim extingui, inter conjugum et liberorum lamenta, qui dum assident, dum deflent, sæpe eodem rogo cremabantur. *Equitum senatorumque interitus promiscui.*"—*Tacit. Annal. Lib.* xvi.

Cholera be the plague of the poor, Typhus, with Cholera symptoms, is likely to be the plague of the rich.

Taking all the circumstances I have enumerated into consideration, it does not appear to me probable that a winter of the mildest description will prevent the Cholera Pestilence, or Typhus possessed of its character, from spreading amongst us in the summer and autumn: and it is a fearful thing to contemplate the appearance of such a malady, among the poor in Ireland; where, in too many parts, low living, intemperance, a dense and filthy population, and *political excitement*, would, literally, afford the distemper hecatombs of offerings.

CONCLUSION.

By the wisdom and mercy of Providence, good often arises out of evil: but some calamity is interposed as the condition: and what the hurricane is to the natural world, pestilence may prove to the moral, in so far as it is the offspring of vice and negligence. I therefore anticipate that the fearful malady with which great part of Europe has been just visited, and England is more than threatened, will be followed by some decided blessings. The facts are of a description not to be forgotten: they inculcate lessons of policy, and of deep morality. Statesmen are taught, that if they neglect the poor and miserable population of their flourishing cities, the evil may at length come to their own houses, and fall upon themselves; and the intemperate cannot plead that they have not had an awful warning, in the many victims who have been cut off by this destroyer. I anticipate that the cities of Europe will see the utility, and even the necessity, of removing those local nuisances with which they all more or less abound, which are the lurking places of pestilential disorders,— even if they should not be prompted by humanity to give the destitute a supply of food.

I trust that they will see that the proper use of cities is for peaceable men, not to coop up armies; and that the high wall should be broken down, which excludes free ventilation; and the narrow lanes and lofty buildings, which enclose a number of families in a small space, should be changed for wide, and clean, and open streets: that so the light of the sun may shine, and the pure air may breathe, upon their inhabitants.

I trust that what was expended in the evils of war, may be expended in the comforts of peace. In this way, the poor might be so protected, and cities might be so purified, that there would be neither pabulum nor resting-place for any pestilence: for no evil plant will take root, if there is not a soil favourable to its growth. And in reference to the higher classes, it is to be hoped, that the lessons of temperance which have recently been proclaimed so extensively, will be more deeply enforced, in every place where this epidemic has raged, by its effects upon the dissipated, so as to produce a lasting impression upon tens of thousands.

This distemper, then, which is now looked upon as a scourge, may be ultimately a blessing; and the more widely it has been diffused, the more extensive will be the warning conveyed by its phenomena. In a moral, civil, and commercial point of view, it is pregnant with momentous considerations.

Opinions may vary in regard to the original seat of this or any other form of pestilence, but there can be no diversity of sentiment, if we consider the facts,

about the best means of arresting the evil at home: and these means are not the line of bayonets and armed ships surrounding our coasts or cities, but the wise internal regulations, by which cleanliness, comfort, and sufficient food, may be secured wherever they are wanted.

From all the preceding facts and considerations, I think it must be clearly seen, that an epidemic pestilence is not a mere isolated and fortuitous event, which has no connexion with any thing in the country where it rages. It appears to be, manifestly, connected, in order and series, with the diseases that precede and follow it, and, in affinity, with those that accompany it. It is connected, almost indissolubly, with the predisposition of the people, who are prepared to receive it, and very singularly with the localities or nuisances, where it finds its victims. It is connected with some inexplicable peculiarities in the air of the place, and of different places in succession, which usher in its beginning, and attend its decline,—as well as with the antecedent and accompanying state of the weather. The latter circumstances appear to be proved; because the predisposition of the people ceases in one place, and becomes active in another,—in other words, the disorder dies in one place, and revives in another, in a manner which no theory of contagion, exclusively considered, can possibly explain. Could we take away any of these connexions, in so far we should deprive it of its strength; and if it had not these connexions, it never could intrude itself in any country,—or, if it were

possible to intrude itself, could never be propagated to any extent.

I believe it concerns every country in the civilized world, most intimately, in all its relations, to take this view of it;—a view, which appears to me not less consistent with policy and humanity than with science. It concerns them, as they regard the true means of averting such a calamity in future, and the right end where prophylactic measures ought to begin: for though it may be natural, it is not wise to refer to our neighbour the evils which belong to ourselves, and to bestir ourselves with vast preparations against an enemy supposed to be foreign, which is the very creature of our own institutions, and which we are at the same time cherishing in our bosoms: there has been too much of this expensive child's play upon the Continent. It concerns all countries, as they value the interests of trade and commerce, the benefits of unbroken intercourse, and the blessings that flow from the continual interchange of acts of Christian kindness; as they regard the claims of the wretched poor, and the obligation which lies upon every state to provide for this class, and for the labouring community, not merely a supply of food, but some better and more wholesome shelter than many set apart for the brute animals; and as they estimate the advantages of free air, with cleanliness, in streets, houses, and persons.

On the other hand, it concerns them to adopt this view, as they deprecate the stagnation of trade and industry, with the attendant evils of corroding idleness; the never ending quarrels about technical

names, and about contagion, to which the doctrine of an imported pestilence must always give rise; and the antichristian, if not inhuman conduct (to take one example from among many) of sending away a portion of our fellow creatures in a tempest-beaten ship, with perhaps a famishing crew, upon a stormy sea, when it may have chanced to arrive in distress from some country where a pestilence has been raging. This,—and worse than this, even death itself,—we know, has often occurred from the system of exclusion.

I am persuaded that the duties of humanity never did interfere with the real interests of any people, and that where they seem to be at variance, there is some egregious error in the preconceptions, which have led us to adopt measures incompatible with these duties.

In addition, it appears to me, that the more science opens to us its laws respecting the origin and propagation of pestilence, the more do its discoveries tend to establish, on a broad and united basis, the safety, the duty, and the mutual benefit to all countries, of maintaining, even under such a calamity, the same principle of uninterrupted intercourse, which we dare not allow to be suspended in our closest relations with each other. I am not, however, so blinded as to think that benevolence should extinguish prudence, and am quite aware that the amiable pictures we draw in our minds are often too refined for practical application. But if the principle itself remains unshaken, it is better, amidst all the difficulties with which it is beset, to keep it steadily in view, than to reconcile ourselves

to a system that answers no other end than that of a specious and expensive delusion.

The country which is, this year, exempt from pestilence, and cuts off its intercourse with another that is afflicted, perhaps depriving the latter of effectual relief in its distress, and itself of many advantages, may stand in urgent need of assistance, the next, from that which it has thus interdicted: therefore, policy might recommend the course which science and humanity indicate so strongly.

And, surely, when nations, who are at a distance, and differently circumstanced as to their liability, hear of the thousands of humane individuals, who have been happily preserved, while they were intrepidly following the path of the *destroyer*, in its most revolting scenes,—in which every sense had something odious to encounter, as filth, and corruption, and "sights of woe,"—they might well be encouraged to exercise a little fortitude, and, for their own sakes, to practise that benevolence, which was so conspicuously blessed to others. But, if people will not understand what is for their own ultimate interest, through fear of a present evil, reasoning againt their fears will avail nothing.

As the quarantine system is now managed, over Europe, there is little doubt with me that the evils far outweigh the benefits. But, as the universal concurrence of all the great trading countries would be required in order to establish it on a proper scientific basis, that would neither compromise the public safety,

nor impose needless restrictions upon commerce, it is not likely that such a general agreement could be soon obtained. For when we consider the slavery of superstition and the thraldom of despotism, and the difficulty which prevails throughout the world of removing the chains from rights and privileges that are accounted by many as dear as life; we cannot wonder that men should be very slow in admitting the light that would emancipate them from the bondage of terror.

The proper correction of internal abuses, after all, is the grand secret,—whether it may be allowed to remain a secret for another century or not,—for enabling us to defend ourselves from the invasion of Pestilence, so far as it may be possible for human power to avert such a calamity from any nation.[12]

ILLUSTRATIONS.

NOTE 1, page 5.

I am glad to acknowledge my complete accordance with the following remarks, so far as they apply to *one* of the causes of epidemics: "That the association of too numerous individuals, breathing a common air, not only predisposes to epidemics, but even actually generates them, is shown indisputably by the occurrence of Typhus, as described by Pringle and Rouppe on board crowded and imperfectly ventilated ships; and in Cholera, a disease shown to be so intimately connected with imperfect arterialization of the blood, it is not racking probability to presume, that the excess of carbonic acid generated in the common air, breathed by numbers of individuals, may contribute peculiarly to the reception of the poison. Again, as to the influence of poverty, Dr. Bisset Hawkins, in his 'Elements of Medical Statistics,' has beyond a doubt proved how deeply this cause is concerned in the extension of epidemics."—*Lancet.*

NOTE 2, page 8.

"It has been often said, that in breaking open a letter, or in opening a bale of cotton, containing the germ of *the plague*, men have been struck down and killed by the pestilential vapour. I have never been able to meet with a single eye witness of this fact, notwithstanding the inquiries which I have made in the Lazarettoes of Marseilles, of Toulon, of Genoa, Spezia, Leghorn, Malta, and in the Levant. All agree in repeating that they have heard of such an occurrence, but that they have never seen it happen. Among those whom I have interrogated about this fact, I may name Citizen Martin, Captain of the Lazaretto at Marseilles, who, for thirty years, has held that situation. This brave and respectable man told me, that during that time he had seen opened and emptied *some millions of bales* of cotton, silk, furs, feathers, and other goods, coming from several places where the plague raged, without ever having seen a single accident of the kind."—*Assalini's Observations on the Plague*, p. 83.

NOTE 3, page 18.

"I may mention the fact, founded upon observations, made both in India and Poland, that in localities, notorious for intermittent fever, when Cholera has prevailed, fever has been of much less frequent occurrence, but has returned with the cessation of Cholera. And again, that in situations, ordinarily healthy, fever has not unfrequently succeeded to, or has been conjointly prevalent with Cholera, during its epidemic visitation: and this is the case, at the time I am now writing, here at Warsaw: Cholera and fever of a remittent type being both extremely prevalent, and the milder attacks of the former lapsing in most cases into the latter."—*Searle on Cholera.*

It seems to be probable that the latter observation was made *towards the decline* of the epidemic in Warsaw.

NOTE 4, page 21.

I have found a difficulty in ascertaining the real amount of the mortality from Cholera and other diseases in the *town* of Sunderland, during the year 1831. By a document which I have just received from Dr. Clanny, it appears that the total mortality in the *Parish* of Sunderland, "which had almost all the cases of Cholera," was 749 for the year 1831, which seems a very small amount for such a population. Yet it exceeds that of the former year by 270, and that of 1829 by 228. So that there is a considerable increase on the whole. The public reports inform us that the whole mortality from Cholera, in the three parishes, is about 200. In answer to some questions, Dr. Clanny writes: "The prevalent disease during our visitation was *consumption:* i. e. for the months of November and December, in the *Parish* of Sunderland,—twelve having died during that period; Typhus, one; Brain Fever, one; Apoplexy, one, also died." I have not yet been able to procure a return of the total mortality for the year, in the two other parishes, which I strongly suspect will be found not to exceed that of former years. I have already noticed (page 20), that the *usual* mortality in the decline of the year, is about 98 per month, in the whole population. supposed to be 40,000. I am also ignorant whether the fatal cases of consumption were terminated by *Diarrhœa.*

NOTE 5, page 27.

A gentleman, in one of the first mercantile houses in Liverpool, has favoured me with the following extract of a letter, dated Alexandria, Egypt, 6th October, 1831.

"During the last month, and latter part of August, business was

entirely suspended here in consequence of the Cholera breaking out at Cairo, on the 16th of August, and at Alexandria on the 22d; and in a few days more, all the towns and villages of the Delta were attacked by it. The disease, *we are now happy to say, has entirely ceased*, after causing great mortality, particularly among the troops. The number of deaths at Cairo, is calculated at 30,000, Alexandria, 35,000, and throughout lower Egypt, the total number of victims is estimated from 70,000 to 75,000. From the circumstance of the Cholera Morbus breaking out throughout all lower Egypt within the short space of a few days, it is evident it is not contagious, but epidemic; and our opinion of its being only epidemic is confirmed from many cases that came under our own eyes, when the disease was raging here."

On this narrative I have to make two remarks: the first is, that it was after the plague-season the Cholera showed itself; and the account would have been more complete, if it had told us what epidemic followed; and whether the mortality from plague, during the last season, was below the usual average; for it has clearly been interfering with this disorder, in Egypt as well as in Constantinople. The second is, that if contagion propagated the disease, such a prodigious diffusion of the poison, would have almost depopulated lower Egypt, had this contagion been of the virulent nature attributed to it in some places.

And surely the natural power by which a disease so fatal was suddenly arrested, is quite as marvellous as the cause by which it was produced. That the means of its cessation were indigenous and natural, is obvious, and requires no argument, whether its origin was domestic or not; and its sudden invasion of this great extent of country, within the period of a few days, can only be explained upon the supposition of some generally pervading causes.

One account from Alexandria states, that the disease was *certainly contagious*, because all the christians, and others, who shut themselves up, escaped the disease. After what has been said, this can hardly be considered an unquestionable proof of contagion.

NOTE 6, page 46.

"The English society at Petersburg (by which I mean such families as are in easy circumstances) only lost one of its members, and of the whole body of English, consisting of upwards of 2000 souls, only fourteen died of the Epidemic. It was not by shutting themselves up in their houses, or shunning the diseased, that so many escaped; for they were to be found at the bed-side of their domestics, administering the medicines with their own hands. Nor

can the zeal of the Russian nobility, in their endeavours to palliate the sufferings of their fellow-creatures, be too much commended. It is impossible to describe the good influence their fearless conduct had on the minds of the people."—Extract of a letter from Dr. Lefevre, Physician to the British Embassy at Petersburg, dated 26th November, 1831.

"In July, 1741," says Dr. Short, "began a malignant Spotted Fever among the poor, who had been half starved the last two years, and obliged to eat uncommon and unwholesome things."—"It was the most general, frightful, and fatal that I had ever seen before."—"I observed that the best antidote and surest preventative (against the contagion) was charity and benevolence to the poor."—"Of the charitable benefactors I do not know of one that was infected, far less died. So true is that, '*Blessed is he that considereth the poor, the Lord will deliver him in time of trouble.*' Ps. iv. 1, 2."—*History of the Weather*, ii. 281.

NOTE 7, page 55.

"Many diseases," says Lord Bacon, "both epidemical and others, break forth at particular times; *and the cause is falsely imputed to the constitution of the air at that time, when they break forth or reign; whereas it proceedeth, indeed, from a precedent sequence and series of the seasons of the year.*" If more attention had been paid to this observation, I believe we should have known more about *predisposition* than we do.

NOTE 8, page 67.

"Vienna, Oct. 22.—The Ofen and Pesth Journal of the 20th, says: It appears from the Official Reports, that from the 13th June to the 18th instant, the Cholera had appeared in 2962 places, when the total number of persons attacked was 335,711: of these 151,020 had recovered, 151,734 died, and 32,957 still remained under medical treatment. The disorder had ceased in 1001 places: it has appeared in 125 other places."

"Berlin, Oct. 24.—The following table shows the number of persons who have died of the Asiatic Cholera in different cities, out of 1000 inhabitants, up to the fifty-second day from the appearace of the Cholera. Lemberg, nearly 53½; Mittau, 35; Riga, 31; Posen, 17; Petersburg, 13; Konigsberg, 12; Elbing, 10; Dantzig, 9; Stettin, 5½; Berlin, 4¾.

NOTE 9, page 70.

Extract of a letter from Dr. Clanny, Sunderland, dated 29th Nov.,

1831. "We had our usual autumnal Cholera; and during the month of October, *dropping cases* of Spasmodic Cholera, one of which I visited about the middle of that month, and, though it terminated favourably, still the new symptoms, and their intensity, gave me much alarm. I submitted this case to all the faculty here, and we looked about us most anxiously for the coming storm....*For the last six months we have had less of Typhus than usual:* and no epidemic except the above mentioned, and *no Influenza*....We have no cases of Typhus worthy notice at this time."

NOTE 10, page 95.

In the year 1820, pestilential disease was very prevalent in Spain, Majorca, and other places. On looking over my memorandums relative to the epidemics of that period, I observe a singular coincidence; which I do not pretend to explain, but subjoin the facts as at least curious. I may also add, that I have no notices of disease in any other part of the north of Europe than Hamburg; nor in any other part of England than Sunderland, that year. "*Times*, June 12, 1820: Disease at Hamburgh.—A private letter from Hamburg, dated the 2d instant, communicates unpleasant accounts of the health of that city. It was estimated that 8000 persons of all ages were then more or less indisposed: of the garrison alone there were 200 sick men in the hospital."

A few weeks after this, appears the following notice in the "*Times*, dated July 22, 1820. Fever at Sunderland.—An alarming fever, of a very infectious nature, has manifested itself in the south east of Sunderland. From one house in Silver Street were buried three persons; the remaining part of the family, a son and three daughters, are dangerously ill."—*Tyne Mercury.*

Dr. Short takes notice of a similar instance of curious coincidence, in the state of disease between Yarmouth and Amsterdam, in the year 1727. "The mortality, says he, this year, though pretty general, was far greater in some places than others, such as Yarmouth and Amsterdam, *at the very same time and weeks:*—In the former they had buried, for twelve years past, *Com. Ann.* 370 yearly: but now, in sixteen weeks, i.e. from Aug. 1, to Nov. 30, they buried 548. And in six weeks of the same time, they buried at Amsterdam 600 weekly; the mortality was at its height in both places, in the same week. At Yarmouth it was from a fever, confined to the town only. The Amsterdam bill of mortality for that year was 13,775; for 1726, only 9275." *History, &c. vol.* i. 492, *and* ii. 41.

NOTE 11, page 97.

After the intelligence we have received from London, respecting the character of the fever now prevailing there, Dr. Baird's letter has additional importance, and he has kindly permitted me to publish it. I omit a few remarks at the beginning and end.

"DEAR SIR,

"In compliance with your request, I transmit you the following facts, that, during the months of July, August, and September, when Cholera was prevalent in Liverpool and the neighbourhood, the admission of cases into the Fever Hospital was comparatively trifling, but those admitted were generally severe, and accompanied with cerebral irritation. Upon the disappearance of Cholera in the latter end of September, the weekly admission of fever cases, which had previously averaged about fifteen, was now doubled; the cases upon the whole were of a milder character, cerebral irritation occurred much less frequently, but gastric and enteric irritation very generally prevailed. These observations are further confirmed by the following note, which I received last evening, from Mr. Nightingale, the very intelligent House Surgeon of the Workhouse:—'In answer to your query as to the Cholera, or Bowel Complaint, amongst our population, I would remark that what may appear very singular, is, that in proportion as Typhus fever encreased, the former decreased, but that the majority of the fever cases have been, latterly, and still are, accompanied with the most marked symptoms of affection of the mucous tissue of the stomach and bowels.'

"Yours, very truly,

"D. BAIRD.

"Duke Street, Thursday, Dec. 29, 1831.

"To DR. HANCOCK."

In the very interesting lecture which Dr. Baird gave to most of the profession in Liverpool, after his return from Newcastle and Gateshead, he confirmed the fact relating to the prevalence of Typhus fever among the better classes in the high and airy situations of Newcastle, before it was visited by the Cholera; and the exemption of these from fever, while the Cholera was raging among the poor in the low and dirty parts. He also stated, that all the medical men there were agreed that every form of disease in the place, while Cholera was epidemic, had assumed a tendency to that complaint: and he added, that it was in the closest and filthiest parts of Gateshead where he saw the pestilence in its most intense and virulent aspect; though many died in other localities, with milder features of the disorder.

NOTE 12, page 110.

"I feel myself, says Dr. Rush, under an obligation to declare, that I believe quarantines are of no efficiency in preventing the Yellow Fever, in any other way than by excluding the unwholesome air that is generated in the holds of ships, which may be done as easily in a single day, as in weeks or months. They originated in error, and have been kept up by a supine and traditional faith in the opinions and conduct of our ancestors in medicine. Millions of dollars have been wasted by them. From their influence, the commerce, agriculture, and manufactures of our country have suffered for many years. But this is not all. Thousands of lives have been sacrificed, by that faith in their efficacy, which has led to the neglect of domestic cleanliness. Distressing as these evils are, still greater have originated from them; for a belief in the contagious nature of the Yellow Fever, which is so solemnly enforced, by the execution of quarantine laws, has demoralized our citizens. It has, in many instances, extinguished friendship, annihilated religion, and violated the sacraments of nature, by resisting even the loud and vehement cries of filial and parental blood."——"I look for a time when our Courts of Law shall punish cities and villages, for permitting any of the sources of bilious and malignant fevers to exist within their jurisdiction." "By deriving the fever from our own climate and atmosphere, we shall be able to foresee its approach in the increased violence of common diseases, in the morbid state of vegetation, in the course of the winds, in the diseases of certain brute animals, and in the increase of common, or the appearance of uncommon insects." *Med Inquiries, vol.* i. *p.* 217, 267.

I am far from wishing to make any singularity in religious opinion, especially in what is deemed a trifle, prominent, when treating on a matter of science. Yet, I cannot discover upon what sound principle our peculiarities, in this respect, if we value them at all, should yield to any thing else; and I perceive the inconsistency of doing on one occasion what we avoid on another, without assigning some reasonable motive; I can, therefore, well bear the imputation of narrow-mindedness for the confession. Being in the habit of calling the months of the year after their numerical order, according to the simple, and, I believe, correct usage of the society to which I belong, I would not willingly have deviated into the common practice which assigns names to some of the months after heathen superstitions. But having to make many quotations, in which the months

receive their common appellations, I found that confusion would b
likely to arise by giving a different name to the same month, when
might have occasion to use it myself. I would gladly have excuse
myself for saying even so much, on this occasion, if I could wit
propriety have avoided it.

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