

Prof Kennedy (J. M. S.)

A LECTURE

ON THE
NATURE, CAUSES, AND PREVENTION
OF

CHOLERA,

DELIVERED AT
THE IVANHOE BATHS' ASSEMBLY ROOMS,
Ashby-de-la-Zouch,

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BY

JAMES M. S. KENNEDY, M. D.

"Hanc sequitur miseranda fames, febrisque malignis
Ignibus, et febri pestis crudelior ipsa,
Pestis, avernali surgens e gurgite proles,
Quam jubet ultrices pro crimine spargere pœnas
Vindex ira Deûm et terræ insultare nocenti."

GEORGEY, *Hygiene.*

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TO
SIR GEORGE HOWLAND WILLOUGHBY BEAUMONT,
BARONET,
OF COLEORTON HALL:

This Lecture,

AS AN ACKNOWLEDGMENT OF SINCERE REGARD,

IS GRATEFULLY INSCRIBED, BY

THE AUTHOR.

ASHBY-DE-LA-ZOUCH,
September 18th, 1832.

To

James Copland M.D.

With the kindest

Regards of his

Friend

J. H. C.

LECTURE ON CHOLERA.

“Learn, then, from the things which are produced, to infer the existence of an invisible power, and to reverence the Deity.”—SOCRATES.

EXPERIENCE and reflection enable us to ascertain the fact, that the principles of many effective agents which co-operate in maintaining the economy of the Universe, continue to elude all the resources of Science hitherto instituted for their discovery, by the most powerful and best cultivated minds. Knowledge of certain phenomena, however, qualifies the philosopher to infer the pre-existence of such principles, for the reason that every perceptible accident or circumstance in nature, must, by inevitable consequence, be the effect of a free or a necessary cause. Life, for instance, is the primary source of organic growth and action: in vegetables and animals and man, the vital manifestations are apparent; and, in these, we observe evidences of their pre-existent causes, originating elementary results. Hence, the deduction is self-evident—that all such manifestations must have a cause, and that this cause must be a *something* endowed with a definite existence and active powers. Now, this active something, we denominate Life; but, uninformed by Philosophy, uninstructed by Revelation, we are altogether ignorant of its nature and essence. What Life *is*, we know not. Why Life is what it *is*, we know not. Why the something we call Life, and this something alone, can produce the vital operations, we know not. Equally so it is with Light, by means of which our eyes see, our brains discern, and our minds perceive, the objects of external nature. With Heat it is so likewise: heat is a thing applicable and applied to innumerable purposes, alike powerful and pleasant and beneficial. Nevertheless, the essential principles of Light and Heat, remain unrevealed to man. From their genial influences on all the

material systems, we conclude that, as physical agents, they possess substantiality and productive powers: in the same genial influences also, we distinctly recognize evidences which proclaim aloud, the matchless attributes and the handiwork of an unoriginated Deity—all-good, all-wise, all-mighty,—evidences, indeed, which demonstrate the presence and government of an ever-watchful Providence, cherishing His rational offspring. In like manner, can you tell *what* makes bad crops occasionally? Do you reply, These are produced by bad seasons? Well: but bad seasons are conditions, not things: conditions imply the *qualities* of things which *cause*, not the things themselves which exercise extrinsecal forces and thus *produce*, effects. What, then, is the primary cause of bad seasons? Why, you know not: nevertheless, bad seasons occur, and their necessary consequences follow in their train. With many Diseases, with the Plague, with Fever, with the Sweating-sickness of our forefathers, it is in all respects the same: we know that disease *is*, because it is and acts—because it determines things, states and events, important, afflictive, illimitable. With Cholera, it is the same precisely: we know nothing whatever of the malignant principle which impels this instrument of sorrow and of death: it is an invisible and impalpable agent, and we perceive not its approaches before we have been aroused from security by the fate of its multiplying victims, enduring distress and destruction. Impressed, however, with the full consciousness of failure in our labours to ascertain the true principle of Cholera, are we to repose ourselves on a couch of contentment, enjoying the quiet comforts of ignorance, while a disease—remorseless and terrible—is raging around us: while, indeed, a deadly pestilence is hurling multitudes of our fellow-men, with awful precipitation—to the grave? No. By the gentle promptings of Benevolence; by the strong motives of Self-interest; by the divine obligations of Christian Charity; we are required to persevere in employing our best resources—in exerting our highest energies of intelligence—in applying sedulously every expedient which genius may invent, every process that science may disclose, with a view to detect the essential cause of so much misery; and, thus, to intercept or extinguish its ravages for ever.

Cholera has been used as the name of a disease, for more than two-and-twenty centuries. It is composed of two Greek words, which together signify literally and simply, a flow of bile. Now, bile flows naturally, and is indispensable to health; but, in Cholera, this secretion is always inordinate or vitiated: wherefore, like many others, this venerable pleonasm requires

improvement. Verily with this, it is, as with many such medical appellations: its meaning is defective, and necessarily tends to mislead. Seldom, perhaps never, can the chief features of a disease be expressed by one distinctive term; and, hence, many an error in the administration of remedies, exemplifies the consequence of allowing our judgment to be abstracted from the discrimination of things, by the idea denoted in a name.

Let us next advert briefly to the History of Cholera, as it stands on the pages of writers who have, succinctly or particularly, recorded their sentiments respecting its characteristic manifestations, and its effects. Between the distant age when this malady first appeared among the memorials of human suffering, and the beginning of the present century, more than three hundred authors have made it the subject of a cursory or comprehensive investigation: and, during the last thirty-two years, the books upon Cholera, are actually multitudinous.

Whoever is conversant with Brahminical learning, needs not to be informed—that, for many a long century of years before the Christian era, the Cholera was known and dreaded as an occasional scourge of Hindoostan and other oriental regions. It is described in the sacred Vedas, under various names: some of these are significant of its principal symptoms; others denote the formidable ravages with which it often rapidly desolates populous districts. By the oriental moralists, the horrors of Cholera are employed figuratively to enforce their didactic precepts: thus, in the *Yoga Vasishtha*—a very ancient ethical poem—the Sage exclaims, “Attachment to this world, is a deadly poison, like the disease *Bissoo Chakka* (*cholera*), which occasions coldness of the intestines, corrupts the blood, and extinguishes the life of man.”

Most of the ancient Greek, Roman, Persian and Arabian physicians, represent this same Cholera as being often severe in its operation, and not unfrequent in its occurrence. Even Pliny, the naturalist, reverts to it no less than twelve times: he speaks of the violent and inordinate motion of choleric humours raging upwards and downwards, as circumstances by which his sympathy had been moved, and his imagination elevated.

Aretæus a Cappadocian Greek in A. D. 81, and Cœlius Aurelianus a Romanized Numidian in A. D. 230, have described most faithfully the “Choleric Sicknes,” in their discourses on the nature and treatment of acute maladies. Would you hear, as an illustration, how the former depicts

it, from observation of the force and features which made it a subject of discriminative knowledge to the Healers, of ancient times? Cholera, then, according to this writer, is a most intense disease, occasioned by a preternatural revulsion of the fluid secretions from all parts of the body, into the gullet, stomach and bowels. It begins with violent discharges of the gastric contents, by vomiting: at the same time, the intestinal collections are expelled in copious, frequent, and fluid evacuations. At first, the rejections from the mouth, are aqueous; the dejections from the bowels, unusually liquid and offensive: but, if these are exasperated by lavements, the motions become serous and then bilious. Sometimes the disease is neither severe nor painful at its commencement: afterwards, however, cramps of the throat and stomach, with gripings of the belly, supervene. If these, and the other symptoms increase, swoonings take place; the arms and legs grow powerless; dismay and despondency prevail; an utter aversion from food ensues; or, if aliment of any kind be swallowed, it is instantly rejected by vomiting, accompanied with extreme sickness and disturbance of the whole frame. All the discharges are now tinged with yellow bile; convulsions come on, with muscular spasms, especially in the extremities; the fingers are contracted; giddiness and hiccup succeed; the nails become livid; the hands and feet grow cold, and a paroxysm of universal shivering follows. When the malady assumes a fatal tendency, this is indicated by the occurrence of an ungenial perspiration; black bile abounds in the gastric and alvine discharges; the renal secretion ceases, in consequence of the fluids being totally diverted from their natural passages; the voice fails; as in fainting, the pulse becomes small and very frequent; nausea increases, with incessant and ineffectual retching; the bowels experience a perpetual and harrassing excitement; and, the melancholy scene terminates in convulsions and a miserable death.—Here then, you have a graphic picture of Cholera, with its cramps and spasms, its lividness of the fingers and its serous dejections, from the pencil of a Greek physician whose accuracy of observation and faithfulness of description will continue, through all afterages, to be a fair subject of practical and preceptive emulation.

History commemorates the recurrence of malignant "Sicknesses" with which the nations of the earth have been periodically visited, for their correction and improvement. Even our own high-favoured country itself has, more than once, undergone the calamities inevitably consequent to such appalling visitations. Now, should you think of examining the

characters of these with close attention, you would find that some of them presented symptoms having much affinity to those of the baleful pestilence which has filled so many families and hamlets and towns with mourning and desolation. Here is one sketch, which goes far to establish this conjecture.—Dr. Thomas Cogan, writing in 1588, makes the following remarks, in his "*Haven of Health*," an offering to the "comfort of students," not the less instructive because of its quaintness. "What kinde of disease," he observes, "this straunge and daungerous sicknesse should be which was at Cambridge in 1522, it is very harde to define, neither hath any man written of that matter. Yet my judgment is, bee it spoken without offence of the learned Phisicians, that the disease was a burninge feaver. For as much as the signes of a burninge ague did manifestlie appeare in this disease, which be these: Extreame heate of the bodie, vehement thirste, loathing of meate, tossing too and fro, and inquietnesse, drinesse of the tongue which is rough and blacke, gripinge of the bellie, cholericke laske, cruell ache of heade, no sounde sleepe or no sleepe at all, ravinge and frenzie, the ende whereof to lyfe or deathe, is bleedinge at the nose, great vomyttinge, sweate or laske. And this kinde of sicknesse is one of those rodes, and the most common rode, wherwith it pleaseth God to beate his people for sinne: indeed it is God's messenger, and sometymes God's poaste, because it commythe in poaste haste, and callith us quicklie away."

Gerarde, our English Dioscorides, in his "*Herball, or Generall Historie of Plants*"—a "booke-hyrthe, in forme and dispositioun most fayre ande comelie"—prescribes remedies for the "*Cholericke Passioun*," as an affection previously to his time, 1597, familiarly known. "The juyce grains of the pomegranate," he affirms, "represe and staie the overmuch vomitinge of choler, called the Felonie": again, "the juyce of the blacke wortle-berries is boyled till it become thicke and is prepared to keepe by addinge honie and sugar unto it. Apothecaries call this *Rob*, and it is preferable in all thynges to the raw berries themselves: it stops the belly, stays vomitunge, and helps the Felonie, or the purginge of choler upwards and downwards": again, "Mint is marvellous wholesome for the stomacke; it staieth the hicket, parbrakinge, vomitunge and scowering in the Cholericke passioun, if it be takyne in the juyce of a soure pomegranate": and again, "Calamint which groweth in mountaines is of a fervente taste and bitinge; it helpeth such as are troubled with crampes and convulsions, and is a remedie for the cholericke passioun,

otherwise called the Felonie"—a term, from the Latin *fel*, gall or bile, most enigmatically substituted for *cholera*; and, like this, fallaciously expressive of the notion, that disorder of the biliary functions constitutes the Disease's *essential* cause.

Prolixity, on the present occasion, would be mistimed: we must, therefore, content ourselves with a few descriptive notes, selected for the purpose of making known the genuine features of Cholera as these were observed by experienced physicians, in the age before our fathers were born. First of all, let us attend to an account of Cholera, deduced from actual observation, two hundred years since, in the tainted regions of the East. Dr. James Bontius, a Dutchman, went to Java in 1629, and practised many years there as state-physician. His valuable work on the Diseases, Natural History, and Medicines of India, was given to the world in 1642; and in his sixth chapter, he describes Cholera with the exactness of a philosopher desirous of establishing his doctrines on fair and ample induction. His words are, "In the Cholera, hot, bilious matter, irritating the stomach and intestines, is incessantly and copiously discharged from the mouth and bowels. It is a disorder of the most acute kind, and therefore requires immediate applications. The principal cause of it, next to a hot and moist disposition of the air, is an intemperate eating of fruits which, being generally green, and liable to putrefaction, irritate and oppress the stomach by their excessive humidity, and thus produce an acrid bile. By such excessive evacuations, the animal spirits are exhausted, and the heart, the fountain of heat and life, is overwhelmed, and those who are seized with the disease generally die within twenty-four hours. Thus, Van-Royen steward of the hospital, being in perfect health, at six o'clock in the evening, was suddenly seized with Cholera, and expired in terrible agony, before midnight: the violence and rapidity of the disorder surmounting the force of every remedy. This disease is attended with a weak pulse, difficult respiration, coldness of the extremities, great internal heat, insatiable thirst, perpetual watching, with restlessness and incessant tossing of the body. When a cold and foetid perspiration breaks out, this is a certain sign that death is at hand; and, those who die, generally expire in convulsions."

Turn we now to Europe, and view this Cholerous pestilence very graphically delineated from observation of its characters and of the calamities it inflicted, of yore, on the provinces of Germany.—Dr. Frederick Hoffman, Professor of Medicine at Hallé, where he maintained an extraordinary reputation for more than half a century, thus writes on the disease in 1718.

“Among us,” he says, “the cholera is most common in summer or the beginning of autumn, with debilitated persons having a bilious disposition, after violent passion or eating too freely of fermentable relaxing fruits. An attack is often preceded by sour offensive eructations, severe pain in the stomach and bowels, oppression at the breast and anxious breathing: vomiting and purging come on suddenly, and continue very frequent and violent, with flatulent belchings. All the discharges are frothy and bilious; sometimes black or tinged with blood, extremely acrid, almost corrosive. Acute pains and spasms of the bowels, with intolerable heart-burn, supervene: insatiable thirst; coldness of the extremities; palpitations of the heart and hiccup ensue: the kidneys cease to act: and the patient faints and dies with convulsive retchings.” He adds; “though this disease frequently yields to proper remedies, there is no one, the plague and pestilential fevers perhaps excepted, which is more acute or more speedily fatal.”

Lieutaud, so much and so justly celebrated among the improvers of pathological anatomy, was born at “Aix dans la Provence,” in 1703: he practised medicine with great distinction in the French metropolis, and became physician to the king: his “*Précis de la Médecine Pratique*,” was published in 1759; and, in this work, based on the results of his own unsurpassed experience, he makes Cholera “*cette maladie effrayante*” the subject of an outline, in which the gloom and sadness of such a theme are refreshed by the picturesque vivacity of his sketching. Cholera, he begins, is a most frightful disease: it explodes, in an attack of furious vomiting and purging of depraved matters, accompanied with symptoms the most formidable: these are—an excruciating pain and a vehement burning heat in the entrails: distension of the belly: sense of anguish in the epigastric region: hiccup, distressing restlessness and swooning: unappeasable thirst: febrile excitement, with a small, irregular and intermitting pulse: preternatural contractions of the limbs: cramps or painful twitchings of the legs and thighs: cold exudations from the skin: chillness of the extremities: copious flatulent eruptions. The most robust persons, he concludes, often perish under its violence, in twenty-four hours.—This author denounces abstraction of blood, in the first stage of Cholera, as a pernicious fancy of the “incapables”; and, artificial evacuations by vomiting and purging, are proscribed by him as an exemplification of the *currenti calcar addere*—as a shift of senseless empirics, whose foolhardiness represents the converse of their knowledge.

Dr. Paisley, who had great experience in the treatment of intertropical disorders, addressed a letter on Cholera to Mr. Curtis, in 1774; and, in this, he designates it a "disease horridly fatal." In his book on the "Diseases of India," the last-mentioned writer gives a circumstantial account of "Spasmodic Cholera," as it prevailed near Madras, in the navy and on shore, in 1782: the Report of the Madras Medical Board, embodying the subordinate reports of sixty-four medical officers, brings the history of this pestilence down to 1824: and, the rapidly-accumulating mass of Treatises, Essays, Histories, Papers and Speculations of all sorts, extends the melancholy picture of its devastations, to the present day.

With particular interest, we may now review a sketch of Cholera as it appeared in England, in a former age.

Dr. Thomas Sydenham (the ornament of his nation, as Boerhaave used to call him) was born in Dorsetshire, in 1624; his book on Epidemical Diseases, was first published in 1680; and he died in London in 1689, renowned, says his biographer, both at home and abroad for his great skill and judgment on all occasions. He treated Cholera extensively, more than 160 years ago: our attention, therefore, may be usefully directed to his description of the symptoms which it then exhibited. "This disease," he observes, "was much more prevalent in the year 1669, than I ever remember to have known it in any other. It is easily distinguished by the following signs—immoderate vomiting and a discharge of vitiated humours from the bowels, with extreme urgency and depression: violent pain and distension of the abdomen and intestines: heart-burn and thirst: pulse rapid and frequent, generally small and irregular: anxiety and inward parching heat: most distressing sickness: colliquative perspirations; contractions of the limbs; fainting; coldness of the extremities, and other like symptoms which greatly terrify the attendants, and often destroy the patient in twenty-four hours." In another place, he adds, "at the close of summer 1676, the Cholera Morbus raged epidemically, and was accompanied with more violent and inveterate convulsions, than I had hitherto observed: for, not only the abdomen (as is usual in this disease) but all the muscles of the body, and especially those of the arms and legs, were affected with terrible spasms, so that the patient would sometimes leap out of bed, and writhe himself all manner of ways in order, if possible, to mitigate their violence." He founded his method of treating the Disease on these symptoms, which he held for evident characteristics; namely, violent pain, excessive vomiting, immoderate looseness, great

hurry of the spirits; cold sweats, scarce perceptible pulse, and convulsions apt to return upon the least motion.—Such are the distinctive lineaments of Cholera, delineated by a master who excelled in the art of pathological representation.

With this selection of evidence before us, do we propound the question—Is Cholera a new disease, in the world, in Europe, in England? The reply to this inquiry, is—we must go to the history of Medicine and of Man, and there we shall find proofs conclusive and abundant, of the facts—that Cholera is a most ancient disease, and that the sphere of its prevalence is all but universal. From its infrequent occurrence with us, the present characters of this pestilence appear extraordinary; nevertheless, with the exception of blueness, even now not general, all those symptoms which still distinguish it from every other malady, were ascertained and practically applied by the physicians of primeval days: manifestly, therefore, Cholera is an ancient disease, identical in its nature everywhere but differing incidentally in the degree of its intensity and the destructiveness of its effects. Cholera, in much of its present character, in nothing of its nature, is new to us: it was not so to our forefathers. Let us all, then, be familiar with the characteristic manifestations of Disease, in past ages; and, thus, secure our judgment from being astonished by those peculiarities which distinguish it when sent to accomplish extraordinary ends. Ignorance is a well-spring of indecision; and, the delusion of looking for something unusual in the bearings of any affliction, creates a secret but certain tendency to subvert that equanimity which alone empowers a physician to discriminate the origin of symptoms, and to decide on the means of eradicating their cause.

Observation must have taught you, long before to-day, that no one disease—a common cold, for instance—ever exhibits the same identical symptoms or produces exactly the same effects, in many individuals; and, personal experience may have taught you besides, that the very same disease has not, twice together, exhibited the same identical symptoms nor produced precisely the same effects, in your own persons. Out of this, then, arises the plain question—What are the causes of such differences? Now, your question is both fair and apposite; but, so is this—What are the causes of the countless differences which we daily observe in the heads and faces, the limbs and bodies, of mankind? Make, if you please, this last question a theme of contemplation, till we meet again: the answer to the first is this—disease, at all times, retains a liability to have its symptoms and its effects modified by an ever-

changing diversity of circumstances: and, among the most influential of these, you will recognize—peculiarity of constitution, original or acquired; the results of antecedent disorders, and of their treatment; atmospheric qualities and their vicissitudes; age and sex; habits of exercise; modes of using dress; kinds and combinations of diet; privations and indulgences; engagements of the mind, and its discipline; custom and fashion, with their withering dominion over the finest sympathies of man and the natural disposition of society. That these are frequent, almost general, causes of that individuality in Diseases which denotes and requires, for each case, an appropriate distinction in the remedies, is most certain. Cholera presents no exception to this rule: it is a malady having a remarkable tendency to display inexplicable irregularities, in its prominent symptoms. Here, and easily, you may elicit knowledge alike opportune and profitable, from a proposition which cannot be successfully impugned:—from a proposition, the manifestness of which ought to expose the superlative absurdity of any man's professing to cure Cholera generally with one remedy, or one set of remedies, however skilfully combined: fatal disappointment, will assuredly overtake him who engages to perform this impracticable office, unobservant of constitutional and other important differences. Could you suppress an impulse to question the sagacity of that "Doctor" who should propose to treat, with remedies not different, the Fever of a passionless lumpkin replete with lymph and blubber, and that of a man possessing an exquisite nervous constitution, encouraging the vivid impressionability of a wild and restless intellect? Indeed, you could not: for, plain common sense would intuitively impel you to deride a measure so miserably preposterous and extravagant. Be the management of Cholera so judged: it seizes individuals endowed with constitutions presenting every possible modification, and receiving impressions from agencies which generate every possible condition: hence, obviously, its antidotes must be varied after such a manner as to meet its various indications. Not a few choleric patients experience no burning pain at the stomach: in other sufferers, the cramps and spasms are unafflictive or absent: occasionally, vomiting never supervenes: often, the bowels do not exercise much inordinate action: frequently, that singular blueness which depends on the residue of blood coagulating in the superficial veins, is altogether inexistent, even in fatal cases: not seldom, the disease advances slowly, displaying little severity: in many instances, it suddenly explodes; and, with irresistible violence,

accelerates death. Such deviations from the disease's general aspect, however, constitute no reason for diminishing our precautions against its gradual, as well as its abrupt, inroads upon happiness or life: the most common of its ordinary appearances ought to be held for a monitory harbinger, deputed to apprise us—that the unsparing pestilence approximates our dwellings. Let us, therefore, guard these with increasing vigilance; and, without suffering our spirits to become dismayed and terror-stricken, let us be ever watchful and kind and considerate, but fearless and resolute in the discharge of those difficult duties which our peculiar and social relations enjoin. The rustling of a leaf becomes a motive to circum-spection with him who knows that the wild-beasts of the desert, are prowling around his path, impatient to devour him for their prey. We, however, have had no such gentle notice of the enemy's proximity: our fore-warning has been sufficiently terrible: seven of our neighbours, under sufferings irremediable, have suddenly perished. If, after this, we do permit a merciless apathy to betray us into inaction, our future visitations will experience the just unconcern of the world; and we ourselves, who were too idle to institute precautionary resources, must be doomed to endure the recriminations of self-accusing minds.

Incurious must that spirit be, and insipid also, which desires not to know all that is already known concerning the precise nature of Cholera. With respect to this, however, many difficulties oppose our arriving, in the present state of science, at a satisfactory conclusion: nevertheless, we must not desist from striving, rationally and zealously, to surmount these difficulties; and, in pursuit of this object, our researches should be conducted in the usual way—by examination of the Disease's seat, its symptoms, and results. Now, as we have seen, all these are exceedingly variable; and, in the severer cases, most of the vital organs—the heart, lungs, liver, stomach, bowels, kidneys, brain, and muscles—become profoundly implicated and exhibit signs of a mortal disturbance of their functions. Under such circumstances, clearly, the rule should be—to ascertain, by many and diversified observations, what set of symptoms *generally* predominate; what organ or set of organs *generally* display appearances of disordered action; what morbid effects are *generally* determined, in numerous instances of the malady: and thus, by a legitimate induction from facts unquestioned, we shall be authorized to propound a *general* doctrine—qualified, of course, with exceptions real or apparent. Obviously, however, any attempt at exemplifying

an inquiry so comprehensive, would necessarily lead to an elaborate process of physiological and pathological discoursing, with which you could be little entertained, and less instructed. Suffice it, therefore, to state summarily—that, in many cases of Cholera, the *nervous* system, including the spinal marrow, nerves and brain,—that, in more cases, the *vascular* system, comprising the heart, arteries, veins, and vessels which carry or secrete the colourless fluids,—and that, in most cases, the nervous and vascular systems in a co-ordinate degree, are primarily and principally affected. Hence, we shall at least approximate the truth, when we infer from its perceptible manifestations—that Cholera derives its peculiar nature from disorder of sensation and an excess of those secretions, pure or vitiated, which naturally flow into the alimentary passages. Would you wish to have this definition yet farther amplified? Well; when the occult principle which makes and matures, begins and completes the choleric processes, has concentrated its malignant energies in the person of its victim, an intense observer may distinguish the consecutive evolution of its effects in two separate sets of symptoms. When, at the commencement of an attack, sometimes sooner, uneasiness arises in the region of the stomach and lower part of the chest,—when this uneasiness extends over the bowels, to the loins and the back, the left side, and the head, becoming gradually aggravated into an aching or acute pain,—when this pain increases and is accompanied by dizziness and an oppressive disquietude, with startings and muscular twitchings, cramps and spasms and convulsions,—then, this accumulation of disturbance and ruin, is produced by the *principle* of Cholera acting on the nervous system, wherein are the natural sources of all sensation and voluntary motion. Again, when sickness begins, and advances into occasional retching,—when this terminates in frequent vomiting of serous impurities, greatly more copious than the stomach had received or could contain,—when, at the same time, the bowels are impelled into exorbitant action, and their discharges, liquid and unnatural, become so profuse as to overdrain the body's fluid elements,—then, these wasteful evacuations are caused by the *principle* of Cholera deranging the vascular functions, so as to exhaust the blood wherein are the sources of vitality and structure. Now, since the sentient and secreting organs co-exist and co-operate in a manner so intimate as to render them necessarily and mutually dependent; and, since the two sets of symptoms accompanying their individual derangement, are usually concomitant and much intermingled; it is seldom attainable, often inexpedient, to

determine which of these sets is primary, or which of them presents the chief indications of treatment. Consequently, the true *nature* of Cholera is complicate: it stands apparent in the group of evils which characterize a morbid imperfection of feeling, united with a morbid excess of the secretions.

What are the *Causes* of Cholera? To this inquiry, a full reply is impracticable: nevertheless, it is a subject most fit and generous whereon man may commendably exercise those powers of his mind, which have induced the best portions of nature to own the ascendancy of intelligence. According to the method ordinarily adopted in practical attempts at distinguishing the sources of morbid agency, the *causes* of Cholera should be determined by inference and demonstration. They may be resolved into two general classes, and thus separately considered,—*those* which induce, or tend to induce, disease of the nervous and vascular systems, with consequent disorder of their correlative actions,—and *those* which perfect the development of such disease into the true choleric pestilence.

Manifold and various are the causes of Cholera, comprehended in the *first* class: those of them with which we are most familiar, may be enumerated. These are—personal impurity: imperfect and unsuitable clothing: defective and improper nourishment: public nuisances: ill-ventilated, damp and dirty houses: over-crowded and filthy sleeping-places: fatigue and exhaustion, corporeal or mental, from whatever origin: excesses and deprivations, of all kinds: assemblages of idle and thoughtless and dissolute persons: exposure to abrupt or ungenial variations of the atmosphere: insalutary exhalations from the earth or water: grievous affections, bad passions, intense emotions.—When, afterwards, our attention shall be directed to the measures most applicable to the *Prevention* of Cholera, these causes of the disease will again come under our consideration.

Included in the *second* class of choleric causes, are—infection, contagion, epidemic influence, and predisposition: let us weigh the import of these, in their order, with the care required by topics particularly interesting in all their relations.

Are you desirous of moving the inquiry—What is Infection? Infection has a threefold acceptation: it denotes the imperceptible something, *the principle*, which enters insensibly into a vital system and there engenders disease: it denotes *the act* by which a vital system receives the infecting principle, and thus becomes the bed in which its growth and powers are perfected: and, it signifies *the state* of a vital system wherein the infecting principle has been received, and begins to exer-

cise its inherent energies. Such are the acceptations of this ambiguous term; but, were the term and its meanings defined with the utmost precision, we should still remain unauthorized to admit that they add anything whatever to our knowledge of the infecting principle itself, as a thing existent and active. Altogether vain and unrequited, would you find the labour of looking for a theory of its constituent nature, rendered probable by argument, far less by exact philosophical induction. Whether indeed, it is a durable element of the universe, always apt to put forth its proper forces when directed by the impulse of other moving causes; or, whether it proceeds from the co-efficiency of other causes determining some mysterious process of re-production—are circumstances whereof we are entirely ignorant: as with light and heat, its effects alone proclaim its distinguishable existence and its aspects. Be this Infecting Principle, however, what it may; and be its modes of action and inaction what they may, we are warranted by observation of its effects upon the animal economy, both in man and brutes, to infer that it does exist substantially, as a thing permanent and producible; and that, as such, it operates frequently and fatally as a distinct morbid agent. We conclude hypothetically moreover, that this principle obtains admission into the system by affecting the nerves or the vessels of the skin, and of the membranes which line the lungs and the alimentary canal; but, by the same kind and degree of evidence, the conclusion may be equally well supported—that infection is susceptible of primary formation, in a morbid part.

Were you inclined to be curious, you might illustrate the *mode* of its intrusion through the membrane and air-cells of the lungs, by a very simple experiment: thus—pour a spoonful of the spirit of turpentine into a bason containing hot water; for a few minutes, freely inspire the steam as it ascends; and, in due time, you will find that the fluid secreted by the kidneys, has obtained the odour of violets. Here, volatilized turpentine represents the infecting principle, and the process illustrates the manner how—on reaching the superficial veins and other vessels which absorb extraneous substances—this principle is imbibed or sucked by these vessels into the stream of blood, and thus diffusively contaminates the vehicle of health and vitality.—Another observation may tend to explain the *mode* in which an impalpable infectious principle, first of all, affects the nervous system—then the blood-vessels and heart—and ultimately the whole frame: thus—let a man endowed with a nervous-sanguine constitution, enjoying vigorous health and having his stomach in a generous mood, place himself before a

strong brisk fire in a comfortable apartment; forthwith, he experiences an agreeable feeling of warmth; by and by, he becomes painfully overheated; anon, his cutaneous veins grow tumid; his face reddens deeply; the secreting pores of his skin expand their orifices, act with redoubling energy, and yield a profuse perspiration; his breathing is quickened; his heart labours and accelerates its motions; his pulses make 120, instead of 70, beats in a minute; his temples throb tumultuously; his head aches with an increasing sense of weight and distension; and, were he unwisely to prolong the experiment, it might superinduce the worst results. Now, should you be asked, "What occasioned this portentous group of symptoms?" Why; "the fire, to be sure," would be your reply. Meanwhile, you overpass the more difficult inquiry—"How could the fire do this much; since, neither it, nor any thing tactile or visible, manifestly touched the experimenter's person?" Moreover—What made and maintained the fire itself; what was the viewless instrument of so much commotion of the vital functions? Something, an energetic something, evidently must have been the main-spring of all these consecutive determinations; and you take this for certain, on the ground—that every effect, not miraculous, has its natural cause. This something, however, remains invisible, intangible, ethereal: scientific invention has not yet discovered the means of rendering it a palpable object: nevertheless, we infer its substantiality and action from experience of its determinate effects. We call it *Heat*, and it was radiating heat which he saw not, and could not touch, that subjected Him before the fire, to a perilous velocity of the fluids, hurried respiration, over-burden of the brain, and other fore-runners of apoplexy. Reflect, now, on the advances of this practical illustration, and you will find little perplexity in understanding the *manner* wherein an infecting principle affects the nervous system primarily; and, in the end, most of the organs which execute functions directly subservient to life. You are taught that the nervous system constitutes the source of all this disturbance, by the well-known fact—that, if the nerves of a limb are paralyzed or deprived of their sentient qualities, the same limb may be pinched, pricked, torn, cut, scorched, or actually burnt; and, all the while, the patient shall continue unmoved by such afflictions, and insensible of annoyance or pain.

What is Contagion? Contagion, as a mere term, implies—a *thing* generated by disease, and capable of regenerating the like cause of the same disease,—the *act* whereby this thing produced by disease, re-produces the same thing and the like

disease,—and the *state* or *condition* which results from the completion of this *act*, by the *thing* indefinitely, but generally, denominated *contagion*. Descriptive precision, and our purpose on this occasion as well, require that its signification be restricted: let us, therefore, view it as a thing, a principle, whereof the active powers appear in the consequences of their exercise. Like Infection, it possesses the inherent property of transmitting its own elements, and thus excites morbid actions not dissimilar from those in which itself originated. Sometimes, the contagious principle may be an imperceptible agent, as in the plague and certain fevers: but, most frequently, as in small-pox and some cutaneous eruptions, it is a perceptible substance, susceptible of artificial transplantation. Under both these forms, however, it is communicated to a sound vital part from another part peculiarly diseased, or from contaminated substances, by apposition of their surfaces when favourable to its reception. Such being the nature and mode of its propagation, Contagion should exclusively denote—a *perceptible* unsalutary principle engendered by disease, inexistent except as a morbid formation, and capable of imparting the essence of its originating disease, by absorption, from contact of living with living or lifeless parts. Infection, on the other hand, should exclusively denote—an *imperceptible* unsalutary principle engendered by disease or existent as an elementary particle of the external world, and capable of breeding or imparting the essence of infectious disease, by absorption, without contact of bodies. In either case, the morbid principle affects the nerves or vessels first and chiefly; and, unless repelled or exhausted or destroyed, it may perpetuate its originating disease and its own elements illimitably, by successive impregnations. Keeping these remarks in view, you may now figure to yourselves the *mode* in which an infectious or contagious malady is produced, re-produces itself, and is disseminated; but, they nowise elucidate the abstruse questions—What makes the *principle* of Cholera a *thing* distinct and distinguishable—What makes this *principle* exert its virulence peculiarly upon the vascular system, causing an overflow of vitiated serous fluids into the alimentary passages; and, on the nervous system, occasioning pains and cramps and convulsions and death? Elemental morbid causes must long remain among the objects of medico-philosophical research; but, their discovery and distinction—may we hope—will yet dignify and reward the fortunate ingenuity of future times.

What is Epidemic Influence? Why, it may be *any* thing; and, consequently *is* nothing: it is that which makes *many*

cases of a particular disease—measles or influenza, for instance—but it is not the *cause* of making any one disease peculiar and distinct from all other diseases. As a verbal epithet, *Epidemic* has the same meaning as our old Saxon word *Rife*, and is applicable to fever, plague, cholera, and all those maladies whereof numerous cases occur within a limited territory. Now, rifeness, any more than rareness, cannot evidently be a morbid agent: it denotes a condition of things or circumstances resulting from an influence by which the *instances* of this condition are rendered *numerous*. When, therefore, we speak of Cholera as being epidemic, we should imply restrictively, and without allusion to its essential nature or its causes—that the disease is prevalent only, and the instrument of affliction and disease to a multitude of persons. Consumption is regarded, by foreigners, as *the* epidemic of our British Isles.

We hear not a little, in these days, of the effects produced by what is conventionally designated “Predisposition,” with reference to its agency as the consummating cause of Cholera. Would you learn what we ought to understand by this term—here is an explanation? Medical philologists use the word, with a precise meaning, as significant of that particular state—hereditary, or constitutional, or acquired—in which particular causes or conditions render an individual peculiarly susceptible of a particular disease. Temperament, sex, age, personal conformation, mental constitution; occupations and professions; habits of life, inveterate or occasional; settled irregularity of some vital function; effects of previous sickness; repression of confirmed disorders—may be instanced as observable sources of predisposition. This, however, must be distinguishable in the aggregate of actual bodily signs, or deducible from observation of the appearances which *generally* concomitate with these personal signs, or are consequent to the known operations by which they are determined—before we can reasonably attempt to raise a question, or inculcate a doctrine, or explain a circumstance, grounded on the idea that a positive state of predisposition is existent. All the world can recognize, for example, the state which predisposes individuals to apoplexy; because its characteristic signs are apparent, and the advances of its development are perceivable in the vital functions which its causes progressively disturb. Quite the reverse, however, stands the question as it relates to a definition of the choleric predisposition: with this, our acquaintance is an utter nullity. Have its characters, essential or contingent, ever been delineated? No. Is the notion

of its existence and agency, other than a convenient assumption? Vainly shall we seek for testimony to establish the converse. Often-times, when we inquire for the means of shewing that such a predisposition *exists*, we are assured in reply, that it *must* exist—because nothing but its presence can account for many seizures with Cholera; nothing but its absence can account for innumerable escapes from that disease. At the same time, too, we need not be surprised at finding ourselves required forthwith to prove that such a predisposition does *not* exist—precisely in the same way as they require you to prove that Cholera is *not* contagious. You may illustrate this unphilosophical method of receding from the solution of a difficulty, by an example:—thus, you place in attendance upon a choleric patient, two Nurses whose constitutions, age, sex, habits and health, are identical; one of them sickens of the disease; the other escapes. Well; the luckless nurse's lot is an instance, and an evidence also, of the disease's contagious nature; but, the lucky nurse's immunity is not admitted as counter-evidence—because, of the two, the former solely was *predisposed* to receive the contagious principle. Here, you must acknowledge, is an imputation of defect in the vital conditions of an individual: but, the imputation stands unsupported by any one trace of evidence, conjectural or probable. Now, it is a crime in Law, to charge men or things with the exercise of bad qualities, and to fail of maintaining the charge with conclusive witness-bearing: and, it is an absolute rule in Philosophy, that they who affirm any thing, must substantiate their affirmation by unquestionable testimony. Where, then, are the proofs that the conditions of your nurse who became choleric, were different from those of his fellow; where are the proofs that his person was in any degree predisposed to admit contagion; where, indeed, are the proofs that the predisposition ascribed to him, was a reality? They are in-existent: wherefore, as an evidence of the communicability of Cholera by contagion, the fact of this one man's having sickened, under such circumstances, is decisively neutralized by the undisturbed health of his neighbour.

Premising, as a conventional arrangement, that *infectious* and *contagious* may be used as convertible terms—let us now propose the momentous inquiry, Is Cholera a contagious disease? This inquiry should be instituted with a view to its relations—*first*, as these regard the decision of a Medical Question; and, *secondly*, as they tend to interfere with the purposes of Civic Economy.

I. We cannot be required to show, by facts or arguments,

that Cholera is *not* contagious, because attempts to prove a *negative* are self-evidently illogical and absurd. Should we, however, find ourselves justified in asserting that this pestilence *is* contagious, then we would necessarily undertake the responsibility of establishing our assertion. Moreover, common-sense and science alike reject the assumption of an extraordinary cause for any circumstance or event, when what is ordinary will suffice to account for the results. Now, is it probable, is it possible, that the malignant principle of Cholera can be generated by other causes than contagion? You may reply in the affirmative without suspense of opinion, if the *state*—predisposition—be conceded; and, you may reply in the affirmative with confidence, because this fact rests on the most perfect demonstration—that many spontaneous and fatal explosions of Cholera have occurred in remote hamlets and cottages, whose inhabitants enjoyed complete exemption from intercourse with those of other places where the disease was prevalent. When, out of several persons all maintaining the same intimate and frequent communication with the sick of Cholera, and equally exposed to the influence of its known and reputed causes, one man alone of the entire group sustains an attack of the disease, it is the fashion to account for such a seizure by declaring authoritatively—that, among the whole of his associates, the seized One exclusively was in a state of *predisposition*, an imaginary state, the reality of which is altogether incapable of proof, by inference, analogy, or experiment. Many persons are represented as having been infected with Cholera, chiefly in consequence of their predisposition to imbibe its elements; but, we look in vain for any thing resembling an attempt to show what this predisposition *is*—to prove, that predisposition was then existent. We must acknowledge, indeed, that very few of such patients exhibited discernible signs of difference between themselves and others who were more fortunate in resisting equal danger: besides, very few of these sufferers exhibited discernible signs indicating—that, at the time of being seized, any one of their own conditions was at all different from what it had been, for days or weeks, previously to the hour of their calamity. Many things there are, doubtless, which predispose mankind to sustain the inroads of mortal diseases; but, it is undeniable, that the something which predisposes us *exclusively* to Cholera, and the something which *is* Cholera, are equally and entirely unknown.

They who represent Cholera as an infectious pestilence, have carefully accumulated—as a means of confirming their

theory—cases of persons who became ill, soon after having touched or used articles of dress or bed-clothes of those who were suffering or died of the disease,—and cases of persons who became ill, soon after being exposed to the influences of an atmosphere supposed to be impregnated with choleric exhalations. Now, these cases are not numerous; and, though the whole of them were admitted as fair evidence, without scrutiny, they could reasonably be held for nothing more than so many exceptions to a general rule; and, consequently, they do not invalidate the doctrine which that rule goes to confirm. Rightly estimated, such cases prove this much, and nothing more; that—soon after being in the situation, or doing the things, ascribed to them—persons have been seized with Cholera; but, in these cases, we find no proof whatever that they were choleric by contagion, or indeed by any other cause: the incident of one condition or action being merely subsequent in time to another of the same kind, can never authorize us philosophically to regard the latter as having been consequent on the former—to regard the two conditions or actions as standing in the relation of cause and effect. Moreover, many medical inquirers, zealous for the advancement of knowledge and the welfare of mankind—have voluntarily and experimentally placed themselves in close contact, in bed, with the dying and the dead of Cholera,—have there inspired profusely the breath of their departing patients,—have inoculated themselves with the blood, perspiration, and other fluids of choleric sufferers,—have endeavoured, in every imaginable way, to impregnate themselves with the infection of this pestilence,—and, with very few exceptions indeed, these adventurous philanthropists sustained no injury from their remarkable experiments. Altogether, in fine, by these and many other facts which tend fairly to strengthen the same position, we are justified in esteeming the process to show that *Cholera* is *contagious*, as a palpable and perfect failure; and, in concluding that Cholera *generally* originates from other causes than contagion.

II. You have had a view—a brief one to be sure—of this question as it relates to the merits of a Medical Question: you are next to consider it with a reference to the purposes of Civic Economy. On the one hand, then, appears the opinion which many able and upright and learned and benevolent observers have founded, on what *they* hold to be an open deduction from evincible facts. On the other hand, appears the counter-opinion of many able and upright and learned and benevolent observers, who do not undertake to prove that

Cholera is not contagious—who indeed are not required, by any law of society or science, to establish the negative proposition; but, who engage to prove and have proved conclusively, that the evidence adduced to uphold the affirmative proposition, is essentially and certainly inconclusive. Such being the state of this discussion as now submitted to our understanding and judgment, what ought to be the practical application by us who are now required, by every moral and social obligation, to protect ourselves, our families and our neighbours, from the dangers of a wide-spreading pestilence? Why; manifestly the question—to say the least of it—remains unsettled: as manifestly, therefore, it is our imperious duty to institute all those precautions which seem best adapted to secure us from the worst contingencies. Assuredly, we shall incur great criminality if we do not act—and act too with decision and efficacy—as though we knew the contagion of Cholera to be as certain as is the existence of that resplendent orb, by whose beams the heavens and the earth are now illuminated.

Would you know the best means of *Preventing* an explosion of Cholera upon this Town, so fortunate in its institutions, its resources, its climate? Listen, then, to the friendly and earnest suggestions of one, who owes you much gratitude, who takes a deep interest in your welfare, who has resolved on doing his duty by you, regardless of consequences.

Remove the cause, and its effects must cease—is a familiar truism. By the same rule, we should endeavour to weaken or repress the causes of Cholera, if we would succeed in obviating the disease's irruptions, and the crowd of evils which must accrue from its unrestrained predominancy. As a prelude to the remarks on which we are forthwith to enter, it may be stated—that, with the intention of promoting this salutary object, THE GOVERNMENT, by an act of generous despotism, have endowed the Boards of Health throughout the kingdom, with powers so unprecedented as to be scarcely compatible with the cherished independence of Englishmen. As it is, however, the measure constitutes an extraordinary expedient to attain an extraordinary end; and, through the discretion of a magnanimous people, it will be used with moderation and rectitude.

You will discern intuitively—that the direct means of preventing Cholera, must be moral and medicinal: they may be considered in connexion with the morbid causes their systematic employment is calculated to subdue: let us begin with the *Moral*, which arise chiefly from our modes of life, in the relations of thought and conduct. These causes when predominant, make the human frame, unusually accessible to the

reception of disease in general, and to the inroads of Cholera in particular, especially in times when the seeds of this pestilent malady are known, by experience, to be both active and rife.

Personal impurity, from its tendency to derange the functions of the skin and its health, constitutes a fruitful source of everything that is loathsome and malignant. We must remedy this great evil, as a means of preventing an invasion of Cholera, by a judicious exercise of charity and persuasion, with all those over whom we possess influence, relative or adventitious. Show them who are habitually impure, the necessity and comfort of cleanliness: expostulate with them earnestly, but with kindness: and, as for the incorrigible, let them and their abominations with them, be excluded from society, until they discover how to appreciate the advantages of civilization.

Imperfect and unsuitable clothing, improper and defective nourishment, are instrumental, effectually and immediately, in corrupting the vital energies at their sources. Unobservant of all such destitutions, we must not be: they operate as causes, secret but certain, of the impending pestilence. Let us, therefore, be zealous in accomplishing their removal: and since, in this office of unmingled goodness, there is a fine field for the exercise of charity, let Boards of Health employ the angelic industry of Females in assisting to dispense its benefits. These gentle deputies will not err in finding objects worthy of your beneficence; they will judge aright in distributing sustenance to the hungry, in bestowing clothes on them who, oppressed with penury and affliction, may be enduring the deprivations inseparable from defective raiment. At the same time, be it said to those fair and lovely beings who, misled by fashion, often use the semblance of a dress only—let them take warning.

Public nuisances, ill-ventilated, damp and dirty dwellings, over-crowded and filthy sleeping-places, are prone to ingenerate and multiply and diffuse the seeds of whatever is subversive of decency and social purity, whatever is noxious to the health and well-being of mankind. In such circumstances, infection, contagion and all mischief, find a genial nursery: they are universally denounced as pestilent causes; and, for the purpose of preventing the evils which threaten us, they *must* be removed. Families who are able to execute this office for themselves, should be persuaded and encouraged to perform it: they who are unable to discharge a duty so imperative, may be assisted by the liberality of others, or by friendship. When such assistance is withheld, when such a duty is resisted or contemned, the Boards of Health must see that the work is done by the direction of parish-officers: here

is their authority.* All of us, therefore, ought to unite our best efforts in promoting objects so manifestly requisite, so manifestly beneficial; but, at the same time, our exertions should be distinguished by gentleness, and firmness, and disinterestedness, without any view to the loss or attainment of popularity, or other seductive desire: the best and fairest popularity is that accorded by an honest mind.

Fatigue and exhaustion, excesses and deprivations, of all sorts, promote the rise and propagation of malignant diseases, by embarrassing the renewals of strength and structure, by occasioning an inordinate waste of the nervous and vital energies: they are direct debilitants; and, as such, they necessarily augment our susceptibility of those affections to which we are constitutionally or incidentally disposed, or of those which may then be prevalent. Their kinds and degrees are sufficiently obvious, and need not be now enumerated: one thing connected with this topic, however, may be urged on your humanity. We are all too well aware of the mournful reality—that, from the present unnatural state of society, our peasants and tradesmen and manufacturers, especially their children, are greatly overworked. In this way, their health is essentially undermined, their constitution permanently deteriorated. By evidence, little short of demonstration, it might be shown—that this is a deep-rooted and wide-spreading mischief, favourable, in the highest degree, to the production of Fever, Cholera, Consumption, Scrofula, and other epidemical diseases. He who has disciplined his spirit to the right observation of Nature and of Man, must be convinced clearly, that the self-same mischief constitutes one principal cause of those miseries by which, at this time, much of Europe and our own beloved country are afflicted. One and all, then, let us combine with alacrity, in striving to facilitate and mature such measures as will enable us to set them free from a state of uncommiserated thralldom,—to discharge towards our industrious brethren, an act of the fairest benevolence, an act of the noblest justice.

Assemblages of idle, and thoughtless, and dissolute persons have ere now proved, in more than one place, the certain and immediate cause of that desolating plague which continues to keep the nations in amazement and dismay. All such meetings, therefore, ought to be discouraged by precept and example; to be interdicted by authority, if this can be done without harshness and injustice, till the return of happier times. Undoubtedly, there is not a more pleasing sight in this lovely

* The Act of Parliament, “for the Prevention, as far as may be possible, of the Disease called the Cholera, or Spasmodic, or Indian Cholera, in England;” with the Supplements for March and July, 1832.

world, than that of our peasantry, young and healthy, glad-some and innocent, enjoying their merry pastimes at our statutes and wakes, our fairs and other annual festivities: but, since gaiety has sometimes been the forerunner of woe and wretchedness, there would be wisdom in abstaining from that pleasure which may be impregnated with pain. For this reason, let us ask the sacrifice of all festivities, for this year, as a becoming contribution to an immense public good. Endeavour, at least, to obtain the power of subjecting these to a temporary suspension; and, thus, you will put the good and peaceable in possession of an efficacious moral agent, wherewith to overawe the anti-social spirit of the mischievous and the profligate.

Exposure to abrupt and ungenial variations of the atmosphere readily interrupt the tenour of health: be it, therefore, your concern at all times, more especially in these times, to avoid transitions between the extremes of temperature, and the inhalation of contaminated air. You would not thank your instructor certainly, for a detail of the respirable elements which you are obliged to breathe in apartments over-heated with emanations from the persons of crowds, assembled for mere amusement or the quest, perchance, of idler gratifications. Nevertheless, you may be instructed by a concise view of the dangers you encounter, in passing suddenly into a cold atmosphere while the system is enervated with heat and fatigue and other causes of relaxation. If the body be exposed to intense cold while in a state of inaction or lassitude or perspiration; or, if its coverings be insufficient for protecting it from the increasing chillness,—then, after a paroxysm of shivering, rigidity of the members supervenes; the joints bend with difficulty; the muscles stiffen, or the skin forms a hardened envelope which embarrasses their motions; the cutaneous vessels close so as to exclude the thickening blood; the surface becomes pallid; and the limbs grow numb and lose their sensibility. When cold seizes on the whole frame, its unhappy victim sinks insensibly into a placid sleep, exempt from agitation or suffering: the vital functions gradually decline: the respiratory pantings become imperceptible: the breath cannot be distinguished: the arterial pulsations cease: the power of motion decays; first, at the circumference; and, by progressive degrees, in the central organs: every sign of vitality disappears, and the lost person expires—the passage from life to death being quite gradual, the moment of dissolution undiscernible. Here, you have a high-drawn picture evidently; but, it is presented before you as a motive to perpetual vigilance, in securing the safety and comfort inseparable from an equal atmospheric temperature, and thus *preventing* the dangers of that malady

whereof we ought to be prudently apprehensive. Intense cold, as you now know, excites the nervous system extraordinarily: it constricts the skin and represses perspiration; and, thus augments or misdirects the fluid secretions. Now, in our days, what are these but the first steps to Cholera; and what, besides, should be the inferences from this, and from the fact—that few undebilitated persons have become choleric, except when overtaken in the error against which you are thus urgently guarded? The inferences are—that the breathing of air deteriorated by frequent inspirations, is noxious to health; and that, in making extreme transitions from heat to cold, we provoke an invasion of the pestilence.

Noxious exhalations from the earth and water, have their sources chiefly in the decomposition of animal and vegetable substances, and in accumulations of putrescent filth and ordure. Moisture, heat and electricity, exert a primary influence in determining their evolution and their virulency. These exhalations, for the most part, are gaseous and imperceptible: they introduce their destructive essences into the human frame, sometimes through the skin, oftenest and chiefly through the lungs: under fit conditions, they become severely forcible and diffusive, inducing the worst diseases, epidemical or pestilent: but with us, fortunately, they neither originate so readily nor are so prevalent as in the intertropical regions. How ought they and their effects to be prevented? Generally, by doing away with all those sources in which they are known to be generated; and, particularly, by keeping necessary heaps of decaying manure in open dry exposures, distant from the habitations of families; by prudence in exposing the depositions of stagnant water, so as to favour the development of their miasms by the processes of evaporation; by dispersing the elements of such depositions in sewers, ponds and brooks, with the force of a perpetual current in their channels; by removing all obstructions to the free circulation of pure atmospheric air, in the yards, courts, lanes, and narrow streets of towns; by providing that the floors of cottages and houses are cleaned with dry scrubbing, in damp weather; by daily ablution of the places where feculency, garbage, and gross matter of many kinds, are prone to be cumulated; by frequent purification of the receptacles for sordid animals, which might be disused altogether as indecent appendages to the dwellings of men; and, in fine, by extinguishing every state prolific of those malarious emanations, which dispread the seeds of unhealthiness in their offensive and sickening odours. Wherefore, as we are disposed to avert the dangers of an unsparing malady, so let us be faithful in meeting the difficulties which

must embarrass our obligations to disturb inveterate habits, and to require the observance of strange and unpractised rules.

Grievous affections, violent passions, intense emotions, are states produced by causes which operate on certain faculties of the Mind whose principle, like that of the Cholera, is invisible, impalpable, unknown. These causes, sometimes gradually sometimes abruptly, act *first* on the brain which is the mind's proper corporeal instrument; and *next*, through this, on the spinal marrow and nerves; *then*, on the heart and vessels conveying the fluids; and, *ultimately*, on the lungs and other organs which execute the functions of vitality and nutrition. Let all such commotions be prevented by the chastened exercise of an even and meek and just and courteous spirit: they are the inlets to extinction of the body's strength and the mind's vigour: through them, especially when strong, have proceeded every sort of nervous agitation, fatal hemorrhagies, insanity, palsy, apoplexy, epilepsy, blindness and sudden death. Anger, for instance, crushes the innate sentiment of benevolence, and too often precipitates reason from her throne: fear tends much to overhasten the last process of digestion, and voluntary motion has been arrested by its powers: they cherish a canker in the bosom, who indulge in the desolating pleasures of melancholy.

You will now expect a recommendation of such *Medical* rules as will conduce to the *prevention* of Cholera: these, as regards diet and exercise in detail, however, would occupy more of your time than might be agreeable: nevertheless, you may avail yourselves of the following suggestions, according as the course of events may bring them into requisition. We all know full well, but forget occasionally, that morbid causes and their effects can be best resisted by a conscientious regulation of our motives and actions—by the observance of equanimity and rectitude and moderation. Wherefore, let us habitually essay, by self-examination and self-discipline, to keep our affections and judgment under that moral dominion which derives its power from the dictates of reason and the precepts of Christianity: let us encourage a taste for simple nutritious food, at stated intervals and in due proportions: let us be temperate in our pleasures, and jealous of gratifying our appetites: let us accustom ourselves to the patriarchal habit of retiring early to bed, and uprising betimes: let us engage in the requisite affairs of exercise and business, under the rational direction of prudence and duty: let us prefer those adaptations of raiment which may be most suitable to our health and circumstances; and, at all times, let us strive to repress the barbarous imagination which deludes us into the vanity of fancying that, by our fantastic modifications of attire, we can

improve the aspect or the figure of that Body, whose original construction was divine, and whose imperishable elements will survive the sources of its immortality.

Medicine, as a science, will appear to small advantage with posterity, in a review of the heterogeneous medley of remedies which have figured in the modern treatment of Cholera, and in the multifarious forms of their administration. Very unfair would it be notwithstanding, should we ascribe the conception and employment of so many and such discordant cures for this disease, to other than an independent spirit of research, and a sincere anxiety to lessen or alleviate human suffering. Indeed, these very evidences of defective knowledge, do constitute the most perfect evidences of zeal and disinterestedness in the pursuit of such discoveries as may advance and mature the gleanings of practical experience, into a system combining rational principles and susceptible of efficient applications. From this state of things however, the twofold observation may be deduced, that anything in the shape of a regular method for counteracting the choleric symptoms, has yet to be devised; and that, since there is so much uncertainty in a medical treatment of them, their preventive management must be equally uncertain: still, you will not err much by confining your interference with the disease's first manifestations, to a circumspect observance of those counsels which now await your regard.

Transient qualmishness with confusion and weight in the head or giddiness, followed by uneasiness or pain at the stomach, frequent watery motions and vomiting, may take place without passing into a true choleric commotion. Nevertheless, these symptoms, in one degree or other, suddenly or slowly supervening, make the earliest distinguishable stage of Cholera; and, in seasons when this malady prevails, they ought to draw immediate attention, and to have means promptly administered for their suppression.

Anatomists inform you, that there is a membrane which, beginning at the lips and nostrils, lines continuously the mouth, nose, gullet, stomach and bowels, throughout their whole extent. This membrane is abundantly supplied with nerves, giving it a fine sensibility; with vessels, to furnish it with blood and vivacity; and with vessels, to secrete the various fluids which moisten its own surfaces and contribute to the primary and ultimate ends of digestion. Another membrane, differing essentially in structure from this, and executing different functions, lines the wind-pipe and lungs. Now, Cholera may occasionally commence with the introduction of its principle into the system, through the air-passages; but, let the disease

begin where it may, its first distinct and characteristic symptoms evince conspicuously—that its seat, and the centre of its malignity, are established in the alimentary tube. You may assure yourselves of this being a fair deduction, by the fact—that these symptoms are, uneasiness in the chest, pain at the stomach, disturbance of the bowels, vomiting and purging.

Vomiting results from the peculiar action of a morbidic or emetic substance, varying the ordinary functions of the membrane which lines the gullet and stomach. Primarily, in this varying process, the nerves of the membrane are thus affected; next, its sanguiferous vessels; and, then, those vessels which secrete the gastric and other fluids. You ascertain, by induction, that these *nerves* were disturbed, from experience of an uneasy sensation at the stomach—a sensation which, with cholera-stricken patients, too often ends in pain, spasms, convulsions. You ascertain that these nerves were *primarily* disturbed, from the fact of the stomach's uneasiness being the *first* symptom which was perceived: and, you ascertain that these *vessels* were roused into a state of inordinate activity, from the incontrovertible fact—that, if full vomiting follows the reception of an emetic into an empty stomach, the rejected fluids will much exceed in quantity, those which may be imbibed during the drug's operation. This view of vomiting and its causes, exhibits a process wherein the nerves of the stomach are aggravated, and its secretions preternaturally increased. Hence, we are led to entertain the question—How should this intricate condition be remedied? Why; in your hands, Camphor and Opium will prove the safest means, and the most convenient: nervous agitation can be allayed by the former; the latter tends inherently to suspend all the secretions.

Purging, in like manner, results from the peculiar action of aperient or morbidic substances, altering the ordinary condition of the membrane which lines the bowels. In this process, the nerves of the membrane are primarily affected; next, its sanguiferous vessels; and, afterwards, those which prepare the various alvine fluids. By experience of uneasiness and pain and griping in the belly, you are taught that the nerves were thus disturbed; for, in the nerves, is the centre of all sensation: and, you are taught that these vessels had been excessively active, by observation of an excess of those secretions which naturally determine the expulsive efforts of the intestines. Manifestly, therefore, the causes which occasion all this irregularity, are dissimilar from those whereby vomiting is excited, in a few respects only; and, consequently, their moderation or extinction may be attempted by nearly the same agents.

With the light of this theory for a guide, will you now undertake to act as *preventive* physicians? When you do, let the wisdom of your works, in this way, be manifested in a watchful and deliberate imitation of Nature, whose operations are quiet and gradual and continuous. Wherefore, on being obliged to manage any one having a seizure exhibiting the progressive signs—internal pain, purging and vomiting—which betoken a choleric explosion, you should forthwith hasten calmly to repose your patient in a horizontal posture, under the lightest proper covering; to keep him tranquil and silent and motionless and contented and hopeful; to moderate the temperature of his person and apartment; to have the air of this constantly impregnated with the vapour of vinegar, camphor, or other fragrant antiseptic substances; to remove everything offensive to the senses, and calculated to become injurious to health, from absorption of tainted particles through the cutaneous or pulmonary surfaces; to avoid all bustle and discouraging conversation; to exclude every officious intruder, and to dispense with unnecessary attendants; and, to begin composedly to administer minute and frequent doses* of Camphor for allaying the nervous disturbance, and of Laudanum for restraining the excessive evacuations. Meanwhile, an antispasmodic Poultrice† should be placed over the stomach, and shifted often to the neighbouring parts so as to guard against its blistering the skin: on either side of the body, a large bladder filled with hot water, should be kept constantly applied; and, at intervals, the feet and legs, the hands and fore-arms, should undergo frictions with an anodyne Liniment,‡ or with hot water con-

* Add together, for a dose, one tablespoonful of camphor-julep, four drops of laudanum, and three tablespoonfuls of sage-tea made with ginger: this should be repeated every fifteen minutes, until the urgent symptoms subside, or medical assistance has been obtained. Much of the medicine will, at first, be rejected by vomiting; but, you may administer sixteen such doses, if the vomiting and purging are unabated: the course will thus occupy four hours, after which it ought to be discontinued and the case placed under a systematic treatment.

† Take laudanum and oil of turpentine in equal proportions; for example, two tablespoonfuls of each: put these into a small bason, and gradually intermix the powder of good mustard, stirring it well so as to make a uniform Poultrice, of a consistency which will prevent its spreading unnecessarily on the surfaces to which it may be applied. For griping and all internal uneasiness, for pains from rheumatism or other local affections, and for cramps in the feet, legs, arms, or any accessible part, this poultrice is useful and convenient.

‡ Mix carefully together, by adding the ingredients in their order, seven drachms of the compound soap liniment, three of the tincture of Spanish flies and six of laudanum, so as to form an anodyne Liniment. Small portions of this must be successively rubbed upon those parts where the pain and cramps occasion intense suffering; and, the frictions may be continued on one place until the redness or tenderness of the surface, foreshews abrasion of the cuticle.

taining much common salt and mustard. During the time this treatment is being employed, the light nutritive foods, chiefly farinaceous—gruel, panada, rice, sago, arrow-root, tapioca, salep, tea or coffee, with animal jelly, isinglass, eggs, simple broths or beef-tea—should be given liberally, either warm or cold, as may be found to agree with the sufferer's peculiar constitution. Having succeeded with these first measures—may this be a frequent result—in tranquillizing the nerves, the stomach and the bowels, you should permit your charge to enjoy a few hours quietude, while the system renews its vital energies: after this, you will proceed to institute a fresh process, combining the means which promise best to re-establish the natural secretions: and, as regards the form of your remedies and their qualities, you must take extreme care that they are mild and productive of effects nearly insensible:—here is a prescription.* With such management, in most cases, and a gradual return to the use of a generous diet, the nerves and vessels which maintain the functions of digestion, secretion, and excretion, will be enabled to resist those noxious influences which produced their disbalanced relations. For some time, however, these ought to be made the object of unusual care; and, likewise, the general health should be renovated by corroborating aliments, alterative tonic bitters, and warm aperients, with a course of our Ashby† saline waters.

Physicians have recently employed the powers of Chemistry with extraordinary success, in their investigations for elucidating the qualities of therapeutic agents, and the pathological results of disease. Their latest and most valuable discovery shows that, in choleric patients, the blood loses *nine-tenths* of its watery fluids and a large proportion of its elementary salts: an induction which makes two things self-evident,—the *inconsistency* of practising venesection in cases where the blood, both in its quantity and its fluidity, has been dangerously exhausted by profuse evacuations,—and the *use* of remedies to correct the excessive and vitiated secretions; for, by these last,

* Thus, take of powdered cusparia-bark, ten grains; rhubarb-powder, twelve grains; camphor, finely powdered, ten grains; calomel, three grains; dried sub-carbonate of soda, twenty grains; essential oil of caraway-seeds, six drops; and extract of henbane, a sufficiency: mix, and make the mass into twelve pills, one of which should be taken every hour, until the bowels are freely relieved. Should the whole fail of producing this effect, a desert-spoonful of castor-oil, or more, in any agreeable vehicle, will complete their operation without inconvenience.

† When administered in small consecutive doses, in a vehicle compatible with its elements—bromine and neutral salts—this Water conduces to the improvement of constitutions debilitated by preternatural discharges, especially those attended by sickness and frequent watery dejections.

the choleric symptoms are caused and maintained. Suggested by this change in the circulating stream and intended to ascertain the best method of renovating the Blood, two forms of practice are now under trial: in the one, neutral salts are exhibited internally, so as to adapt them for absorption into the blood; in the other, water holding the same salts in solution, is freely injected into the veins. Failure of the first plan must ensue, however, so long as the overpowering ascendancy of secretion remains uncontrolled; and failure of the second seems likely, because an artificial composition of water and salts thus poured into the blood, in excess often, must differ materially from one elaborated by a vital process and enlivened with animal heat: immission of *healthy arterial* blood into the veins, as soon as the disease assumes a threatening aspect, would offer a more feasible expedient. Should ever, notwithstanding its present inauspicious appearances, the "Saline Treatment" undergo such modifications, as shall make it available for the cure of Cholera, you will then possess, in your brine-springs at Ashby, the anti-choleric remedy as it issues, benign and abundant, from the mysterious laboratory of Nature.

Prevention of error and crime, which are moral maladies, infectious and deadly, is an office greatly more generous than that of their punishment. Precisely the same it is, with disease. Make it, therefore, your anxious duty to restrain, by prevention, the prevailing pestilence; and, during your successful endeavours to circumscribe its depredations, to mitigate its horrors, you may be led to foretaste the gratitude of society, the joys of a purified conscience, the blessing of an approving God. You have in our "CHOLERA PROVIDENT SOCIETY,"* a sanctuary wherein the fruits of your zeal and beneficence, will be devoted to the fulfilment of intentions most praiseworthy. Cherish, at their beginning, its "labours of love:" hereafter, they may be exerted in obviating the destroyer's stroke, in blandishing the sadness of those hapless Ones who have been reduced to brook the pangs of indigence and bereavement. Among you, are there some who, enamoured of woe, have outpoured the tear of sympathetic devotion on the couch of

* Self-supporting Dispensaries and Cholera Provident Societies, originated in the comprehensive benevolence of H. L. SMITH, Esq., Surgeon, at Southam in Warwickshire. The object of this excellent person in promoting the establishment of these Institutions, is twofold—to assist in regenerating the medical character, and to forward the progressive amelioration, corporeal and mental, of mankind. Posterity will consecrate an everlasting cenotaph, commemorative of Mr. Smith's wisdom and true christian philanthropy; and, this monument of gratitude and veneration will be—the universal adoption of those Principles which, with unequalled assiduity and disinterestedness, he endeavoured to perfect and diffuse.

conjugal felicity, expiring under the withering blight of the pestilence? Among you, are there some who have composed, in untearful agony, the beamless eye of a parent most affectionate and most beloved? Among you, is there one who, with a kiss of delirious tenderness, has closed for ever the lifeless lips of a friend, more endeared to the soul than the dearest of the soul's own most cherished endearments? Then, let the forgotten anguish of that dismal hour, inspire you to delight in enlarging the usefulness of a Society which rests its foundations on the loving-kindness of true brotherhood, and is destined to support the meritorious endurer, in such an hour of forlornness and desolation.

We live in portentous times; times which require us to put forth the fulness of virtuous emulation, in our endeavours to obstruct the contaminating influences of ignorance and beggary and idleness, of envy and discontent and depravity. Wickedness and want of knowledge, have ever been the baleful sources, as much of disease, as of those virulent obliquities that so fatally empoison the happiness of man, and retard the regeneration of his mind, which is immortal. Incited, thus, by so many motives to well-doing, let us be diligent in working out the abolishment of these, and of all other known causes of Cholera: let us, each in his own sphere, be diligent in averting its threatened visitation, by a free exercise of liberality and kindness. Kindness is a captivating seducer; with kindness, you may win the wild and the obstinate: kindness subdues the turbulent spirit, and the wrathful: pulses which uphold their placid undulations with a serene indifference, may be aroused to display the most pathetic energies, responsive to the gentle omnipotence of kindness. Let us all indulge the benign ambition of excelling in a sublime effort to ameliorate the conditions of our humbler neighbours and dependents; and, in this way, we shall prepare them to shun or abide those dreaded calamities from which no one of us possesses an immunity. Well do we know the ardour and perfection of female assiduity in uplifting the veil from afflicted meekness, in balmng the wounds of unhappiness and sorrow. Wherefore, with us, be it an object of supreme solicitude—to secure for the improvident and unfortunate, all those holy charities which elevate the best principles of our nature, and impart a sanctifying dignity to the loveliness of WOMAN.