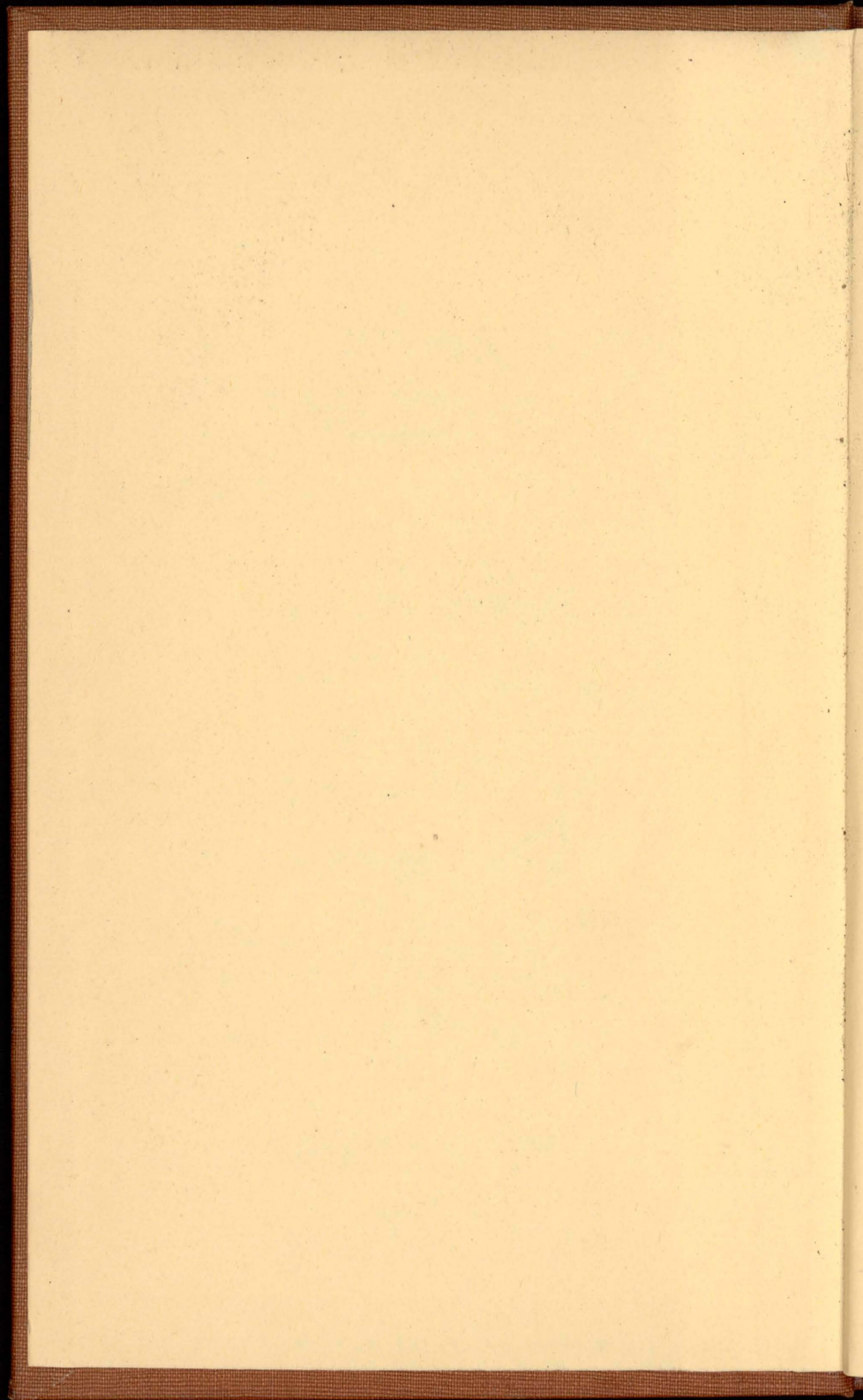
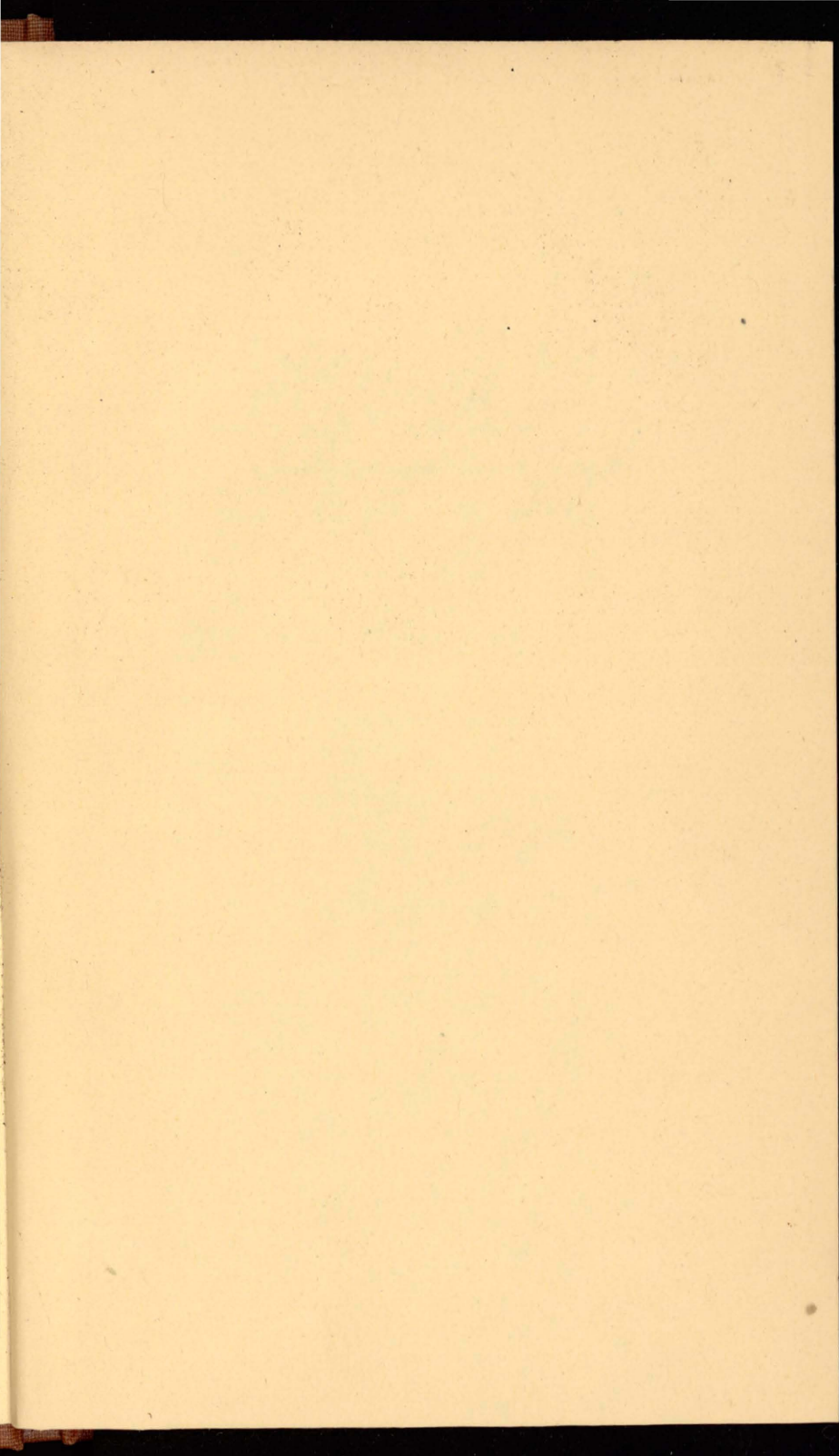
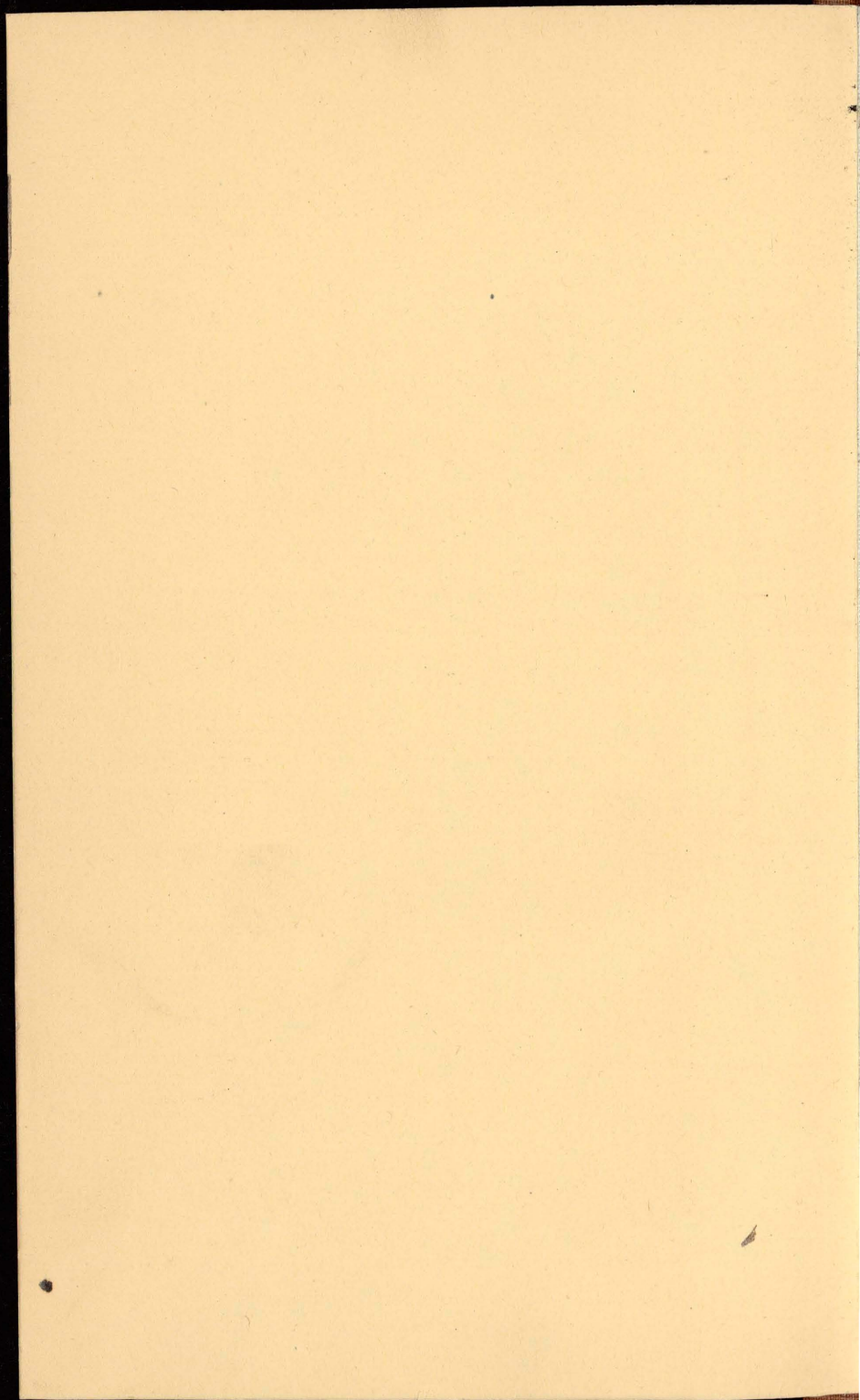


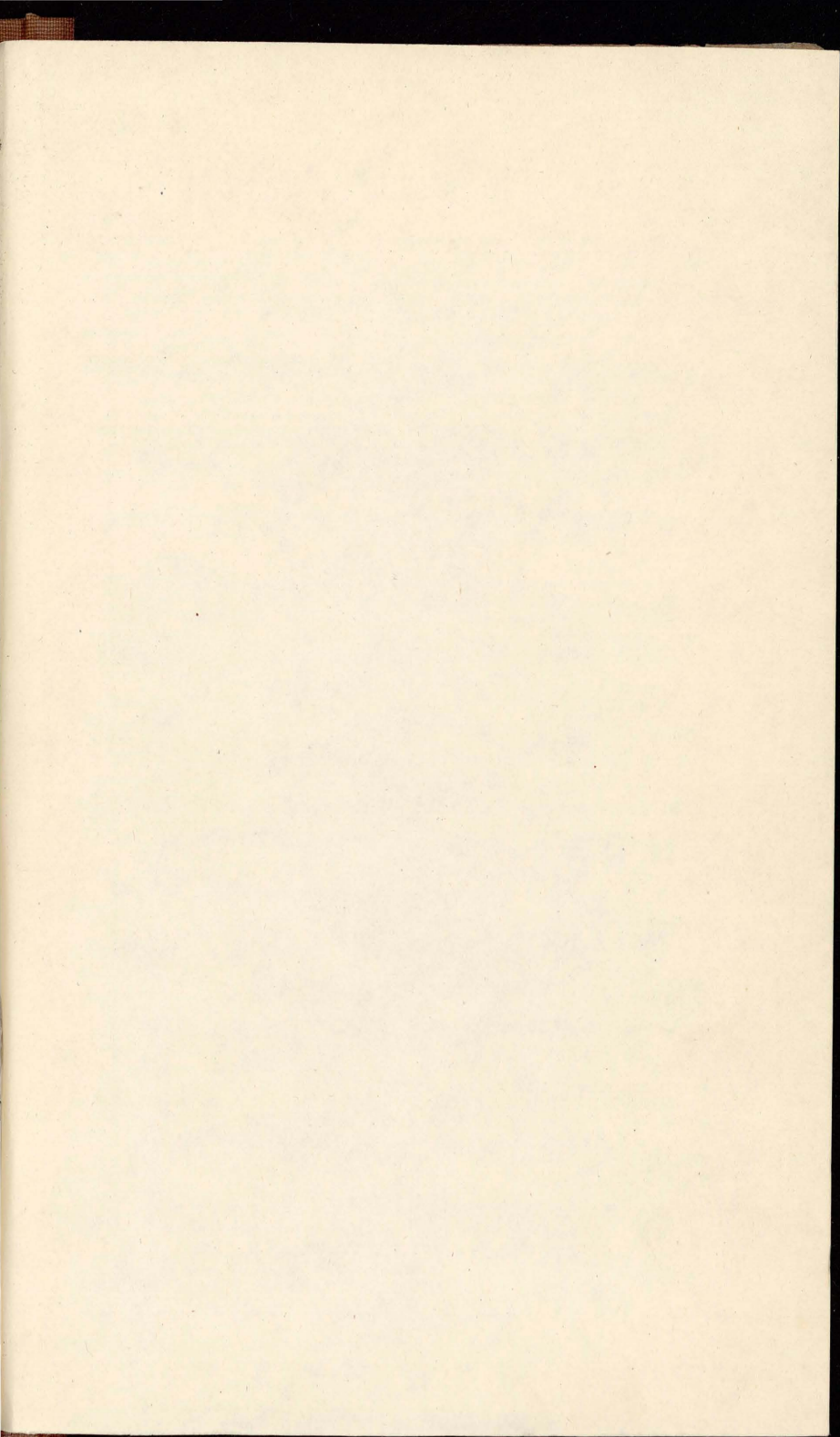
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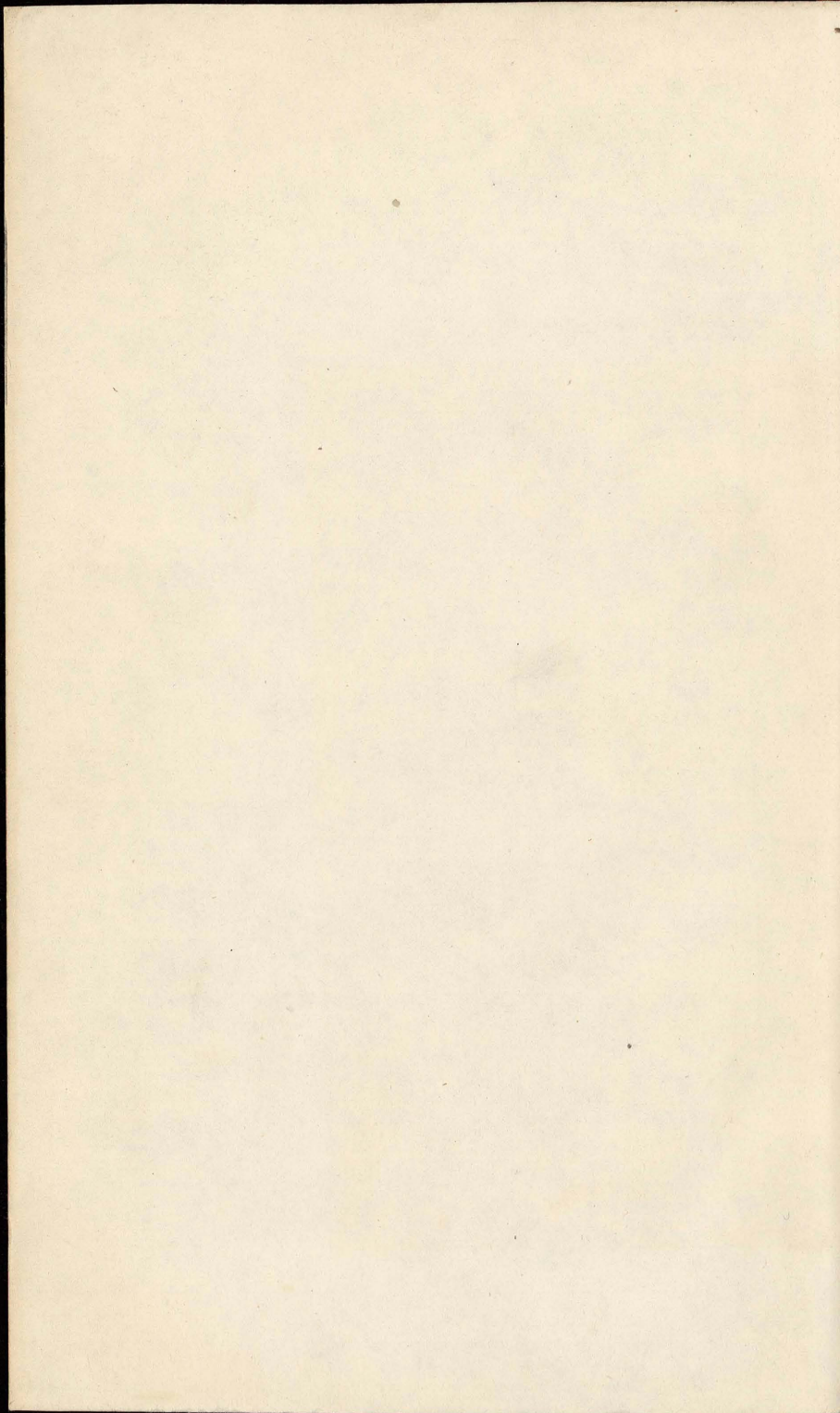
ACCOUNT OF THE RISE AND PROGRESS OF THE INDIAN CHOLERA 1832











Amn. B. 6

AN ACCOUNT
OF THE
RISE AND PROGRESS
OF THE
INDIAN OR SPASMODIC
CHOLERA;

WITH
A PARTICULAR DESCRIPTION OF THE SYMPTOMS
ATTENDING THE DISEASE.

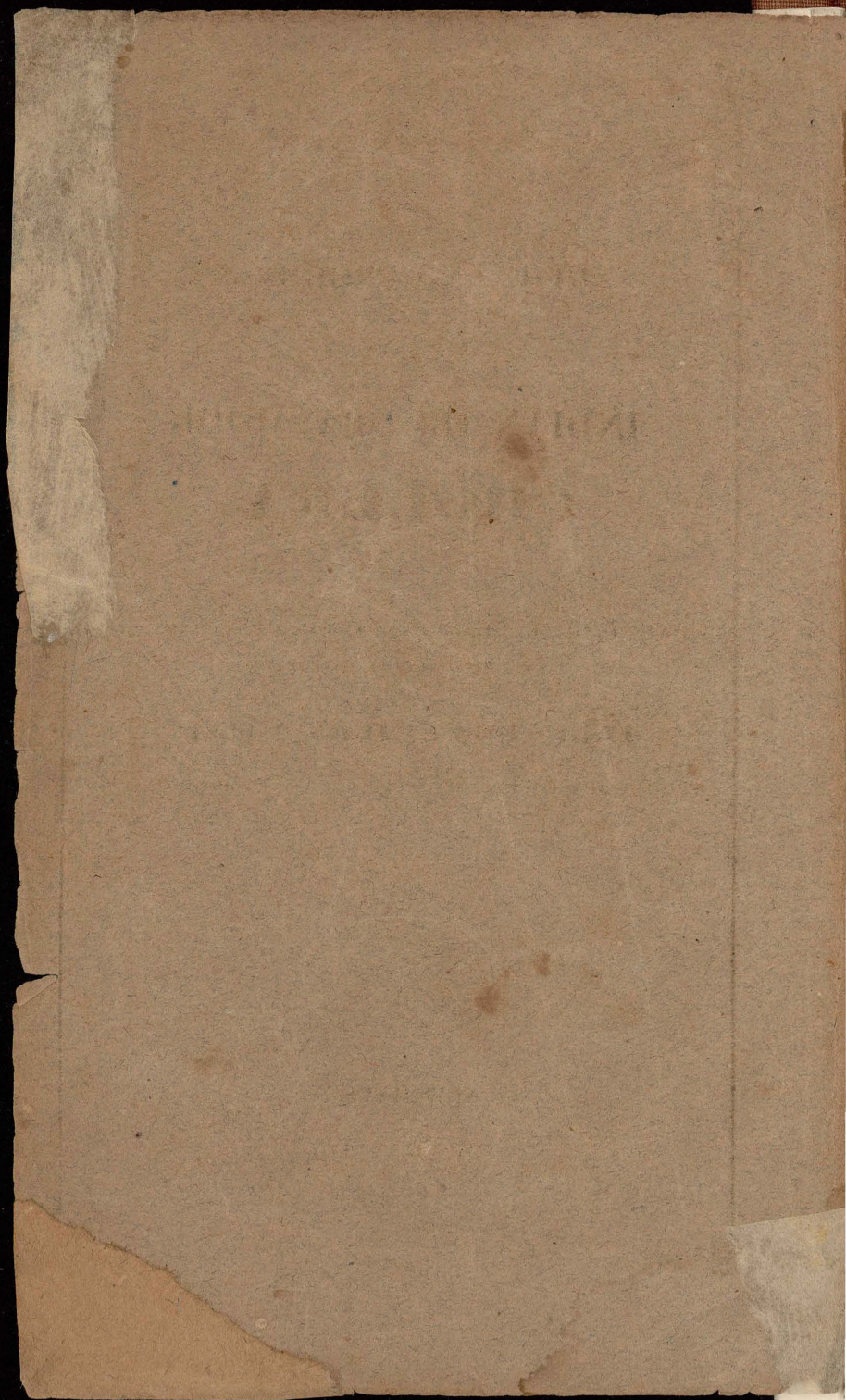
ILLUSTRATED BY A MAP,
SHOWING THE ROUTE AND PROGRESS OF THE DISEASE, FROM
JESSORE, NEAR THE GANGES, IN 1817, TO
GREAT BRITAIN, IN 1831.



NEW HAVEN:

PUBLISHED AND SOLD BY L. H. YOUNG.

1832.







MAP I
 Showing the route and progress
 of the
INDIAN CHOLERA
 FROM JESSORE ON THE GANGES
 in 1817,
 to
GREAT BRITAIN,
 in 1831.

Scale of Miles
 100 400 800

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ADVERTISEMENT.

The following pages are published with a view of giving some authentic information, useful, as well as interesting, on the subject of that scourge of our race, the *Indian or Spasmodic Cholera*. The respectable sources from which the facts contained in this pamphlet are derived, will, it is presumed, recommend it to the favorable consideration and attention of the public.

“This pestilence (says the London Quarterly Review) has, in the short space of fourteen years, desolated the fairest portions of the globe, and swept off at least *Fifty Millions* of our race. It has mastered every variety of climate, surmounted every natural barrier, and conquered every people. It has not, like the simoon, blasted life, and then passed away: the Cholera, like the small pox or plague, takes root in the soil which it has once possessed.”



1832

AN ACCOUNT
OF THE
INDIAN OR SPASMODIC CHOLERA.*

From the (London) Westminster Review.

SINCE the Black Plague slaughtered one fourth of the inhabitants of Europe, in the fourteenth century, no pestilence has ravaged the world to such a frightful extent, and with such unappeasable ferocity, as Spasmodic Cholera. In the short period of fifteen years, it has ransacked Eastern Asia, the Islands of the African Sea, Persia, Arabia, Mesopotamia, Syria, Russia, and Poland. It has traversed the Grand Duchy of Posen and Galicia, it has visited Prussia, and it is now marching through Germany. Wherever it has yet appeared, it has seldom destroyed fewer than one-third of the diseased; in general it is fatal in proportion of one half; and not unfrequently three-fifths, two-thirds, and even six-sevenths of the infected have perished. Little respect has been hitherto paid to any country which it has invaded, whether insular or continental; whether distinguished for its salubrious or pestilential character. It has traversed the burning sands of Arabia as rapidly as the banks of the Euphrates; Caucasus and Mount Ararat, in common with the jungly marshes which are periodically bathed in the waters of the Ganges; and although the number of the healthy whom it has infected, and the number of the infected whom it has destroyed, considerably vary

* 1.—Die Asiatische Cholera in Russland in den Jahren 1829, [1830 and 1831. Von Dr. J. R. Lichtenstadt, &c. Berlin. 1831.

2.—Die Cholera Morbus; ihre Verbreitung, ihre Zufälle, &c. Von Dr. Schnurrer, &c. 1831.

3.—Rapport au Conseil Supérieur de Santé Sur le Cholera Morbus Pestilentiell. Par Alex. Moreau de Jonnes, &c. Paris. 1831.

4.—Memoire sur un Nouveau Traitement du Cholera Morbus, et des Affections Typhoides, &c. Par H. F. Ranque, &c. Paris. 1831.

5.—History of the Epidemic Spasmodic Cholera of Russia, &c; by Bisset Hawkins, M. D. &c. London. 1831.

6.—Cholera; its Nature, Causes, and Treatment, &c. By C. Searle.—London. 1831.

7.—Papers relative to the disease called Cholera Spasmodica in India, now prevailing in the north of Europe. Printed by authority of the Lords of His Majesty's Most Honorable Privy Council. London. 1831.

8.—Trattato delle varie specie di Cholera Morbus: Di Michele Buniva, M. D. Turin. 1831.

with the density, health and habits of the population, the Tartar and the Turk, the Indian Nabob and the Persian Prince, have indiscriminately suffered.

It is, therefore, most desirable that something precise and authentic should be more generally known of the character and causes, rise and progress, symptoms and treatment, of a scourge so extensive in its range, and so mortal in its influence, that it may appear how far the means of checking its further progress lie within the exercise of human skill; or if, still, dissatisfied with its present empire, it should enter the bosom of our overcrowded population, that the symptoms which foretell its approach, and the treatment found best adapted for its cure, may be fully understood. Some such information it is our present object to convey, and as no source of intelligence which lay within our reach has been neglected, the writer's credit will often be held in requisition for statements the half of which it were only an incumbrance to substitute by reference.

Cholera is a disease which has been long known and fully described by many authors; but until about the middle of the seventeenth century, neither its prevalence nor fatality was such as to invest it with the character which it now wears. As it usually appeared during the heat of summer and the fruit season, it was very generally ascribed to an elevated temperature and the immoderate use of fruit; but although it was occasionally violent, its ordinary features were by no means alarming. Sydenham says that it appeared in an epidemic form in England during the summers of 1669 and 1676, and that its symptoms were so severe, as to "frighten the by-standers, and kill the patient in twenty-four hours." According to Le Begue de Presle, it prevailed in 1762 in Bengal, and carried off 30,000 negroes and 800 Europeans. Dr. Paisley mentions it as being at Madras, in 1774; in 1775 it seems to have invaded the Mauritius; and in 1781, a division of Bengal troops were attacked by it so fiercely at Ganjam, that 5,000 were admitted into the hospital during the first day, and by the end of the third, the half of the entire corps were ill. Men, previously in perfect health, instantly dropped dead upon the ground, and few survived the first hour, who did not ultimately recover. In 1780, during a festival at Hurdwar, it destroyed 20,000 people; and in the records of Madras it is stated to have raged at Arcot, in 1787, as an epidemic.

It is, therefore, erroneous to maintain, that this pestilence made its first entrée into notice in 1817; for with the exception that the evacuations are described as "mostly" bilious, in the Cholera of Arcot, whereas in the present epidemic they are "always" watery, the symptoms of both affections are precisely the same.—Trallian divides Cholera into the bilious diarrhoea, the bilious Cholera, and the Cholera without bile; and as Dr. Johnson ob-

serves that this disease assumes every degree of violence from the *mort de chien*, in which nothing but phlegm is ejected, to an ordinary Cholera, in which the ejections are principally composed of bile, it is not unreasonable to infer that the Cholera of 1817 is only an aggravated form of a disease which had existed previously. The Brahmins have long since described a malady which they call *Vishuchi*; and the Japanese a similar affection which they call *Senki*; both of which have a very striking resemblance to Spasmodic Cholera; and certain it is that Sydenham, whose accuracy of observation is well known, never alludes, in his description of the severe form of Cholera which he witnessed, to the existence of bile in the evacuations, merely calling them "pravi humores," or bad humors.

But however this may be ultimately settled, a very malignant form of this disease suddenly appeared on the 28th of August, 1817, at Jessore, a town situated about one hundred miles north-east of Calcutta. From twenty to thirty died daily, and although the inhabitants became at length terrified and deserted their habitations, 6,000 perished in the short space of a few weeks. It rapidly spread through the neighboring country to Dacca, Patna, Dinnapore, and Nuddea. In September, it reached Calcutta, and since that time the metropolis of British India has been regularly invaded by it during every succeeding season. In November, when the English army were preparing to go out to battle with the Hindostan chiefs, it attacked its central division, and in ten days destroyed 764 officers, and 8,500 men. From Calcutta it traveled westward to Bahar, and from Bahar northward to Benares, Lucknow, Cawnpore, and Delhi. It then directed its course southward to Agra, Hussingabad, and Nagpore. From Nagpore it again struck off in a south-west direction to Aurngabad, then to Panwell and Poonah; and by the second week in September, 1818, it took up its residence in Bombay, on the western coast of the Indian Peninsula.

Notwithstanding this rapid journey from Jessore to Bombay, it was equally active in its movements along the Coromandel coast, in reaching Madras; for, while it was shooting northward from Jessore to Dacca, it was at the same time penetrating southward to Chittagong. By the 20th of March, it had entered Ganjam, it reached Aska in April, in May it was at Vizianagram, at Mazulipatam in July, and on the 8th of October, 1818, it had entered Madras, about a month after its appearance at Bombay. Now, when it is considered that during the winter months the cold had rendered it inactive, it will appear that this pestilence traversed the whole Peninsula of India, or about 66,000 square leagues in less than a year.

It is not our intention to enumerate and describe the various irruptions which Cholera has made from that period to the present,

time in British India; suffice it to say, that with the exception of the winter seasons, it has unceasingly preyed upon our Eastern settlements. Towards the close of each November, it only hibernates to rest, that on the approach of spring it may burst forth afresh to repeat its injuries; and, although it has thus swept, with the besom of destruction, its towns and its rivers upwards of fourteen times, it still finds fresh victims for the slaughter, and it still betrays a poison as malignant and as unmanageable as ever. Even the inferior animals are said not to be exempt from its influence. On its first appearance, a great number of cattle died in the most extraordinary manner, in the grand army of India. During the October of 1827, many of the dogs in the streets of Calcutta were attacked with Cholera symptoms and killed. Mr. Chalmer observes that in the towns near the hills, where 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 in Rajputana; and it would appear that at Vercelli, in Italy, the same phenomena sometimes occur, when the ordinary Cholera is more than usually severe. Mr. Searle examined some ducks, which he was convinced died of the Cholera, and he found in their stomach and bowels the same appearances which are discovered in the human subject after death.

A few months after its first appearance at Jessore, and while it was traveling through the northern provinces, it began to ravage along the eastern shore of the Gulf of Bengal; and in 1819 it reached the kingdom of Arracan. From Arracan it extended itself into Siam, and after destroying 40,000 in Banku, the capital of that kingdom, it passed into the Peninsula of Malacca.—In October, it entered the Islands of Sumatra, and Penang; Java and Borneo afterwards suffered; Canton was attacked in 1820, and at Pekin its mortality was so frightful that the government were obliged to have the dead interred at their own expense. From China it passed to the Philippine and Spice Islands. Thus, in little more than two years did it traverse a space in Eastern Asia, which, from north to south is not less than 1,300, and from west to east about 1,000 leagues in diameter.

Two months after Cholera entered Madras, it traveled along the eastern shore of the Peninsula, through Arcot to Palamcottah, from whence it traversed the strait, and entering the province of Jaffna, which is opposite to Palamcottah, it penetrated into the capital of Ceylon, which is situated in the very centre of the island. About the same period, the Mauritius was attacked; and on the 14th of January, 1820, it appeared at the town of St. Denis, in the isle of Bourbon, which is only forty leagues southwest of the Mauritius. In July, 1821, it betrayed itself at Muscat, on the southern extremity of the Arabian Peninsula. The

neighboring islands of Ormus and Kishme, in the mouth of the Persian Gulf, were shortly afterwards infected : by August it had ascended along the eastern coast of Arabia, as far as the island of Bahreim ; and not long after, it entered Bassorah, on the northern extremity of the Persian Gulf. Opposite the little island of Ormus, is the port of Bender-Abassi, in Persia, the principal sea-port town in which the Persians conduct commerce with British India. The Cholera broke out here with so much violence, that the bazaars were closed, and the dead left unburied. Those who escaped its first onset, abandoned their houses, and sought for safety in flight. Shiraz, which is about 100 leagues north-west of Bender-Abassi, manifested symptoms of the pestilence in Sept., and during the first nine days, 4,500 persons perished. Yerd afterwards suffered, and by the time the disease had reached Ispahan, the cold season had far advanced, so that its severity was much lessened, and it soon wholly disappeared. On the commencement of spring, however, it developed itself afresh, and spreading from Ispahan, where it had wintered, round the contiguous Persian provinces, it visited in succession, Kermanshah, Cashan, Khom, Casbin and Tauris, following, as it invariably did, whether in Asia or Europe, the great commercial lines of national intercourse. At Tauris, 4,800 perished in the short space of twenty-five days, when it left the town, and traveled on through Khaz, Erivan, and Kars, to Erzeroum on the southern shore of the Black Sea. The prince royal of Persia had driven the Turkish army into this town, in the month of July ; but immediately after his victory, Cholera broke out with such devastating fury among the Persian forces, that from thirty to forty died daily, and the soldiers became so dispirited that they precipitately retreated, and left the prince with his ministers to sign an armistice at Khoe.

Before the disease quitted Bassorah, in 1821, from 15,000 to 18,000 of its inhabitants were destroyed ; and so dreadful was the havoc which it made in the surrounding country, that Dr. Meunier says the third of the population fell before it. At Bagdad it was so prevalent that a Persian army, which was marching against the town, were compelled to withdraw, but were pursued by the pestilence, and among the other losses which it sustained, their commander fell. In the spring of 1822, it appeared between the Tigris and Euphrates ; in July it attacked Mosul, which is about sixty leagues north of Bagdad, and then traveling more westward, it passed through Merdine, Diarbekir, Orfa, Biri, and Antab, on its way to Aleppo, in Syria, which it reached in November. During the winter, as usual, it lay dormant, but in the spring of 1823 it revived, and visited Latakia, Antioch, Tortosa, Tripoli, and other towns on the borders of the Mediterranean sea. By the end of July it had advanced in the direction of Sar-

kin, Arsous, Khankaramout, and the Gulf of Alexandretta; and passing over the high mountains of Beylam, it entered the towns of Adena and Tarsous. In 1824 it appeared at Tiberias in Judea.

Thus have Arabia, Persia, Mesopotamia, and Syria, been overrun by Cholera in little more than two years; traversing every species of country from the arid deserts of Irac-Arabia, to the succulent banks of the Euphrates, and depopulating almost every village in its path, with a pertinacious obstinacy which human skill was seldom able to overcome. It will be seen that the disease, during this journey, took two distinct routes through these countries, which it prosecuted with equal energy. By the one it penetrated Arabia, attacked Bassorah, ascended the Euphrates, ravaged Mesopotamia, and finally appeared in Syria, where it committed frightful havoc among the towns skirting the Mediterranean sea. By the other it traveled through the very centre of Persia, until, in 1823, it reached the shores of the Caspian.

Early in September, 1823, it entered Astracan, a large and populous town seated on the northern shore of the Caspian, at the mouth of the Volga. The Russian fleet were first infected, but 216 persons were all who fell ill, and of these 144 died. As soon as it became known to the Russian government that Astracan was invaded, they despatched a medical commission, composed of six physicians, to investigate its character; a physician was sent into Persia with the same view; a Board of Health was established at Petersburg, and every exertion was made to prevent its extension farther north. How far such preventive measures were connected with the result, it may be difficult to decide; but certain it is, that the disease got no farther in that direction that year than Astracan, and did not again appear in Russia until towards the close of 1828, when it unexpectedly entered the town of Orenburg, as is supposed by some through the caravans which came from Upper Asia, and by others, through the Kirghis-Cossacks, who neighbor Orenburg, and are said to have been infected by the disease. As the cold season commenced shortly after its appearance, the mortality which it occasioned was not great until the spring of 1829, when it raged with great severity, both in the town and neighborhood, and entered the forts of Rassyphaya and Isetzk. On the 31st of July, 1830, it again appeared in Astracan; by the 10th of August, 1,229 were ill, of whom 433 died; and by the 27th, no fewer than 4,043 within the town, and 21,268 throughout the province of which it is the capital, perished. After committing this unprecedented destruction, it pursued a north-west course along the banks of the Volga, making tributary to its power the populous towns of Saratoff, Penza, Samara, and Kazan. Kazan it reached on the 5th of September, and on the 26th

of the same month its symptoms were first detected in Moscow. The town was immediately divided into forty-seven compartments, which were separated from each other by a *cordon sanitaire*; ten temporary hospitals were erected, and Count Zakrewski, the Minister of Interior, was appointed by the Emperor to superintend these protective arrangements. The Emperor himself visited the town when the disease was at its height, and when he left to go to Twer, by submitting to a quarantine of eight days, he gave an example of obedience to the sanitary laws. During the first ten days of October, 747 died; from the 10th to the 20th, 958 perished; and from the 20th to the 31st, 1,284 sunk under the disease. At first the mortality was as great as nine-tenths; it afterwards diminished to seven-eighths, five-sixths, three-fourths, one-half, and ultimately to one-third. During even the winter months, which had been hitherto a complete specific against its progress, when all the rivers were covered with ice, it carried on its work of death; but the number who were infected gradually decreased, and the mortality proportionally diminished.

Having now traveled so far north, it was almost universally expected that the Cholera would have soon reached Petersburg, and from thence have extended to the shores of the Baltic; but the capital, at this time escaped, and the disease, taking an almost opposite direction, accompanied the Russians into Poland. During the revolution of July, in 1830, a body of troops were ordered out of the province of Koursk, in the country of the Cossacks, which was then infected, to march against the Poles.—These troops, in their passage through Podolia, and Volhynia, took with them the disease along their entire line of march. The towns of Astrog, Zaslaf, and Luck were infected; and a few leagues from this latter place the disease passed the Bug, and entered Poland. Lublin was attacked towards the end of March, 1831; by the first of April, the hospitals of Siedlec were filled with Russians laboring under the malady; ten days afterwards it was discovered among the wounded at Praga, which is separated from Warsaw only by the Vistula; and on the 14th it entered the capital of Poland. According to the Central Committee of Health, from 100 to 150 died during the first week, out of every 1,000 sick; and according to the Berlin Gazette, during thirteen days, ending on the 5th of May, there had been between the town and the camp, 2,580 sick, of whom 1,110 died, and 1,278 still remained under treatment. On the 8th of May, Ostrolenka, Lomza, Szczuczyn, Drohiczyn, Pultusk, Makow, Nesielskal, and Plousk, were ill; on the 24th it appeared at Polangen; on the 25th at Riga, and by the 28th, it had reached Dantzic, in Prussia, Brody and Lemberg in Austria. On the 26th of June, the disease entered Petersburg; early in August, it appears to have invaded

Hungary, and by the beginning of September, it had entered Germany, and was traveling rapidly towards Vienna.

In this hurried and imperfect outline of the geographical progress of Cholera, we have intentionally avoided to interfere with the narrative, by making any observations on its identity in different localities; on the peculiarity of its habits in following the great thoroughfares of human intercourse; on its strikingly progressive mode of traveling, and on the probable causes by which it was influenced in its selection of the course it had taken. These are important points which shall now be considered; but as it was impossible to treat them either with justice or effect until the path and progress of the disease had been fully laid before us, more space has been devoted to the preceding outline, than might otherwise have been regarded necessary.

That the Eastern and Russian Cholera are substantially the same disease, every circumstance with which we are acquainted tends to prove. Those, who have witnessed them both, as Drs. Russel, Schnurrer and Riecke, do not hesitate to assert their identity; and whether we consider their symptoms, their mortality, their facility of propagation, their mode of traveling, their habitudes during life, or their pathology after death, all demonstrate them to depend on the same morbid causes, and to consist in the same diseased action. Their outset is equally instantaneous and alarming; their progress is equally rapid and masterless; their termination is equally fatal and appalling. It will be satisfactory, however, to run a parallel of the symptoms which this disease wears in India and in Europe; not only as the best proof of its identity in these different countries, but for the sake of making our readers acquainted with the phenomena which mark the approach and presence of a pestilence, which threatens to give us the means of reading its character, by more indisputable information, than that derived from the evidence of testimony.

Russian Cholera.

“It most commonly began,” says Dr. Keir, “by some feeling of general uneasiness, soon followed by an unusual sense of weight or oppression at the pit of the stomach, and uneasiness or pain in the forepart of the head, usually succeeded by giddiness, and with sometimes ringing in the ears. These were either accompanied with, or soon followed by a feeling of general weakness, purging, nausea and vomiting; if delay, even of a few hours, in the medical treatment had taken place, which, with the lower classes unfortunately happened but too often, the physician either found the patient without pulse at the wrist, or so insignificant as to indicate a strong sedative impression already made on the vital energy of the heart. The temperature of the surface of the body, under-

went a proportional, if not a greater diminution, compared with the defect of the circulation. The mechanical part of the respiration seemed less deranged than might have been expected; but it was evidently imperfect. Spasmodic contractions of the muscles in different parts of the body, and particularly those of the toes, feet, legs and fore-arms, sometimes of the thighs, rarely of the trunk, generally supervened; and the patient frequently complained of much pain from these spasms, and of thirst. The purging and vomiting became more frequent; the eyes lost their natural brilliancy, and were encircled with a dark colored ring; the features sunk; the general volume of the body was much diminished, the extremities frequently looked livid, the blood stagnated in the vessels, and the hands and feet shrivelled; the skin on the inside appearing as if it had long been macerated in water. A general coldness overspread the surface, particularly the extremities, and partial clammy sweats appeared on the fore-arms, breast, and face. Anxiety, oppression at the chest, and restlessness came on; the tongue looked either pale, or of a slightly blue tint, and was commonly covered with a thin coating of slimy mucus. To the finger it felt cold, and often communicated the sensation which one has on touching the back of a frog. When things were in this state hiccough sometimes came on, and proved very troublesome; the respiration becoming more deranged, the patient died a few hours afterwards, without any signs of reaction having appeared." Mr. Cormick supplies the principal defect of which Dr. Kier has been guilty in this description, by saying, "that there is not a vomiting and purging of bile, as its name would imply, but of a whitish matter, without taste or smell, resembling water in which rice has been boiled."

Indian Cholera.

"The invasion of Cholera," says Mr. Scott, "generally takes place in the night, or towards morning. The patient is sick at stomach, he vomits its contents, and his bowels are at the same time evacuated. This evacuation is of a nature quite peculiar to the disease; the entire intestinal tube seems to be at once emptied of its foecal and solid matters, and an indescribable, but a most subduing feeling of exhaustion, sinking, and emptiness, is produced. Faintness intervenes, the skin becomes cold, and there is frequently giddiness and ringing in the ears. The powers of locomotion are generally soon arrested; spasmodic contractions, or twitchings of the muscles of the fingers and toes are felt; and these affections gradually extend along the limbs to the trunk of the body. They partake both of the colonic and tonic spasms; but the colonic form chiefly prevails. The pulse from the wrist is small, weak, and accelerated; after a certain interval, but espe-

cially on the accession of spasms, or of severe vomiting, it sinks so suddenly as to be speedily lost in all the external parts. The skin, which from the commencement of the disease is below the natural temperature, becomes colder and colder. It is very generally dry; generally covered with a profuse cold sweat, or with a clammy moisture. In Europeans it often partially assumes a livid hue; the whole surface appears collapsed, the lips become blue, the nails present a similar tint, and the skin of the feet and hands becomes much corrugated, and exhibits a sodden appearance. In this state the skin is insensible even to the action of chemical agents, yet the patient generally complains of oppressive heat on the surface, and wishes to throw off the bed clothes. The eyes sink in their orbits, which are surrounded by a livid circle; the cornea becomes flaccid, the conjunctiva is frequently suffused with blood, the features of the face collapse, and the whole countenance assumes a cadaverous aspect, strikingly characteristic of the disease. There is almost always urgent thirst, and desire for cold drinks, although the mouth be not usually parched. The tongue is moist, whitish and cold. A distressing sense of pain, and of burning heat at the epigastrium, are common. Little or no urine is secreted. The voice becomes feeble, hollow and unnatural. The respiration is oppressed, generally slow, and the breath is deficient in heat.

“During the progress of these symptoms, the alimentary canal is very obviously affected. After the first discharge of vomiting and purging, however severe these symptoms may be, the matter evacuated is always watery; and in a great proportion of cases it is colorless, inodorous, and often homogeneous. In some it is turbid, resembling muddy water; in others it is of a yellowish or greenish hue. A common appearance is that which has been emphatically called the “*congee stools*,” an appearance produced by numerous mucous flakes floating in the watery or serous part of the evacuations. The discharges from the stomach, and those from the bowels, do not appear to differ, except the former being mixed with the *ingesta*. Neither the vomiting nor purging are symptoms of long continuance. They are either obviated by art, or the body becomes unable to perform these violent actions, and they together with the spasms, generally disappear a considerable time before death. If blood be drawn, it is always dark, very thick, ropy, and generally of slow and difficult effusion. Towards the close of the attack, jactitation comes on, with evident internal anxiety and distress; and death takes place often in ten or twelve, generally within eighteen or twenty hours from the commencement of the attack.”

Both Mr. Scott and Dr. Keir have omitted to state, that the mind, throughout the entire course of the disease, remains unaf-

fected. This is a most interesting and remarkable symptom, and must enhance, to a degree, which perhaps the infected alone can estimate, their amount of suffering. How the mental functions can stand unshaken by the general shock, when the intense disturbance of the nervous system is manifested by the frequency and violence of the spasms, it is very difficult to explain. Its cause is, no doubt, to be found in the system of nerves which is more immediately affected; but as this question would involve a philological discussion, which many of our readers might find abstruse and unintelligible, it may be sufficient to confine ourselves to a simple statement of the fact.

As far, therefore as similarity of symptoms can establish their identity, Mr. Scott's and Dr. Kier's description must place it beyond suspicion, that the Cholera which now devastates the North of Europe, is substantially the same with the Eastern Cholera, which appeared at Calcutta in 1817; and the same fact is established by their corresponding mortality, by the sameness of their *post mortem* appearance, and by the medicines found most efficacious in the one affection, proving equally successful in the management of the other. According to Moreau de Jonnes, one-tenth of the whole population of Hindostan were attacked; and one-sixth of those who were attacked, perished. In Arabia, one-third of the inhabitants of towns died. In China its mortality seems to have been much greater, partly in consequence of the great density of the population, and partly because the Chinese declined, from religious motives, to employ any preventive measures. In Persia it killed about one-sixth of the inhabitants of Bender-Abassi, Shiraz, and Yerd. In Mesopotamia, no fewer than from one-fourth to one-third perished. In Bassorah and Bagdad, which are situated on the Tigris and Euphrates, and therefore surrounded by alluvial soil, and humid atmosphere, the mortality was frightful. At Erivan and Tauris, one fifth of the inhabitants were destroyed; but in more healthy and elevated parts of Armenia, as at Erzeroum and Kars, the disease was less fatal. In no country have its ravages been more varied and less uniform, than in Syria. In some places one-half of the population sunk under the disease, while in others, as in Tripoli, only one perished out of every three thousand. It would not appear that the local differences of the parts visited were sufficient to account for this inequality of action; but it will be hereafter seen, that no disease with which we are yet acquainted, betrays such a caprice and partiality in its movements, as spasmodic Cholera. It is estimated that its average mortality in Syria amounted to about one tenth of the population. During the irruption of Cholera, in 1800, into Russia, there was a most marked difference in its virulence among the northern and southern provinces. Thus, at Tiflis three-fourths of the sick, at Astracan two-thirds, and in the

province of the Caucasus, out of 16,000 attacked by the disease, 10,000 perished; while at Grenburg only one-fifth, at Twer one-third, and at Moscow one-half of the infected died. Our reports from Poland are not yet sufficiently precise to enable us to state the exact proportion between either the population and the infected, or the infected and those who die; but it is certain that the mortality has been very great. At Zitomir the number of deaths almost equalled that of the sick; in Berdicheff, during fifteen days, 201 were taken ill, and of these 133 perished; at Kamentz, on the frontiers of Moldavia, 589 died out of 1288; and at Warsaw, out of 2580 patients who occupied the hospitals on the 5th of May, 1110 had died, and 1278 still continued under treatment. In Austria, Cholera has been equally fatal. During five days, 357 died at Lemberg, and 1135 at Brody.* When it first appeared in Riga, two-thirds of the infected were destroyed; but the disease gradually moderated in violence; and it is now both in Dantzic and Riga, almost if not altogether extinct.

From these facts it is evident that this disease has been at least equally malignant in Arabia, Persia, and the north of Europe, as in India, and that, therefore, as far as identity of character can be shown by a similarity of action to correspondence of effect, its nature has remained unaltered in these different countries.—As another opportunity will offer of stating the proof, which is to be drawn in favor of the same fact from the same remedial plan being found equally well adapted for the cure of the Eastern and European forms, we shall now merely observe, in the last place, that the inspection of the body after death discovers precisely the same products of disease. The blood is equally black, whether in the arteries or the veins; the vessels of the brain and its membranes are in general, unusually full of blood; the lungs and heart are also gorged; in some cases the internal surface of the stomach and intestines is vascular and inflamed, but very frequently these organs present little, if any appearance of disease. The stomach generally contains more or less of that peculiar fluid which is rejected during the vomiting, and not unfrequently both the small and large intestines are somewhat contracted. The liver is generally gorged with dark colored blood: the gall bladder filled with tenacious bile, and the gall ducts occasionally contracted, but

* In Hungary its ravages have not been exceeded in any country, which it has yet visited. In the district of Brisod, out of nearly 6000 sick, not one recovered; and it has been equally fatal in Comonu and Debreczyn. In this country, as well as in some parts both of Russia and Poland, the extravagant fancy has been entertained by the populace, that the faculty had conspired in poisoning the infected; in consequence of which a very general aversion exists against all protective, as well as curative interference. At Berlin, out of the seventeen who were first attacked, thirteen perished; and up to the 10th of September, one hundred and thirty-seven had been infected, of whom ninety-three died, and thirty nine remained under treatment.

more frequently natural. The external surface is unusually dark-colored, the skin is rugous, and the features are frightfully collapsed. A most unusual phenomenon has been occasionally discovered after death, both in the Indian and European Cholera, which probably bespeaks their identity with as much emphasis as any of the facts yet stated. It has been, in a few instances, noticed, that the spasms have suddenly recurred several hours after the apparent extinction of life, and have convulsed the body for many minutes. In one instance, recorded by Dr. Sokalov, he observes, that "twenty minutes after his last breath, and when the corpse had been already washed and dressed, it was affected all at once with frightful movements. Convulsive motions took place in the hands and feet, like those excited by galvanism, commencing first in a few muscular fibres, especially in the neck and thighs, extending in a vermicular manner, and suddenly producing bending of the head, and agitation and elevation of the feet. These spasms continued with intervals for ten minutes, becoming in the end faint and rare. The same phenomena, though in a less remarkable degree, were observed on another occasion, but so long as six or seven hours after the termination of the symptoms of the disease." In such cases the principle of vitality cannot be entirely extinguished; and, as death always occurs suddenly in spasmodic Cholera, such facts are sufficient to teach us the propriety of allowing a considerable interval to elapse before those who perish by this disease are consigned to the tomb.

Some Turks, who were in Moscow a few days before the Cholera reached that town, predicted its approach by seeing swarms of small insects, which it would appear have been frequently its precursors, and have, therefore, been called "plague flies." Dr. Smith observes, that some of those who are to be attacked may be seen with a peculiarly dark ring round their eyes; and others state, that the features evidently collapse, and the expression gets anxious even for days before they sicken. At Orenburgh, according to Dr. Onufriew, dyspeptic symptoms generally preceded its attack; so that during its prevalence in that town, there was scarcely an inhabitant who had not some symptom of disordered digestion. Females are less exposed to it than males, and children than adults. In our armies in India, the camp followers were generally the first attacked, then the native troops, next the common European soldiers, then the officers, and last of all the civilians. For some time it was contended that the lower orders were principally, if not alone, its victims; but it exclusively confines itself to no order of society, although it has preyed with peculiar severity upon the poor and filthy. Sir Thomas Munro was destroyed by it in India; in Persia, one of the princes royal, and Mr. Rich, the British Consul, were among its victims; in Russia, according to General Count Toll, Diebitsch yielded to its power.

In all cases, unwholesome or insufficient diet, unseasonable or immoderate exercise, imperfect clothing, and damp, low, ill-ventilated dwellings, have strongly favored its propagation. Its second attack upon the same population is said to be less severe than the first; and if we except a few doubtful cases, there is no reason to believe that it ever invades the same constitution twice.— It seems equally well fitted for every country and clime. Russia was perhaps the very last place which one would have anticipated it was likely to visit; yet even there, when the rivers were bridged with ice, and the whole empire was covered with snow, when Fahrenheit's thermometer stood 30 degrees below zero, it slew with as fatal a stroke, if it did not spread with as great velocity, as when on the banks of the Jumna or the shores of the Persian Gulf. The high and fertile plains of Nepaul were ravaged by it as extensively as the miasmal meadows of Mesopotamia; the chalky scalp of the Caucasus was as much within its influence as the pagodas of the Hindoos, or the palaces of the Persians.

From this ubiquity of constitution, some have traced the origin of Spasmodic Cholera to a distempered condition of the atmosphere. The inhabitants of Syria, who are partial to this view, denominate the poison which they suppose to be diffused in the atmosphere, *El Haoua*, or pestilential air, and they compare it to *Sam* or *Samiel*, the wind of the desert, which is regarded as so destructive to life. Mr. Orton and Dr. Joechnichen entertain a similar opinion, more philosophically expressed. According to these gentlemen, the atmosphere is either in a positive or negative state of electricity, and they readily find in this unnatural condition, a cause not only for the general extent of this disease, but a solution of the problem of its movements, the insidiousness of its attack, and the rapid fatality of its course. But, however in theory all these points may be thus settled, in reality there is not the slightest ground for taxing the atmosphere with being the birth-place of this disease. If the germ of spasmodic Cholera were carried in the air, the disease should be found to travel under barometrical laws. It should be propagated in the direction of the prevailing winds; quick as its movements have been, it should travel with a hundred times its ordinary velocity; it should sweep equally and alike, with its besom of destruction, all the countries and cities over which it blows; and no means incapable of exerting any influence upon the movements of the air, should be found sufficient to control its progress. But in none of all these points does this theory hold true. In place of traveling in the direction of the winds, it frequently braves the very boldest monsoon in the Indian sea, and perseveres in its own peculiar track along countries in the torrid zone, where the winds are regular and uniform. According to Captain Sykes, it traveled from Jaulnah to Punderpoor against a permanent south-west wind;

and in place of following the currents of the atmosphere, its course is ever found along the public roads, the banks of navigable rivers, and the usual haunted highways of human intercourse. In the second place, instead of moving with the velocity of the wind, it occupied an entire year in traversing the Peninsula of India, three years to pass from Bombay to the Persian gulf, and three years more to reach the shores of the Mediterranean sea. Moreau de Jonnes has shown, by a very minute calculation, that its average rate of traveling has been from twenty-five to thirty miles a day, which is much more near a man's rate of progress than that of the wind. Thirdly, its partialities are most remarkable. "The disease would sometimes take a complete circle," says the Medical Board of Bombay, "round a village, and leaving it untouched, pass on as if it were wholly to depart from the district. Then after a lapse of weeks or even months, it would suddenly return, and scarcely reappearing in the parts which had already undergone its ravages, would nearly depopulate the spot that had so lately congratulated itself on its escape." Mr. Annesley also observes, that "in the very centre of extensive districts ravaged by epidemic Cholera, there are certain narrow stripes or patches of country, into which the disease has never penetrated, though all around was one scene of desolation;" and then he adds, that "this limitation of the disease to places where there existed no natural obstacles to its extension militates most conclusively against any idea as to its being a contagious disease, and seems to point to the existence of some difference in the quality of the atmosphere." But this fact cannot be allowed to settle the question; for if the spread of Cholera depend on the movements of the air, nothing can appear more unaccountable than such partialities. As the cause is, perhaps, the most universal that exists, its effects should be proportional to its extent. The extreme capriciousness of the disease—the fanciful character of its ambulatory movements—are among the remarkable of the phenomena that accompany it; for it will be found in the sequel, that though the walls of a town, or the enclosures of a palace, were often sufficient to arrest its progress, it was seen to ascend the most inaccessible steeps, and mountains whose peaks overtopped the region of atmospheric currents.

It is no doubt true, that either a hot or a humid atmosphere has been shown to be highly favorable to the propagation of spasmodic cholera; and it was for some time believed that a sufficient degree of cold and drought was capable of wholly extinguishing its malignant energies. But its appearance at Moscow in the very dead of winter disproves the one supposition; and its ravages in the thirsty deserts of Arabia, and the calcareous ridges of the Caucasus, repudiate the other. According to Mr. Annesley, the average height of the thermometer in India, from 1810 to 1815,

was 83 deg. 8 min., while from 1815 to 1820 it was only 82 deg. 6 min. So that in place of the heat having been greater at the period of the cholera's commencement, it was less; and in after stages of its future course, the fall of the thermometer, 30 degrees below the freezing point, proved incapable of arresting its progress. But if either a hot or a humid, a plus or minus electrical atmosphere, be the active agent in generating this pestilence, it is strange that our armies have traversed the Indian Delta during all seasons and temperatures; yet until this scourge entered Lord Hasting's camp, it was almost, if not wholly unknown in its present form. The temperature of India was as high, and its atmosphere was as humid a hundred years ago, as they are at the present moment.— There was as much sun and as much moisture then as there are now; yet both the natives and the Europeans could travel the whole Peninsula, from Bombay to Ganjem, and from Travancore to Delhi, with the most perfect impunity. Now, however, circumstances have wholly altered. Some towns and districts are seldom free from the disorder. It sweeps the entire country with as steady regularity as spring succeeds to winter, or harvest follows the summer season. It neither obeys the movements of the wind, nor confines its partialities to the dank regions of the air; but in opposition to wind and water, it pursues its own wayward and mysterious track, sowing death and desolation among the districts which it treads.

Others, therefore, convinced of the inaptitude of this view to account for all the phenomena in the history of this disease, have left the regions of the air, and penetrated the bowels of the earth, in quest of a happier hypothesis. Dr. Johnson says, "that no hypothesis, if such it be, is half so plausible as the terrestrial origin of epidemic influence, however that influence may be subsequently transported about, or modified by atmospheric constitutions;" while Mr. Annesley, afraid even to trust a conjecture so cautiously expressed, deemed it more prudent to incorporate it with the preceding theory of atmospheric influence; fancying that, between the demon which rides the storm, and the pestilence which is originated by the earth, there will be less difficulty in solving all the problems connected with Cholera. In his opinion, this disease is "essentially an affection of the nervous system," and he "considers the diminution of the nervous power to be the proximate effect of the efficient cause of the disease; that cause being the electrical condition of the air, arising from, or accompanied by, terrestrial exhalations of a kind unfavorable to animal life."

The advocates of this view are neither inconsiderable in number, nor unprepared with evidence. Calcutta, in India, and in Russia, Moscow, have been the strong holds of this sect; and it has found numerous partizans in all the countries where the dis-

case has been yet manifested. They appeal for proof to the partiality of the disease for the banks of rivers, and the neighborhood of marshes ;—to its peculiar hostility towards the poor, the filthy, the naked and the diseased ;—to its inveteracy in damp, low, and ill-ventilated localities ;—to its wayward partialities in the course it travels ;—to its violence during the heat of summer, when evaporation is most active ; to its decline in the close of autumn, when the temperature begins to fall ;—to its extinguishment during winter, by the intensity of the cold ; and to its re-appearance on the return of spring, when vegetable decomposition again begins to contaminate the air with noxious vapors.—They contend, that it makes its appearance suddenly and contemporaneously in districts of the same country, similarly circumstanced as to soil and season ;—that its violence is in proportion to the salubrious or unwholesome character of the place it enters ;—that it can not only be diluted in intensity, by lessening the exciting cause, but wholly banished from any locality, if by proper modes of purification the earth can be prevented from pouring forth her poisonous influence ;—that it seldom, if ever, appears in districts where some source of morbid miasmata cannot be detected ;—and that there is no unequivocal and decided instance of its ever having traveled from one neighborhood to another, through the medium of human intercourse. When Cholera prevailed at Tripoli, which is a very clean and well ventilated town, thirty-one only were taken ill out of a population exceeding 15,000 ; of these only five died, and the disease tarried but a few days ; while at Antioch and Gesra, which are low and badly aired, it continued for a month, and committed frightful ravages. It is argued, that in Hindostan, where the population is much more dense than in the north of Europe, where less attention is paid to cleanliness and comfort, and where every physical and moral circumstance is favorable to the progress of epidemic influence, the numbers who were invaded by this pestilence were much superior to those whom it brought within its influence, either in Russia or Poland ; and, not only so, but that the farther north the disease extended, the fewer were its victims. Thus, in Hindostan, out of 10,000 European military, 3,000 were attacked by Cholera, in the period of five years, and about 700, or from one-fourth to one-fifth died ; and among 71,000 of native military, during the same period, 15,830 were attacked, and almost one-fourth perished ; whereas, in Russia, not more than one-twentieth of the population of the infected provinces suffered. They assert, that the progress of this disease from one country to another is more rapid than that of any known contagion ; that in less than one year, it traversed India ; in less than two years it spread from the Persian Gulf, over a line of 400 leagues in length, to the shores of the Mediterranean ; and that in six months it passed from

the Caspian provinces, over the Caucasus, to the governments of Twer and Jaraslaw, a distance of 700 leagues from the point of its departure.

These, and other general arguments unnecessary to specify, are urged in behalf of the terrestrial origin of spasmodic Cholera; and it will probably be admitted, that they are sufficiently strong to connect the history of this complaint to, at least, a certain extent, with pestilential influence emanating from the earth; but it has been questioned by many, and on grounds of no trifling weight, how far they who exclusively restrict their etiology to this single agent, are enabled to refer to that cause all the habitudes, and movements, marches and countermarches, of this disease. These contend, that if Cholera exclusively originated in pestiferous miasmata, it should be found only where such a poison is acknowledged to exist; whereas, say they, it has traversed countries, cities, and villages, which are geographically incompatible with the generation of such an influence to a degree sufficient to produce the effects ascribed to it. While it nestled among the jungly morasses of the Ganges, the Indus, and the Jumna, the Malarian might have rested secure in the sufficiency of his single view; but when it is found where there is neither *materiel* for decomposition, nor a decomposing agent, neither vegetable nor water, ordinary heat nor ordinary evaporation, marsh miasmata, (argued the contagionists,) cannot be taxed as the universal and exclusive cause of cholera. The arid sands of Arabia, the rocky ridges of the Caucasus, the nitrous steppes of Tartary, and the frozen summit of Mount Ararat, cannot be esteemed the birth place of miasmal vapors. But admitting, say they, that the steppes of Tartary are not in this respect a whit more healthy than the banks of the Hoogly, what has hitherto prevented this noxious offspring of heat and moisture from working its specific effects upon the population within its reach? Were terrestrial effluvia the solitary cause of Cholera, they contend, that it should have existed since time immemorial in India, in China, Ethiopia, Japan, and in short, every country in which this agent exists; it should not attack town after town, and country after country, in tedious succession, but it should simultaneously appear in all the localities of its exciting cause; its partialities should be decided by the character of the soil and of the season, and not by the extent of population and the degree of thoroughfare. The neighborhood of lakes and of marshes, of shady woods and succulent downs, should form the theatre of its operation, and not the centre of camps, the rear of armies, the heat of cities, and the haunts of merchandise. It has been said to delight in the banks of rivers and the borders of seas, and this marine habit has been urged as a proof of its terraqueous origin; but they contend that by referring to the map of its travels, it will be seen that the only rivers which it frequents are such as

form the grand channels of communication between different cities and countries, and that its selections of such portions of these rivers as it more especially infests, is not guided by their unwholesome nature, but by the degree of thoroughfare, to which they are subject. It is argued, that the doctrine of malarian influence leaves unexplained the numberless examples of coincidence between the arrival of the diseases amid a healthy population, and the subsequent appearance of the disease among such as had been previously exempt; as well as the escape of those who take the necessary precautions against its inroads, compared with the havoc it commits among the Hindoos and the Chinese, who regard all preventive measures as an impious interference with the destinies of the world.

For these and similar reasons, it is contended, that Cholera is a contagious as well as an epidemic disease; and some of the facts which have been adduced in support of this position it will be necessary to lay before our readers, that they may be enabled to form an opinion for themselves how far there is reason for upholding such a doctrine. Mr. Duncan states, that while the 34th regiment were on their route from Bellore to Bangalore, Cholera appeared among them, and every intermediate town, through which they passed, betrayed symptoms of infection soon after their departure. According to Mr. Scott, a corps of troops, which had remained in good health during the siege of Chandia in spite of great fatigue, became ill on passing through Nagpore, which was diseased. Another detachment, which had quitted Nagpore, and which had lost several men upon its march, arrived at Jaulnah in the end of June, and the Cholera appeared in Jaulnah on the 3d of July; a third detachment arrived in good health on the 4th of July, but left the town next day, and before they reached Hadrabad the disease broke out among them. A company of English travelers, attended by a suite of 1,000 people, entered Jaulnah on the same day with the last detachment, and remained in it until the 6th in apparently good health. Before, however, they reached Aurungabad, Cholera appeared, and it spread through Aurungabad shortly after their arrival. In 1818, a corps of troops, in excellent health, passed through Delhi while it was diseased. They became ill, but prosecuted their journey, and were afterwards joined by another detachment in good health, who were attacked soon after they joined the infected regiment. During November, of the same year, while a healthy detachment were passing the Jumnah, they became ill. Without using any precaution, they entered the camp at Teraut in this diseased state, and the entire camp were implicated. In 1819, a diseased regiment arrived at Trichinopoly which was perfectly healthy. The town soon became ill, the garrison were affected, and the disease spread into the neighborhood. The 15th regiment of native in-

fantry, while laboring under the disease, was ordered for Gooty, and all the towns it traversed at that time although in perfect health, were infected. "We were detained" says a writer in Annesley, "a fortnight in camp, between the Mount and Poonahmalee, not being able to pay the detachment. During that time, as might be expected, almost all the men were drunk regularly every day, and were prepared by such excesses to suffer from any disease. We have, however, been particularly fortunate till our arrival at this station, not having lost a man, or had one seriously ill, though we had been under canvass above five weeks. We fell in here with a battalion of native infantry who were suffering from Cholera. The next day, six Europeans were attacked, the number increased daily, and most of the first cases proved fatal." "It was the troop of Count Pahlen," says the Polish circular, "which brought the cholera into Poland, and each contact with any body of the enemy is dangerous."

According to Mr. Coates, Cholera appeared at Punderpoor, at the period of the great Jatra. The infected were knocked down as by lightning; 3,000 died in a few days, and the disease was carried into all parts of the surrounding country by the pilgrims returning to their homes. The king of Siam finding his kingdom threatened by the disease in 1820, called his people together to the borders of the sea for a religious solemnity. Seven thousand perished on the spot, and when the assembly broke up, the cholera was carried into the surrounding provinces. In 1825, the feast of Mahourroum was held at Benares; 6,000 perished at the time; the road as well as the Ganges were covered with the dead; the inhabitants of Benares forsook their houses, and almost the entire province of Bengal became involved. And what is accomplished by large masses of infected people, it is argued, has been with equal certainty effected by individuals. Dr. Taylor asserts that the disease was first brought to Bombay by a man who had come from the Deccan, and passed through the Panwell which was then infected. Dr. Jukes says, that it was taken into the island of Salsette, in 1818, by a detachment of troops who were sent there with an infected prisoner from Panwell. In the official report of St. Petersburg, it is asserted that the disease entered Moscow through a student who came from Saratoff, where the cholera raged. It has indeed been objected that the first four cases which occurred in Moscow were closely inquired into, and it was found that neither they had themselves been in an infected place, nor had they held communication with those who were. Dr. Walker, however, one of the commissioners whom our government have sent out to Russia, reports that this investigation was not made by medical men, but by the police, and that one of these four cases had come from Simbirsk, at that period laboring

under the disease, only a few days before he took ill. The report of the medical board of Calcutta states, that a sepoy died with Cholera in Lord Hastings' camp at Gourrockpore. Five of his comrades, who had betrayed no symptoms of the disease, were employed to bury him. All were attacked during the following night, and all died. A Cossack, stationed at one of the military depots upon the banks of the Don, was sent to Doubourska, on the Volga, and he brought back from thence, the disease to Katschalinskayer, from which it traveled down the river Don to the Sea of Asof, into the Crimea. Mr. Duncan observes, that a native soldier, traveling from Bangalore to Nundidoog, passed through the camp of the 34th while it was infected; was attacked, took ill, and died after his arrival at Nundidoog. Dr. Meunier states, that at Bagdad, although a third of the inhabitants were attacked, none seemed to be affected, but such as approached the sick; and Dr. Reiman asserts, that "we have not a single instance of a town or of a village, which, without communication with houses or persons affected, has contracted the disorder." Dr. Burrell states, that there were thirty attendants in the hospital at Se-roor, and that almost all of them were attacked in the short space of six days.

"Every one of the native attendants in the hospital of his Majesty's 63th native regiment," says Mr. Craw, "and they are thirty in number, have been attacked with the disease."

Mr. Scott reports that very frequently the only European taken ill was the medical officer. Dr. Walker writes;—"One gentleman who was the inspector of the hospital at Moscow, of which I have a copy of the printed statement as above mentioned, was at first a non-contagionist; but found himself forced to adopt the opposite opinion, because so many of the attendants at the hospital under his superintendence were attacked with the disease."

Dr. Labrouse informs us, that the prisoners in the jail of St. Denis, who were employed in the removal of the sick and dead bodies, all died in the discharge of this office; that at the lazaretto, two hospital servants alone escaped the contagion, and that in the hospital the Cholera patients communicated the disease to the servants and other patients. And finally, Drs. Russel and Barry, our medical commissioners at St. Petersburg, report, "that the number of medical men and hospital attendants attacked with Cholera during the present epidemic, in proportion to the whole employed, and to the other classes of society, has been beyond all comparison greater here than in India, under similar circumstances. Twenty-five medical men have been already seized and nine have died out of two hundred and sixty-four. Four others have died at Cronstadt, out of a very small number residing in that fortress at the time the disease broke out there. Six attendants have

been taken ill at a small temporary hospital behind the Aboucoff, since we wrote last. It is certain however," they add, "that in some Cholera hospitals, favorably circumstanced as to size, ventilation, and space, very few of the attendants have suffered."

According to the Asiatic Journal, the Island of Sumatra was infected in 1819, by the trade which is carried on between Acheen and Malacca, across the intervening strait. In the same way Cholera would appear to have reached Penang and Singapore, during the October of the same year. The Medical Board of Ceylon reports that soon after the disease, in its course along the Comorandel coast in 1819, had reached Palamcottah, it made its appearance in Jaffna, in Ceylon, from which it was propagated through the whole island. The province of Jaffna faces Palamcottah and holds with it constant intercourse. During winter, the disease, as usual, disappeared: but in August, 1820, the *Leander* called at Trinquemalee, from Pondicherry, and landed several of her crew, who were laboring under Cholera. The consequence was, according to the official Gazette of Madras, that Trinquemalee became immediately afterwards infected, and the island was scourged by a second pestilence. According to the official Gazette of the Mauritius, the *Topaz* frigate, bound from Calcutta, called and anchored at the Mauritius, on the 29th of October, 1819. At this time it is asserted (but we are bound to say that the statement is strongly contested,) that the island was perfectly healthy; but seventeen of the ship's company had been taken ill on the passage, five had died, and the day after the captain threw anchor in Port Louis, he sent thirty of his invalids to the hospital of the 56th regiment, which was stationed on the island. On the 29th of November, the first fatal case occurred in that hospital: the disease spread rapidly through the town of Port Louis, and into the principal out-posts and towns throughout the island. M. Combleholme estimates the mortality at 20,000. The Isle Bourbon, finding that its neighbor the Mauritius had taken ill, established the most rigid system of quarantine. Two months elapsed without any appearance of the disease: but at the end of that period a slave vessel stole privately into the port of St. Denis where the Cholera immediately appeared, and eight of the slaves were its first victims. This boat had left the Mauritius on the 7th of January; and on the 14th day of the same month, Cholera was seen for the first time in the town of St. Denis. The governor, notwithstanding, persevered in his protective plan; and although it had proved unsuccessful in wholly exempting the island, it is stated to have limited the influence of the disease to the district which was first infected. Only 256 were taken ill, and out of these no fewer than 178 died. Moreau de Jonnes asserts, that the Cholera was brought to Muscat, in Arabia, by the English East Indiamen; and Dr. Salinas re-

ports that it was a vessel bound from India, which in 1821 carried this plague into the port of Bassorah, from which it spread from town to town, even to the coast of Syria. Almost every authority, which we possess upon the point, declares that the Cholera reached Astracan by a brig which came from Baku, on the western coast of the Caspian sea. Baku was unhealthy when the brig sailed; she lost eight of her crew upon the voyage, and Cholera first appeared in Astracan a day or two after her arrival in the Lazaretto, to which the sick of the vessel had been brought. The following extract from the pen of Dr. Solomov is rather long, but it bears so strongly on the present subject that we cannot refrain from laying it before our readers. Dr. Solomov is a staff-physician, settled in Astracan; his statements, like all other statements, must be taken as colored necessarily by his opinions. "After the 27th July, it attacked the suburbs, then the nearest villages, and then gradually extended over the whole government. After the 29th, it proceeded through the Cossac stations, and the town of Enotaevsk on the high way to Moscow, up the stream of the Volga; its extension in this direction evidently accompanied the fugitives from the places successively attacked. In the town of Enotaevsk it spread with the arrival of a sick boor; on the 29th, a barge arrived at Tchernojar, 150 miles up the Volga, with several rowers on board, who were ill of the Cholera. On the 8th of August the disease began to prevail among the inhabitants, then passed across the river among the neighboring Kirghis, as well as upwards to the villages of Solodnikovsko and Vaisoka; in one of which the first attacked was a military prisoner, who had been exposed to the disease. On the 25th of July, the epidemic also began in Krasnojar, situated on the northern mouth of the Volga, twenty miles from Astracan; and it first seized a private of invalids, and a girl thirteen years of age, who had both recently come from that capital. While the disease prevailed in Astracan, some fishermen were there from Makovsky and Schitinsky, two places on the shore of the Caspian, where the Volga opens into it. These men, terrified at the progress of the epidemic, hastened home to place themselves as they imagined, in security. But they had already imbibed the poison; some fell sick on the way, others after arriving at their homes; and the disease soon spread throughout the community to which they belonged." Thousands of those, who were employed in navigating the Volga, made their escape from Astracan as soon as the disease broke forth; in little more than a month it had ascended as high as Nijni-Novogorod, and in all the intermediate districts, which it visited, its first victims were either the navigators of the Volga, or individuals come from places where it had already raged.

When the disease visited Manilla, in 1820, the captains of the

vessels which lay in the harbor forbade them all intercourse with the town; and in this way, it would appear, did they all escape. When the Mauritius became affected in 1819, M. Chamaret de Chozal shut up all his family, cut off all communication with the diseased, and thus remained exempt from its influence. M. Guys, the French consul, closed up his household in a similar way, within his garden at Tripoli; all the Europeans who were in the town followed his example, and none of them were attacked. M. Keraudren observes "that in 1822, M. de Lesseps, the French consul at Aleppo, took refuge with all who chose to accompany him, in a garden at a small distance from the town, which was surrounded by a wall and a wide trench, and had only two doors by which it could be entered. His little colony amounted to, at least, two hundred individuals; every thing which was admitted to them from without, underwent a strict quarantine, and not a single case of disease occurred; while in eighteen days 4,000 perished in the town." Dr. Loder states "that the authorities at Sarepta interdicted all intercourse with Astracan and Nijni-Novogorod, while they were infected, and Sarepta was preserved." It is narrated by Dr. Solomov, "that many gardens in the neighborhood of Astracan remained unaffected, by discontinuing communication with the diseased; and that many villages in the Lordships of Smirnov, Beketov, and Prince Colgoruki, escaped by the same precaution. A little set of villages at Darmala-Gubeewa threw a similar *cordon sanitaire* around their habitations, and escaped, while the disease was prowling throughout the neighborhood. The school of military cadets at Moscow was saved by cutting them off from all correspondence with the citizens; several German colonies in the government of Stratof, and a Moravian colony on the banks of the Volga, were similarly preserved.

Such are the principal facts upon which the contagionists ground the doctrine which they advocate; and the authorities which they advance to add influence to their evidence, are entitled to much attention. Drs. Scott and Stuart, the principal members of the Medical Board at Bombay, say, that the Cholera appears to them capable of being "transported from place to place, as in cases of ordinary contagion or infection; and also to possess the power of propagating itself by the same means that other contagions do." The physicians of the two divisions of the army at Bengal deem it to be contagious; and from Jamieson's report it will be seen that the Medical Board of Calcutta declares, that by the accumulation of men into one place it may become contagious. Dr. Kennedy observes, "that, to the best of my judgment, I know no character belonging to any contagious disease, which Cholera does not appear to me to possess; and that, if it be not contagious, I know no other disease which I would be inclined to consider so." The Bombay Report states, "that we are enabled

to trace the disease as it is creeping along from village to village on that island, (Salsette,) precisely in the same way; that is, by the arrival of people affected with the disease from places where it was known to prevail; and we are assured that there are some small villages on that island, which from want of this sort of communication, or from some other cause, have, after a lapse of four months, hitherto escaped entirely." The Medical Board of Russia say, that it is "a contagion *sui generis*, less severe perhaps than the plague, and requiring a predisposition to make it effective. The Central Sanitary Commission in France advocate the same view; and the Superior Council, which has been since erected, have confirmed their judgment. The Persian and Turkish governments have acted under the same conviction; all the continental powers which have seen reason to anticipate its approach, have unanimously advocated the necessity of quarantine; and our own government have thrown the weight of their authority into the contagionist's scale. The four Austrian physicians, who were sent out to Russia, have reported to their government that it spreads by contagion; Drs. Walker, Barry, and Russell, whom we have commissioned to the same country, send us the same information; the French commissioners are unanimous in the same view; Drs. Makartienne, Martinengo, Meunier, Angelin and Salinas, who have witnessed Cholera in different countries, are contagionists; Sir William Crichton and Dr. Loder, physicians to Nicholas, are strong advocates to this doctrine; the Russian General Diebitsch, was so convinced of its contagious nature, that when Shezel, his physician, informed him of the nature of his disease, he ordered all in his presence, with the exception of the medical men, to leave the room; the Polish general, Skrynecki, is of the same opinion. Immediately after the battle of Iguinie, Cholera was seen for the first time in the Polish army. The medical officers were immediately set to work, and by great exertions succeeded in extinguishing it; but the battle of Ostrolenka brought them again in contact with the Russians, the disease again appeared, and from that fatal victory to the present hour, Poland has had more to contend against than either the bloody violence of barbarous despots, or the shameful and unpardonable apathy of avowed friends. Our ambassador, lord Heytesbury, at the Russian court, hesitates not to pronounce this disease contagious. Nicholas himself has evinced his belief in it by abandoning Petersburgh, and taking refuge at Peterdoff; and finally all the French consuls, Lessóps, Guys, Reynaud, and Gamba, are grounded in the same faith.

In this detail of the evidence brought forward by the advocates of terraqueous miasmata and of contagious influence, we have studiously abstained from expressing any opinion upon a subject

that every one, who reflects upon the facts and statements which have been here collated, may be equally competent with ourselves to decide upon. The profession, as well as the public at large, are sadly divided upon the contagiousness of Cholera. Even those who have witnessed it in different countries, and at all periods, who have traced its progress upon the field of its operations, have studied its character in different stages and constitutions, and have had the very amplest opportunities of drawing truth from the fountain, are opposed in sentiment; and, therefore, to whatever side our private opinion may be disposed to lean, both the settlement of this controversy and the cause of science may be more judiciously consulted, by leaving the question for the present, to the unbiassed discretion of the reader's judgment. Should this malignant pestilence ever land upon our shores, and give us a personal opportunity of confirming, or of modifying the views which we entertain, it will then be our duty to lay the result before the public: but if the evidence now before them cannot lead to some conclusion, in virtue of its own merits, no deduction drawn by us could in any measure fill up the deficiency.

Having thus endeavored to sketch the history—causes—and character—of Spasmodic Cholera, it only remains for us to make a few observations upon the means found best calculated to prevent its approach, and the treatment found most effectual in accomplishing its cure. We have seen facts sufficient to convince us, that however rapid and extended the progress of this epidemic has hitherto been, it is by no means beyond the control of judicious and active interference. While it swept the Mauritius from one shore to the other, it was incarcerated within St. Denis, in the isle of Bourbon. These two islands are placed in all respects under the same physical and moral circumstances, and no reason can be assigned why the disease did not spread to the same extent in both, but that in the Mauritius a blind adherence, in the first instance, to the doctrine of non-interference, permitted it to follow unchecked the laws of its own nature, while in the neighboring island the governor was taught wisdom by the sad result of this experiment, and used the necessary means for limiting it to the spot where it first appeared. The towns of Sarepta and Tripoli, are equally striking illustrations of the same effects of a well-conducted quarantine; and it is a fact which well merits the notice of our government, that in every country, city and town, which Cholera has yet visited, the extent of its ravages has been uniformly in an inverse ratio to the general health of the inhabitants, and to the perfection of the means employed for its prevention. These classes of society, whose habits, occupations, and rank in life render them most obnoxious to pestilential agents, have been beyond all proportion its most frequent, its earliest, and its easiest victims. In India it preyed with peculiar violence upon the na-

tives, who are restricted by their religion to a vegetable food, are generally employed in all the menial offices, and are necessarily exposed to more privations than the European population. In Arabia, Persia, and Syria, the poor, aged, and debilitated, were always the first cut off; and in Russia and Poland but few of the upper orders of society have become its victims.

Little reliance, it would appear, is to be placed in any of the disinfectants which have as yet been tried. A chemist in Moscow, M. deKartsoff, is said to have preserved a family of thirty individuals, even while in close intercourse with their neighbors, by employing the chorides of soda and lime; and a vessel from Bourdeaux is reported to have remained uninfected at Calcutta, in the centre of vessels which had been decimated by the disease, by keeping her decks sprinkled with a solution of these salts. Dr. Alberts, the head of the Prussian commission, however, speaks in very moderate terms of these chlorides; and Sir W. Crichton, asserts that fumigation with chlorine has been abundantly tried, but without any favorable result. These salts can be procured from any of the chemists; and if fumigation with chlorine be preferred, it is easily performed, by pouring six drachms of oil of vitriol on a mixture of four drachms of powdered manganese, and eight drachms of common salt. These articles should be placed in a china cup, and the doors of the apartments to be fumigated should be kept shut for two hours; after which the fresh air should be freely admitted. In Moscow, fumigation is generally performed with spirit of juniper and burnt litter; but free and frequent ventilation is certainly more to be depended on than any of these modes of purification.

The stomach and bowels should be preserved in a natural state; extreme or sudden vicissitudes of temperature should be religiously shunned; raw fruits, adulterated beer, sour wines, and all kinds of indigestible food should be strictly prohibited. Regular hours are indispensable; and mind should not be suffered to despond; unwholesome localities, such as the neighborhood of low and marshy grounds, close and ill ventilated habitations, condensed and overcrowded districts, should be as much as possible avoided; and all the degrees of intemperance, whether in food or drink, are especially destructive. In short, every thing which can add tone to the general health should be pursued, while whatever tends to weaken the powers of life should be counteracted. In many respects, no town which Cholera has yet visited can furnish an easier conquest than our own metropolis. The hundreds of starving paupers who come to London for relief, and are compelled from want to herd together in much less cleanliness and comfort than the native Indians, are ever predisposed to the invasion of such an epidemic; and the overpeopled condition of many of our streets, courts, and alleys, will strongly co-operate with

the intemperate and filthy habits of many of their inhabitants, in giving a facility to its propagation, which the wisest and most rigid quarantine may be unable to neutralize. A medical commission should be appointed to investigate the health of the metropolis; and every thing, which in their opinion would tend to encourage either the entrance or progress of this pestilence, should be reported on. This precautionary measure should be adopted now, and in the event of the dreadful arrival of Cholera upon our shores, the towns should be divided into districts, each district should be placed under the surveillance of a medical sub-commission, which should have erected for their use a temporary hospital centrally situated, and severe penalties should be inflicted upon all who do not inform the members of this commission the moment symptoms of the disease were detected. It was some such preventive plan as this which was adopted at Moscow: and when Cholera was ravaging Madras, two men were stationed in every street to carry the sick to the hospitals as soon as they took ill; and to every street there was appropriated a lazaretto, sufficient to accommodate as many as required assistance. Experience, however, has demonstrated the difficulty of so effectually isolating the diseased, as to place the healthy beyond the reach of attack; and in such a country as England, where the means of communication are so numerous, and the expense of traveling so moderate, unless our quarantine arrangements entirely prevent its introduction, we strongly fear that no prophylactic measures which can be afterwards adopted, will be found sufficient to circumscribe it within any given space. This was evidently the fatal error which the Russian government at first committed. Finding their exertions had arrested it on its first appearance in Astracan, they permitted it on its reappearance in 1830, to pierce into the very heart of the empire, before the active measures which were afterwards employed, were carried into operation. So universally, consequently, has this disease spread through Russia, that no place being now left where it has not visited, the government have no longer continued the system of quarantine. But should it unfortunately visit our shores, we have good reason to anticipate that it will make much less havoc among our population, than it has done in either India, Russia, or Poland. Our people are better clothed and better fed; our habitations are more spacious and better aired; our charities are more numerous, and conducted on a more generous scale; and our long connexion with the east has made the faculty generally well acquainted with the nature of the disease, and with the various remedies which have exerted the greatest influence upon its progress and mortality.

Like every other malady of a very fatal character, the variety of medicines which have been recommended for the cure of Spas-

modic Cholera, is only equalled by their conflicting properties. Dr. Joechnichen and Moreau de Jonnes entertain a very moderate estimate of the powers of the healing art in the present instance; but by comparing the mortality of those who have received no treatment with that of those who have, there seems to be no ground to despond. "In one district," says Mr. Kennedy, "the population of which is about 200,000—15,945 were attacked with Cholera. Of these 1294 had no medical assistance, and there is reason to believe that of that number every individual perished; whereas 166 were attacked on the estate of Count Guriev, in Saratov, and out of 147 who were attended to from the first, twenty-six only died, or one-sixth of the whole, while the remaining nineteen, who received no treatment, perished without one exception." As a general statement we have reason to say, that when the disease has been abandoned to itself, it has usually destroyed one-half, and not unfrequently two-thirds of those whom it has attacked; whereas, when it has been early combated by proper remedies, its mortality has been rarely one-third, and sometimes not more than one-fifth of the diseased. Cholera is principally a disease of function and not of structure. Beyond slight inflammation of the stomach and small intestines, and considerable vascularity of the brain, no marked appearances of any consequence are discoverable after death; consequently, if these deranged functions can be restored to their natural state, there exists no organic lesion to obviate or retard the cure. Hence it is, that when the Cholera patient recovers, his symptoms are as rapidly banished as they at first appeared; and the constitution, which was apparently on the eve of breaking down beneath an accumulating mass of wretchedness, regains in a few hours its wonted elasticity and vigor. The medical world are, however, most unfortunately unsettled in their arrangement of the means best adapted for the treatment of this disease. One physician says, that nothing can be done without the lancet, and another contends that bleeding is little better than to kill. Opium is given in enormous quantities by one practitioner, while it is denounced by another as decidedly injurious; and whether we speak of oxyde of bismuth, calomel, magnesia, glauber salts, castor oil, cajepout oil, oil of turpentine, olive oil, nux vomica, ether, ammonia, brandy or wine, we find almost the same distracted state of medical opinion. "But," as Dr. Kennedy observes, "it is now high time for the profession to come to some decision, if possible; for there need be no hesitation in supposing that, of two opposite systems both cannot be harmless; and some difference of result must be expected, when one bleeds to relieve oppression of the brain, and another to relieve congestion of the liver; when one gives the most acrid stimulants as excitements, and another simple doses of calomel and laudanum by tea-spoonfuls as sedatives; and finally, when one declares that opium alone is to be

depended on, and another that it is the worst medicine which can be exhibited. Where, therefore, unanimity is not to be found, we must be guided by the judgment of the greatest number; and in following the majority of the best informed upon this disease, it would appear that the following is a summary of the treatment which has been found most successful both in India and upon the Continent.

If the patient be seen as soon as he is attacked, a vein should be opened in the arm, and blood should be abstracted in proportion to the violence of the symptoms, and the powers of the patient. At the same time a pill, composed of twenty grains of calomel and two grains of solid opium, should be taken, and instantly followed by a draught, composed of one ounce of camphor mixture, one drachm of laudanum, and one drachm of ether. The entire body, but more especially the extremities, should be rubbed with warm flannel, or flannel steeped in spirits of turpentine; and bottles, containing hot water, are to be applied to the feet. If these measures succeed in affording relief, the pill and draught may be repeated in the evening, and half an ounce of castor oil should be given on the following morning; after which no further danger need be apprehended. But if the symptoms remain unabated, and, as often happens, no blood can be obtained by the lancet, from twenty to thirty leeches should be applied to the pit of the stomach; the pill and draught should be repeated every two hours, until the spasms relax, and after the leeches have done bleeding, the bowels should be covered with a mustard poultice or a blister. As soon as bile appears in the evacuations, strong hopes of recovery may be entertained, and half a drachm of compound jalap powder, mixed up with two ounces of peppermint water, may then be given to solicit this secretion, and be repeated if necessary. The attack, if violent, seldom continues longer than from twelve to twenty hours; but inflammatory action is not unfrequently set up afterwards in the brain, stomach, or other important organs, which require both skill and watchfulness. As medical assistance, however, can always be procured before the case has progressed so far, these accidental consequences may in general be avoided.

Mr. Corbyn gave his calomel in powder, and washed it down with one drachm of laudanum, twenty drops of oil of peppermint, and two ounces of water. He bled freely in the early stage, and supported the heat by friction, warm baths, and cordials. Mr. Scott advises laudanum and ether, of each one drachm, joined to half an ounce of brandy and one ounce of water. This he gives, after every attack of vomiting, and afterwards in the same way twelve grains of calomel, three of camphor, and one of opium, joined together with three drops of oil of peppermint. Dr. Burrell, of Calcutta, asserts, that opium is indispensable; and cases.

are recorded in which immense quantities of this drug were administered with almost uniform success. When blood can be obtained, the lancet is also admitted to be invaluable. Dr. Kennedy says, "I always feel it a subject of regret when I cannot bleed; it is, in my mind, next to signing the patient's death-warrant, when I decide that the critical moment is passed, and he no longer capable of undergoing it." Dr. Burrell states, that out of 100 patients, eighty-eight were bled and twelve not bled. Of the eighty-eight, two only died, while of the twelve, eight perished. In many instances, however, more especially when they have been long neglected, the circulation upon the surface of the body is so languid, that no pulse can be felt at the wrist, and when a vein is opened, no blood flows. In such cases, an ounce or two of brandy, or some cordial stimulant, may excite the circulation; and as soon as a few ounces of blood have been obtained, the symptoms gradually moderate. All forms of drink were once prohibited, but this precaution is found no longer necessary; and water, either cold or warm, acidulated with some vegetable acid, is given freely.

This is the Indian mode of treatment; but as the Russian practice has been modeled on the experience of the East, it is not essentially different. The Russian physicians, however, seem to depend most upon the application of heat; and some of them, as Sir W. Crichton, go so far as to assert, that calomel and opium are not so beneficial as medicines which elevate the temperature, and excite perspiration. "The exciting of copious diaphoresis," says Dr. Hermann, "is the only efficacious remedy against Cholera, and no patient recovered in Moscow without this critical secretion." At Warsaw, poultices of hempseed, wrung out of warm water, are wrapt over the entire body as warm as they can be borne, and renewed as they cool, until a profuse perspiration is produced.—M. Ranque of Paris, eulogizes, in no very measured terms, the employment of epithems, the principal ingredients of which are hemlock, camphor, sulphur, and tartar emetic. Plaisters composed of these substances, are laid over the stomach and bowels, and the extremities are well rubbed with a liniment, composed of sulphur, ether, Belladonna, and laurel-water. In Batavia, according to M. Reveille Parise, a kind of family specific, which the natives call "Cholera water," is kept ready made in the shops, to which immediate recourse is had on the first manifestation of the disease. This medicine is composed of one part of laudanum and two parts of spirits of mint, taken in doses of one table-spoonful frequently, until the spasms are overcome. It is said to prove very efficacious.

THE NATURE AND CURE OF THE INDIAN CHOLERA.

[Extracted from the Englishman's Magazine.]

The generic appellation *Cholera*,* is radically derived from the Greek word $\chiολη$, signifying bile. The title was appropriated in consequence of one of the most prominent symptoms being either a redundant flow of bile into the intestines, accompanied with evacuations of a *bilious fluid* characterizing *Bilious Cholera*; or a total absence of bile in the intestines, with evacuations of a *watery fluid*, characterizing *Spasmodic Cholera*. These symptoms are so completely opposed to each other in the quality of the fluid discharged, that attending to them alone will, in general, preclude the possibility of confounding the two species.

In this country, the more severe forms of Bilious Cholera usually occur in the latter end of summer, or the beginning of autumn. At these periods, the extreme heat of the sun stimulates the liver to an increased secretion of bile, which, flowing in excess through the biliary canals, accumulates within the intestines. In the condition of health a certain quantity of bile is a necessary adjuvant to the perfecting of the digestive process; but like other natural secretions, when above or below the salutary measure, it becomes the cause, or the indication of diseased action.

The opening symptoms of Bilious Cholera, are simply the efforts of nature to expel the superfluous bile from the system.—The patient complains of nausea and universal languor, to which retchings and evacuations of a bilious fluid quickly succeed.—There is also thirst, restlessness, and pain. In many cases occasional cramps are experienced in the limbs, resulting doubtless from the irritating effects of the bile upon the internal surface of the intestines. Of spasmodic action, induced in distant parts of the body in an analogous manner, there is conclusive evidence. In children, convulsions are often excited by the irritation of worms, or indigestible matter lodged in some part of the alimentary canal.

A knowledge of the nature and seat of a disease, will lead to a judicious plan of medical treatment. The course to be adopted is very obvious. There are two objects to be obtained. One, to dilute and remove the irritating fluid from the bowels; the other, to allay the thirst, pain, and spasms. The first indication is followed in the free exhibition of mucilaginous liquids, and the use of an occasional purgative; to compass the second, anodyne medicines and refreshing drinks should be administered. When properly treated in the beginning, it is very seldom indeed, under ordinary circumstances, that cases of Bilious Cholera prove fa-

* *Cholera Morbus*, the vulgar name, is an absurd pleonasm.

tal. The disease is acute for the time it endures, but generally it is subdued in three or four days, and the patient recovers with nearly the same rapidity that he fell sick. There are periods upon record, however, in which the malady assumed a more dangerous tendency, in consequence, probably, of a peculiar constitution of the atmosphere with regard to heat, moisture, &c., or properties unknown. In 1669, Sydenham describes the Bilious Cholera as unusually prevalent and severe, carrying off many victims in the space of 24 hours.

Spasmodic Cholera is strongly distinguished from the preceding species by the intractable nature of the malady itself, and by the greater intensity of some of the symptoms common to both, as well as by the features, which confer upon it a distinct specific existence. Spasmodic Cholera is practically unknown in England, but in India it is indigenous. The attack is usually most insidious and sudden. Persons who may have felt perfectly well during the day, in the course of the night, or early in the morning, are seized with a feeling of uneasiness, which is at first rather a general sensation than referable to any particular part. To this succeed, at irregular intervals of time, a sensation of heat in the region of the stomach, nausea, constant evacuations from the stomach and bowels, of a fluid bearing a striking similitude to water in which rice had been boiled, cramps of the muscles of the fingers and toes, which gradually ascend along the limbs to the trunk. Finally, the muscles of the chest and belly are included in the circle of spasmodic movement; the more violent symptoms continue to persecute the patient, until his strength is unable longer to sustain them. In the last stage of the disease he is emancipated from the vomiting and spasms, through the complete exhaustion of physical power. With this change, however, he expresses himself greatly relieved, and he may yet survive for a considerable period, his mind remaining unimpaired amid the wreck of the corporeal functions.

A physician conversant with cases of Spasmodic Cholera, will often be competent to recognize an approaching attack in the expression of the patient's face, before that he is himself conscious of the least alteration in his appearance or sensations. His features seem sharper than natural, and there is an air of repressed anxiety in his countenance. If his attention be called to the fact, he will then perhaps say that he does not feel altogether as easy as in general, but that he cannot account for the impression.—The changes which the pulse and skin undergo, in the more obvious stages of the malady, are very remarkable, and will not fail to strike the attention of the most superficial observer. At first, the pulse is rapid, small and weak. When the spasms are established, it becomes, during the paroxysms, imperceptible in the limbs, and for some time before death no pulsation can be detected in these parts. The inability to carry on the circulation in the

superficial textures allows the blood to accumulate and oppress the internal organs. On *post mortem* examination the different viscera, particularly the liver and lungs, are found gorged with thick, dark-colored blood, shewing that the eliminating processes of respiration and secretion had been very imperfectly performed. The surface of the body, at the commencement of the disease, is pale, chill, and clammy. In the advanced stages it is quite cadaverous.

The first case of Spasmodic Cholera that challenged our professional skill, occurred in Calcutta. The symptoms were sufficiently marked to make a lasting impression upon the mind of a practitioner hitherto practically unacquainted with an enemy so obstinate and so accustomed to triumph.

The patient, Mr. A——, an European, only a few months transplanted from England, was a middle-aged man, of spare but muscular proportions. The evening previous to the attack, he had been abroad enjoying the society of some friends, and, contrary to his general habits, he had indulged in the rather free use of spirituous liquors. The party separated about one o'clock.— Mr. A——, the distance being short, traveled home in a palanquin. Upon reaching his residence, he did not retire directly to bed, but took a seat in the verandah “to cool himself.” In this state of exposure to the night air he fell asleep. He slept soundly until awakened, an hour afterwards, by his servant, who reminded him of the propriety of going to bed. Either from the disease not being perceptibly manifested, or from impaired sensibility, Mr. A—— was not then conscious of any morbid affection. After slumbering in bed, however, for a couple of hours, he awoke suddenly with a start, complaining of mental anxiety, and a feeling of uneasiness at the region of the stomach, which he attributed to unpleasant dreams, and to the effects of the wine. But the anxiety increased, and the uneasiness changed into a feeling of burning heat. In the lapse of four hours, evacuations of the portentous fluid, like rice water, followed, from the stomach and bowels, to which were soon superadded distressing cramps, affecting the muscles of the toes. The character of the affection was now evident to the patient himself, though almost a stranger to the climate and its diseases. To afford medical assistance, we were immediately summoned. The summons was quickly obeyed, but, in the interim, the advance of the disease had surpassed our rapidity.

On our arrival, we found that the patient had been unable longer to endure confinement to bed. The cramps had extended upwards to the calf of his legs; they were also simultaneously experienced in both arms. So violent were the spasms, that he had rolled in torture upon the floor. At the time we entered he was gathered into a corner of the apartment, and he presented an

appalling spectacle of internal agony. His person, sparingly concealed in a night-garment, bore in its spasmodic contractions, a resemblance to the letter S. Assisted by a couple of servants, and by pressing his bent extremities against the angular walls, he labored in the extreme exertion of voluntary force to subdue the involuntary action of the rebellious muscles. The expression of his face at that moment, lives distinct in our recollection; and even there, though seen through the mist of receding years, it is painful to dwell upon.

To convey to the reader a faint idea of the death-struggle then maintained, we would liken Mr. A—— to a traveler, who, falling unwarily upon the tiger's lair, rallies every nerve to secure a temporary respite. His inevitable fate is briefly procrastinated by the convulsive grasp which holds the throat of the savage in momentary subjection. Such was the danger—such the desperation stamped upon the countenance of our patient. His features were sharp and hollow. His teeth clenched in breathless agony. The blood had retreated from his cheeks and lips. His limbs were doubled resistlessly by the remorseless spasms.

In a few minutes a remission brought partial relief. In occasional snatches of expression, he gave us to understand that he was now able to answer the interrogatories we might think proper to propose, with respect to the inward symptoms. These symptoms were the usual concomitants of Spasmodic Cholera in the intermediate stage of its violence. His stomach felt as if it contained a furnace. The thirst was unslakable. And so complete was the feeling of exhaustion during the interval of mitigated suffering, that he felt unconscious of possessing the slightest control over the motions of any part of his physical structure.

Medical men have been collectively accused, by the indiscriminating multitude, of defective sympathy towards the sons and daughters of bodily affliction. Habituated, it is said, in their daily avocations, to the appeal of the unfortunate, they are at last led to conceive the heart-pang of the patient to be as unsubstantial as the words in which it is expressed. The charge is untrue. In no class of educated people will there be found a greater proportion of "hands open as day to melting charity," than might be discovered among the members of the medical profession, were their kind acts performed in the market-place, instead of the gloomy recesses of morbid destitution. Men in the general walks of life may annually exhibit their measured benevolence in public places, and shed the infrequent tear of commiseration in their hasty transit through an hospital; but it is the province of the practitioner to do something more than this. It is his duty to linger long with the distressed, to bind in solitude their bleeding wounds, and when hope has departed, never to return, to wear her cheering portraiture; that the abrupt and rugged path lead-

ing to dissolution, may not too hastily reveal the extremity of danger.

To our patient, laboring under a violent and advanced attack of Spasmodic Cholera, no solid expectation of recovery could be extended. Every means, however, sanctioned by recorded experience, was tried to compass a favorable change. Respecting the final issue, he was himself little if at all solicitous. The immediate suffering, particularly from the spasms, absorbed both sense and soul. He prayed imploringly to be relieved, either by energetic treatment or by death, from the intolerable cramps that threatened to tear him into pieces.

Brief was the interval between supplication and repose. The resources of nature were exhausted in detail. The spasms which had eventually ascended to the body, finally yielded to debility, that proved alike prostrating to the actions natural and diseased. The vomiting ceased to harass; the pulse was no longer perceptible in the limbs; even the motion of the heart—that citadel of life—was feeble and indistinct. The surface of the body felt cold and clammy like a corpse, presenting on the hands and feet a corrugated and macerated appearance, as if it had been steeped in water for some days. The breath grew chill. The eye was glazed. In this state, notwithstanding, he lived several hours, and then expired.

The case of Mr. A—— is a common specimen of the progress of the disease to a fatal termination. It included thirteen hours from the first feeling of uneasiness, until he breathed his last. Cases, however, are continually occurring, in which the duration of the malady extends to twenty-four hours. Some beyond that. On the other hand, many patients are carried off with singular rapidity. In the history of the epidemic, instances are numerous of soldiers falling in the line of march and dying instantly, as if seared by lightning, without having uttered a previous complaint. Mechanics have perished with their working implements in their hands; the Brahmin, also, at his beads, and the Ryot at his plough. * * * * *

That local excess of nervous energy is the cause of the symptoms, is supported by the pathology of Cholera. The localities in which this excess is generated, appear primarily to be the nerves connected with the liver, stomach, and bowels. The nerves or the limbs and of the other parts, subjected to spasm, are probably secondarily affected. The stomach, and the patient's face, wear the anxious and shrunk expression common to severe abdominal distempers. The canal, along which, in health, the bile freely travels to the intestines, is closed by the constriction of cramp. The spasms soon extend to the stomach and bowels, and they, in consequence, are compelled to evacuate their contents. The patient now complains, for the first time,

of extreme exhaustion. This is worthy of special remark as corroborative of our views, that debility is an effect, and not the cause, of the earlier symptoms. * * * * *

The possibility of effecting a cure in Spasmodic Cholera, greatly depends upon the time in which the patient is submitted to medical management. Should the disease be allowed to completely develop itself before advice is obtained, it will frequently baffle the exertions of the most skilful practitioner, and prove rapidly fatal. But if the physician be consulted when the symptoms are moderate, when uneasiness and anxiety are chiefly complained of, after the use of the customary remedies, strong hopes of recovery may be indulged. Blood-letting, and a large dose of calomel, should be immediately prescribed. To these should succeed constant frictions of hot flannel to the skin. Internal prescriptions of laudanum, brandy and water, and other sedative anti-spasmodics, to be used at such intervals of time, and in such quantities, as the physician may consider best fitted to the peculiarities and urgency of the case. The signs of returning health will be recognized in the re-appearance of the bile in the evacuations. The secretions of saliva and of urine, which had been suspended during the severity of the attack, will be again restored. The breath and the skin will gradually recover their natural heat; and, in short, every function of the system will return to the salutary standard.

Should the patient delay application for advice until the disease has advanced considerably into the second stage, venesection will generally prove useless or injurious. The cramps are established, and they should be alleviated by friction, and the exhibition of anti-spasmodic medicines. If the third or last stage have set in, a discriminating judgment must also be exercised. As debility has now become our only opponent, the sedative preparations are to be modified accordingly, so as to produce little more than a stimulant effect; for the use, at this period, of laudanum, &c., in quantities suited to the treatment of spasms, would render the catastrophe inevitable.

[From the Quarterly Review.]

The following is a translation of a letter written by a clergyman, who witnessed the disease in Saratof:—

“ Scarcely had we heard of the breaking out of Cholera in Astracan, than the news came to us like lightning, that it was crossing the Volga, and that it was severe, and had already reached Zaretzin. Without a dread of the presence of the angel of death, the Vice-Governor, the Medical Inspector, and the Government, as well as the Hospital Surgeon, at once went into the infected places of this province. On the evening of the 6th

of August, we heard that three persons had been seized with Cholera who had left Astracan, and were carried to our hospital. On the 7th, others were reported to have been carried off by this malady with such frightful rapidity, as to have impressed all minds with deep consternation, especially those who dwelt in the second division of the town. The disease soon appeared in the third division, and seized so many, that the hospital could no longer contain the sick, and killed so rapidly, that they scarcely survived six hours. The evil came so suddenly on us, that we had no time for taking precautions; our Governor and our Surgeons were gone to meet it afar off, in order to preserve our city, but it was already among us before any regulations could be made, or any means of opposing it could be devised. It could scarcely be deemed an epidemic, depending on some change in the atmosphere; for many places were left untouched in our neighborhood, while in Saratof there was scarcely a family who had not to lament the loss of some of its members. All the poor who were attacked were instantly brought to the hospital, where there was neither room nor efficient aid, since the surgeons were absent. I myself saw the patients bled, and dosed with calomel, and rubbed with all sorts of unguents, yet all died who were attacked by the malady in the height of its virulence.

“In the very commencement of the epidemic, all our four surgeons were seized with it; two died on their journey to Zaretzin, and one here. From this moment fear and anguish took possession of the public mind. They who could flee from the city, fled; and, as the malady was not considered contagious, servants, laborers, Tartars, and Russians, were permitted to rush into the country. My congregation, which consisted of five hundred and fifty individuals, was reduced to one hundred and fifty. Many of the fugitives died on the road, and spread the malady whithersoever they went.

“From the 10th of August the malady increased in virulence; the daily mortality of four rose to five, twelve, twenty, eighty, one hundred and twenty, two hundred, and one day, to two hundred and sixty, and decreased in the same gradual mode. Up to the 30th of August, 2170 persons died. While all around was infected, Sarepta,* in which the quarantine regulations were most strict, escaped, and yet this disease is not called contagious!

“Up to the 11th of August, none of my congregation had been attacked. On the 10th of August, the Sunday after Trinity, I preached from the text,—‘And he looked on the city and wept;’ and we wept too, in the midst of our desolation and anguish, for our children and ourselves. I comforted my flock, and exhorted them to trust in their God, as I read to them from the ninety-first

* This is a colony of Moravians.

Psalm,—‘He shall deliver thee from the noisome pestilence; thou shalt not be afraid for the terror by night, nor for the destruction that wasteth at noon day. A thousand shall fall at thy side, and ten thousand at thy right hand; but it shall not come nigh thee. Because thou hast made the Lord, which is my refuge, even the Most High, thy habitation, there shall no evil befall thee, neither shall any plague come nigh thy dwelling.’ I thus endeavored to drive off dejection, and to substitute resignation: many were strengthened. I felt for hours the peril, but I felt no less the sanctity of my duties; and my whole soul prayed within me as I sighed, ‘Preserve me, O Lord, for my flock’s sake, and for mine own. Without murmur do I offer up my life to thy service. Help me, O Lord! and strengthen me.’ On the 11th of August, I was called at noon to our old sexton, who was suffering from vomiting and frightful spasms. I encouraged him, desired him to be bled, and to take calomel: he is still alive. Immediately after, I was sent for to a young pregnant woman. I did all that my duties enjoined, but she died. Others soon followed her—all dying in twelve to twenty-fours. They had the usual symptoms, with dreadful cramps. The hands and feet were cold and blue, cold sweat flowed in streams, and the pressure of death was felt on their chests. The thirst was intolerable, and caused insufferable agony in the mouth and throat. 13th August.—I was called to four persons, who all but one took the sacrament and died. Some of these I visited at night, and as I passed through the poorer streets I could scarcely place my foot without being made aware I was near a Cholera patient. It was with great effort I could master my nature sufficiently to enter into these abodes of misery. I found the wife lying on straw, and the husband on hay, near her, both affected. I felt sick as I held the sacramental vessels in my hands, and found myself in the midst of death and pestilence. Latterly, I became more hardened and courageous. 14th.—To-day, I blessed four corpses in their houses, and having time, I accompanied them to their graves. As we journeyed we were met by sixty funerals. 15th August. Last night I was called to many sick, all of whom died in less than twenty-four hours. At six this evening I saw Mr. v. H—, who was, to all appearance, in health. At ten he was attacked; surgeons were sent for, but none could be found, for all were ill. At length a medical pupil came, who did not think it necessary to bleed him. The patient became colder and colder. At four in the morning, I administered to him the sacrament for the dying. At nine I visited him again: he was calm, cheerful, and resigned, and pressed me feebly, yet affectionately, with his ice-cold hands. At eleven o’clock he was a corpse. On the seventeenth, many begged me to administer the sacrament in the church. I did so, and hundreds came and were comforted. One who could not be

present in the morning, as his children were attacked with the disease, came to me in the evening, feeling that he was infected. The malady broke out in him at the very moment I began to administer the sacrament, and caused the deepest trouble of conscience. It was long before I could succeed in calming him."

If the detail we have given be perused with common attention, the reader cannot but be impressed with a conviction as deep as that felt by ourselves, that the disease has been propagated by contagion. It is of such paramount importance, however, to decide rightly on this question, that nothing must be thought superfluous, nothing troublesome, by which the facts can be brought clearly before us. In attempting to accomplish this, it will be necessary to disentangle the argument from the mass of historical detail, in which it is mixed, and present it simple and naked to the reader, so that he may view it from every side, and try it by every test.

We shall arrange the evidence on this subject into various classes, according to the nature of the facts, and to their general bearing on the question at large. The first class of evidence may be looked on as totally independent of human opinion, as resting solely on those facts concerning the rise and progress of the malady which are admitted by every one.

First, the Cholera in its progress has always been traced along the great thoroughfares of a country, attacking places in *succession*. In the presidency of Bengal, it coursed along the banks of the Ganges for four hundred leagues;—it attacked all the towns situated on the Jumna; and from Allahabad, at the confluence of these two rivers, it attacked the districts watered by the tributaries of these streams. It followed the course of the Burampootra, the Gogra, Chamboul, Betiva, and the Sind;—it "affected," to use the language of the Bengal Report, "certain districts, and appeared along the principal high roads of the province." In the presidency of Madras, it traveled along the great thoroughfares, and successively attacked the principal towns through which these pass. On the eastern side of the peninsula, the malady traversed the towns situated on the coast road from Aska to Palmacottah, progressing from one to another, as testified by the Madras Report, with wonderful regularity, both as to time and distance. From Nagpore, as a central point, the Cholera was propagated from town to town, till, crossing a defile, and an arm of the sea, it was transported from Panwell to the island of Bombay. When the distemper reached Jaulnah, three great roads lay open to it: one leading to Bombay, along which we have just traced its progress, a second running down the centre of the peninsula, and a third leading to the east coast. A single glance at the map published with the Madras Report, shows that the principal towns situated on these two last thoroughfares became successively at-

tacked. If it be considered, then, how many towns and villages the disease did not attack in a country like India, teeming with population, the almost exclusive selection of those on the high roads cannot be looked on as accidental. But to proceed. In the continent of Eastern Asia, the Cholera also followed the great media of communication between mankind. The disease coursed along the banks of the Irawaddy into the interior of the Burmese empire. The Meinam served to introduce this scourge into the pure and salubrious regions of Siam—the Cambodia into Cochin China. In Persia, the malady followed the Caravan road, beginning at a sea-port mart for Indian goods, and attacking successively Shiras, Ispahan, Tabriz, and Teflis;—from Teflis, it traversed the Caucasus, by the only pass which leads to the Russian province of Astracan. On the coast of the Caspian each port was successively attacked, and where there was but one road, again it followed that road. In Asia Minor, the malady, which began at Bassorah, (another port of Indian goods,) traveled along the banks of the Euphrates to Annah—a town situated on the borders of the Syrian desert. Apparently not being able to overcome this natural obstacle to its progress, it quitted the Caravans which enter Syria in this direction, to follow, in the next spring, those which reach Aleppo by traversing Mosul, Diarbekir, Orfa, and Bir: in each of which the French Consul says the breaking out of the Cholera was coincident with the arrival of the Caravan. From Aleppo, the disease radiated in three directions—along the coast of the Mediterranean downwards towards St. Jean d'Acre, upwards to Adana, and inland through the towns of Famia, Hems, and Damascus. These latter towns are the resting-places of the Caravans; the others are on the coast road. In Russia, the Cholera began at Astracan, which is situated on the Volga, a river which traverses the largest towns of the empire, serving as a great medium of intercommunion between them. These towns suffered successively. Near one of these, Zaritzin, three great roads branch off, one along the Volga, leading to the northern provinces, another to the southern, and a third to the central portions of the empire. The disease took these three roads to devastate the north, south, and centre of Russia simultaneously.

The second remarkable fact noticed in the progress of Cholera is, that it does not attack a large space of territory of a new country at once, but gradually; the first point of attack being invariably on a frontier or a coast.

The disease was communicated to Ceylon from the opposite point of the peninsula; the two places at which it first appeared nearly simultaneously, were Jaffnapatam and Colombo, both on the coast, and in constant communication with the continent.—Between these two spots, including a range of at least two hundred and fifty miles of interior territory, we have the authority of Dep-

uty Inspector Farrell, that no case of Cholera could, on sufficient inquiry, be found. From these places it spread into the interior, and ultimately attacked Candy, the capital. In the island of Sumatra, the malady first appeared at Acheen. In Java, Batavia and the other coast-towns were first visited. A glance at the maps published by Jonnés and Hawkins will show, that the ports of the various islands of the Indian ocean were the places at which the malady began. In the Isles of France and of Bourbon the Cholera broke out in Port Louis, and Port St. Denis. In the Persian Gulf, the places first attacked were Muscat, Bender Abassi, the Isle of Bahrein, and Bassorah, all situated on the coast, or having direct communication with it by means of navigable rivers. From these points the disease spread into Persia and Syria. In Russia, the spots first attacked were Astracan and Orenburg, the one a coast, the other a frontier town, and both great marts for Asiatic produce.

A third fact in the progress of Cholera is, indeed, that whenever it invades a new country, it begins in a great commercial mart. There seems to be no exception to this law, except where the disease has been imported by invading armies. How are we to account for this selection on the principle of non-contagion? If the disease were transported by the winds, it is true that the coasts and frontiers of a country would be attacked before the interior, but then the places so visited would be numerous; we should expect, for instance, that not only Astracan, but the various villages near it on the Caspian shores would have been simultaneously ravaged. Neither can it be urged that the density of the population was the cause, for nothing can be more unequal than the population of the various coast and frontier towns attacked by Cholera.— Compare the population of the little islands of Amboyna, Penang, and Ormus, with that of Canton, Astracan, and Orenburg, and which of them is to be taken as the measure of an unwholesomely dense population? Many of the coast and frontier towns, which, not being great commercial marts, escaped, had a more dense population than others in the same countries which were attacked.

A fourth fact to be observed is, that the rapidity of the propagation of the disease appears to have been proportional to the distances and to the means of communication. The closest and most rapid communication exists most unequivocally where large masses of people are gathered together for the celebration of some festival or religious rite; in these the mortality has invariably been frightfully rapid and extensive. The instances of this in the Indian Reports are very numerous. Armies present examples of inter-communication which may rank the next; the discipline of the camp imposes many restraints on the promiscuous and constant inter-communion which exists in a mere crowd; nevertheless, the mortality of armies attacked by Cholera, both as to intensity and rapidity, has been such as to decide the fate

of a campaign in a day. The Marquis of Hastings stated officially, that had the disease continued longer in the army under his personal command, the result of the important manœuvres, in which he was then engaged might have been very different. The Persian army after being attacked by the disease, was forced to retreat and to make peace with the Turks. That this mortality is to be attributed mainly, if not solely, to inter-communication, will be apparent if we consider the state of our troops in India; they were young, healthy men, provided with excellent food, fit clothing, and proper shelter, encamped, as it would appear from the narrative, and not as yet exposed to inordinate fatigue: their discipline enforced habits of care and cleanliness. In all these essentials an army has a decided advantage over the lower orders of a town, yet the mortality may always be stated to be more intense in the same time among the troops than among towns-people.

The circumstances being the same, the mortality is the greatest in the most populous and commercial towns, and in these the disease breaks out oftenest. The partial irruptions of Cholera in the principal towns of the presidency of Bengal amount to two hundred in fourteen years, namely from 1817 to 1830; in that of Madras the number is one hundred and seventy-eight in the same period; in the presidency of Bombay it amounts to fifty-five, thus making a total of four hundred and thirty-three visitations of the Cholera in the cities of Hindostan in fourteen years. During this short period, Calcutta has been attacked fourteen times, or once every year, Madras, nine times, Bombay twelve times.—After the capitals, the largest and most commercial towns suffer next, as Benares, Dacca, Dinapore, &c.*

Every thing which facilitates intercourse, facilitates the progress of the malady. Thus its progress has been more rapid along the seacoast than over land. On the 15th of June, 1830, the Cholera was at Baku; on the 26th of July, 1830, it had reached Gourieff, touching all the intermediate coast-towns of the Caspian, and traversing more than two hundred leagues.

Whenever a rapid and navigable river has allowed the disease to be carried by means of its tributaries in various directions, and over a large extent of country, the progress of the malady has been as rapid as the flow of its waters, and as extensive as the countries which they fertilize.

The Cholera attacked Astracan on the 20th of July; it ascended the Volga to Twer, a distance of five hundred and fifty leagues, in a little more than two months. Its progress was equally rapid at the very same time along the Don to Woronetz; and no less so on the banks of the Dneiper; so that in six months

* Vide the List of Places attacked, chronologically arranged by M. de Jones, and reprinted by Dr. B. Hawkins.

the disease had traversed Russia from the Caucasian provinces to the governments of Twer and Yarastaf, a distance of seven hundred leagues.

Let this rate of progression of Cholera in a civilized country, where the means of communication are constant and easy, be compared with that in a less civilized region, and the truth of our assertion will be still more manifest. Thus while the malady took but six months to traverse seven hundred leagues in Russia, it took one year to journey three hundred leagues from the north to the south of Persia. In our Indian possessions, which may be said to approach nearer to the standard of European civilization than Persia, the rate of propagation of the disease was increased. The Cholera traversed the peninsula, east to west, from the Bay of Bengal to the Bay of Cambay, a distance of four hundred and fifty leagues, in less than a year; from north to south, three hundred leagues in nine months. It took less than two years to travel from the Persian Gulf to the shores of the Mediterranean. Surely we may ask, if the means by which the Cholera is propagated be not strangely analogous to those by which the various societies of mankind inter-communicate? Like man it travels along the high roads from town to town, gradually, and attacks the most populous and commercial first. In its visits to an uninfected country, it selects the principal port or frontier town, and from thence takes the most frequented thoroughfares to reach the largest cities. If the means of communication be rapid, the progress of the disease is rapid; if they be slow, the malady lingers in its march; if the distance be great, the time taken to travel is proportionably so.

Finally, we must impress on the reader, that the very capriciousness exhibited in the progress of the disease, is easily accounted for on the supposition that it is communicated by human intercourse, but remains inexplicable, if the cause of the propagation of Cholera be looked for in the uniform action of physical agents and laws. It was remarked in the epidemic of Orenburg, as it had been often before in India, that the disease did not always attack the places nearest the infected town, but sometimes ranged from one town to another, passing over the intermediate points. Sometimes it made a circle, and, after attacking a number of villages in a district, returned to those which had hoped to have escaped the scourge. If we believe the disease to have been propagated by contagion, we can readily account for these facts.—The persons who quit an infected spot travel in one direction rather than another, or they remain not at the nearest, but possibly journey on to a distant village. The communication between the infected town and the nearest spot to it, may be less strict than between it and some more distant village. If, in addition to these things, we take into consideration the action of other circumstances on the population of a district, such as the healthy

situation of a particular town, the cleanliness or the want of it in the several villages, the affluence or poverty of the inhabitants at different places, we shall have abundant causes which determine the propagation of Cholera from an uniform to an eccentric course.

This eccentricity, however, is always confined to district and to the commencement of the disease in it. The progress of the malady is singularly uniform over large spaces of territory; it never jumps over a kingdom; but as certainly as it attains its frontier, so surely it reaches its centre. As the communication between the infected town and the rest of the places in its vicinity or district, may be fairly assumed as more intimate than between it and the more distant parts of the empire or kingdom—so we invariably find, as the Indian reports testify, that the whole of the district which has been once attacked is ravaged *before* the disease appears in the nearest healthy district. If we look on the map of the progress of Cholera in India, (affixed to the Madras report,) we shall see that, however eccentric that may have been over small portions of territory, it is remarkably uniform over larger ones. Thus the places attacked in the months of May, June, and August, are all contiguous, and are comprehended between the 21st and 16th parallels of latitude; those attacked in August, September, October, and November, are included between the 12th and the 16th. The rest of the peninsula included between the 8th, and 12th, was subjected to the malady in the consecutive months of November, December, and January. There are no skips or omissions in the general progress. It stalks from district to district, and from kingdom to kingdom, with such uniformity, that its approaches may be and have been, predicted. * * *

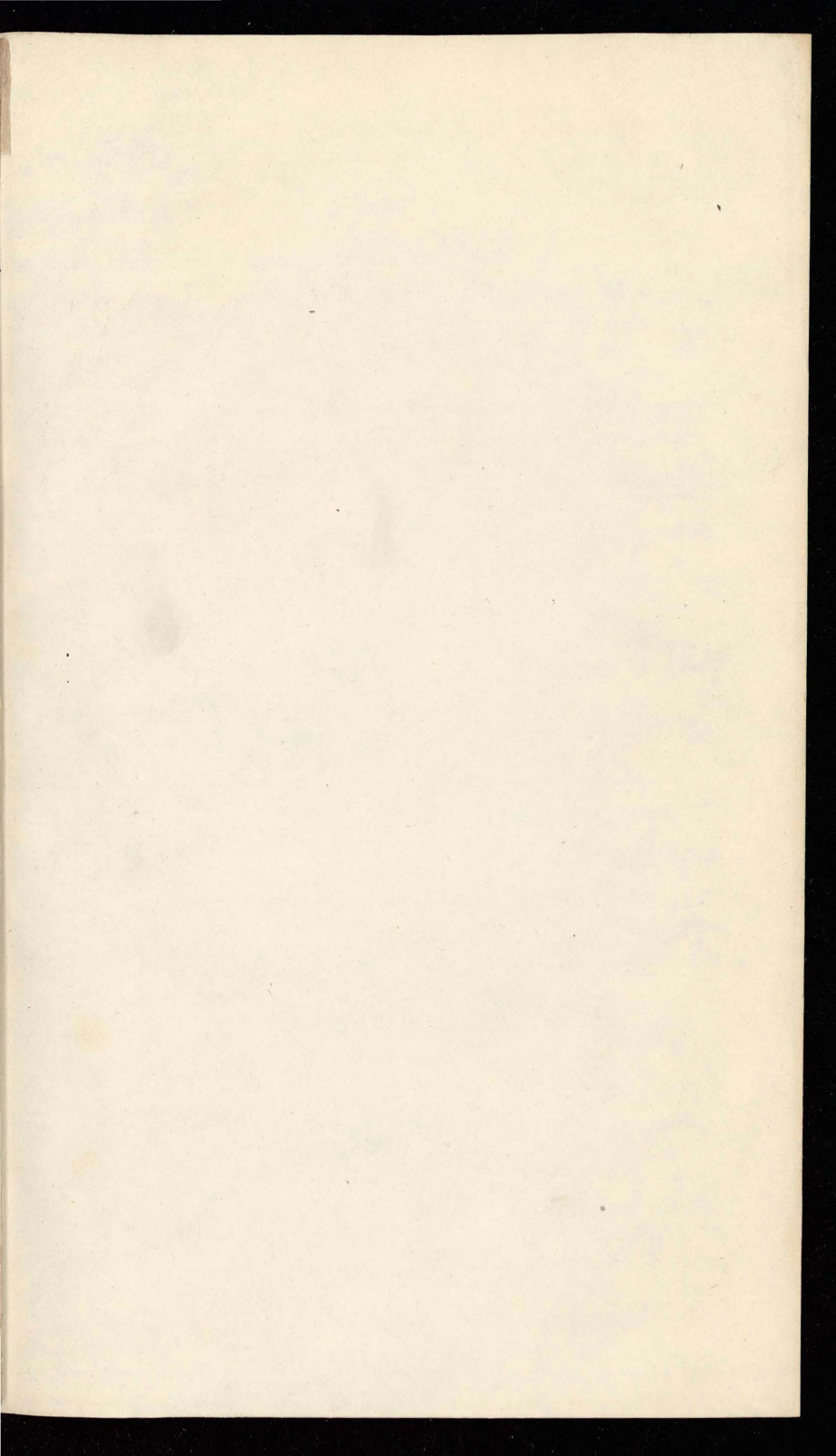
Marvellous as it may appear, that the apparently healthy should be the means of diffusing a poison from the effects of which they themselves are exempt, nevertheless the fact is established with regard to most highly contagious maladies.* Russell asserts that the plague may be conveyed from town to town, not far distant, in this manner. "The proveditores employed by families shut up, frequently convey the plague into their houses some time before they themselves are taken ill. A person employed by me to bring intelligence, and occasionally to visit infected houses, communicated the plague to his wife, but remained himself well all the

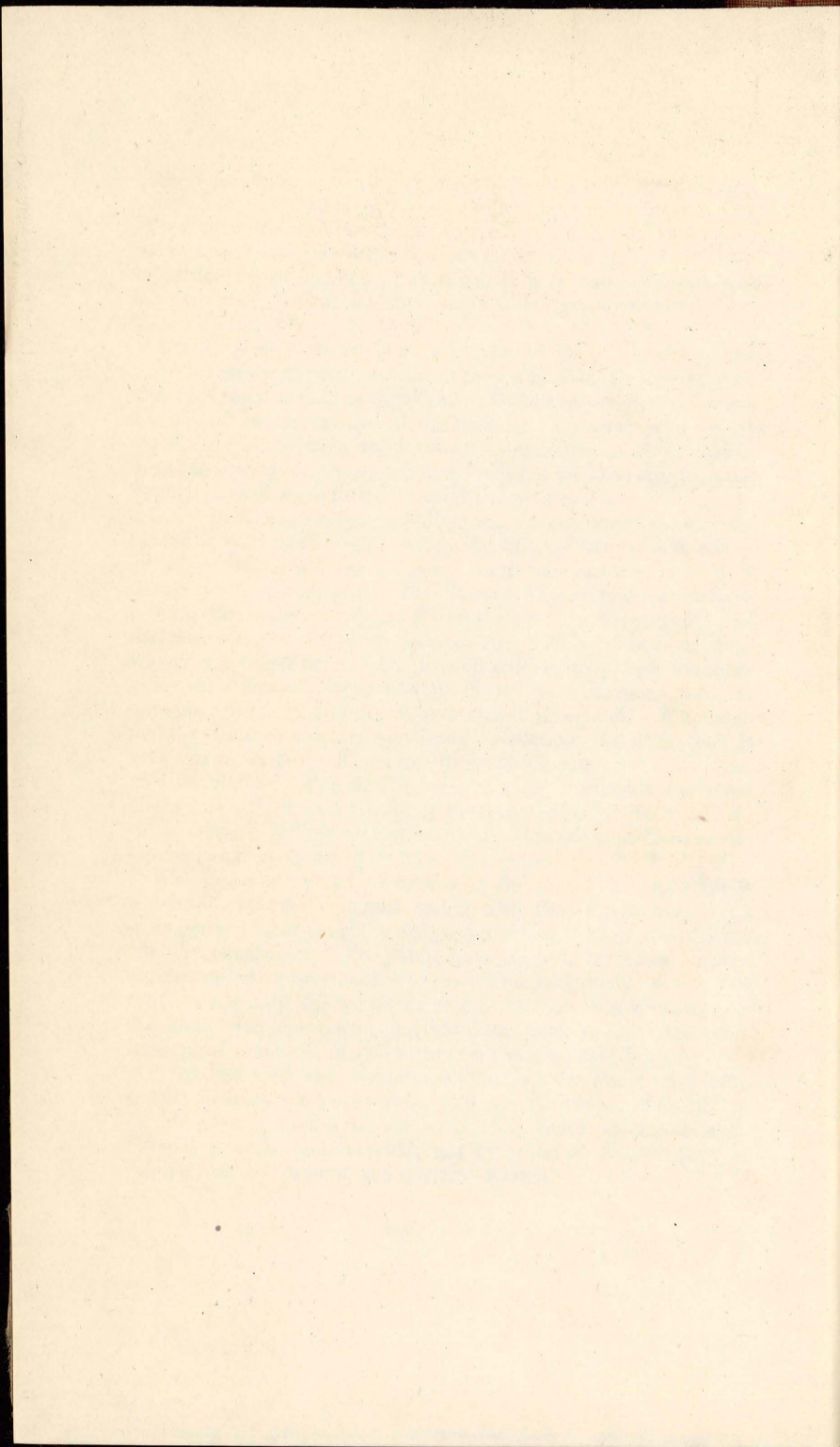
* A remarkable instance of a similar event is related by Camden, Annal. Reg. Elizab.: "The Black Assize at Oxford, held in the castle there, in the year 1577, will never be forgot, at which the judges, gentry, and almost all that were present, to the number of three hundred, were killed by a poisonous steam, thought by some to have broke forth from the earth, but by a noble and great philosopher (Lord Bacon) more justly supposed to have been brought by the prisoners out of the gaol into court, it being observed that they alone were not injured."

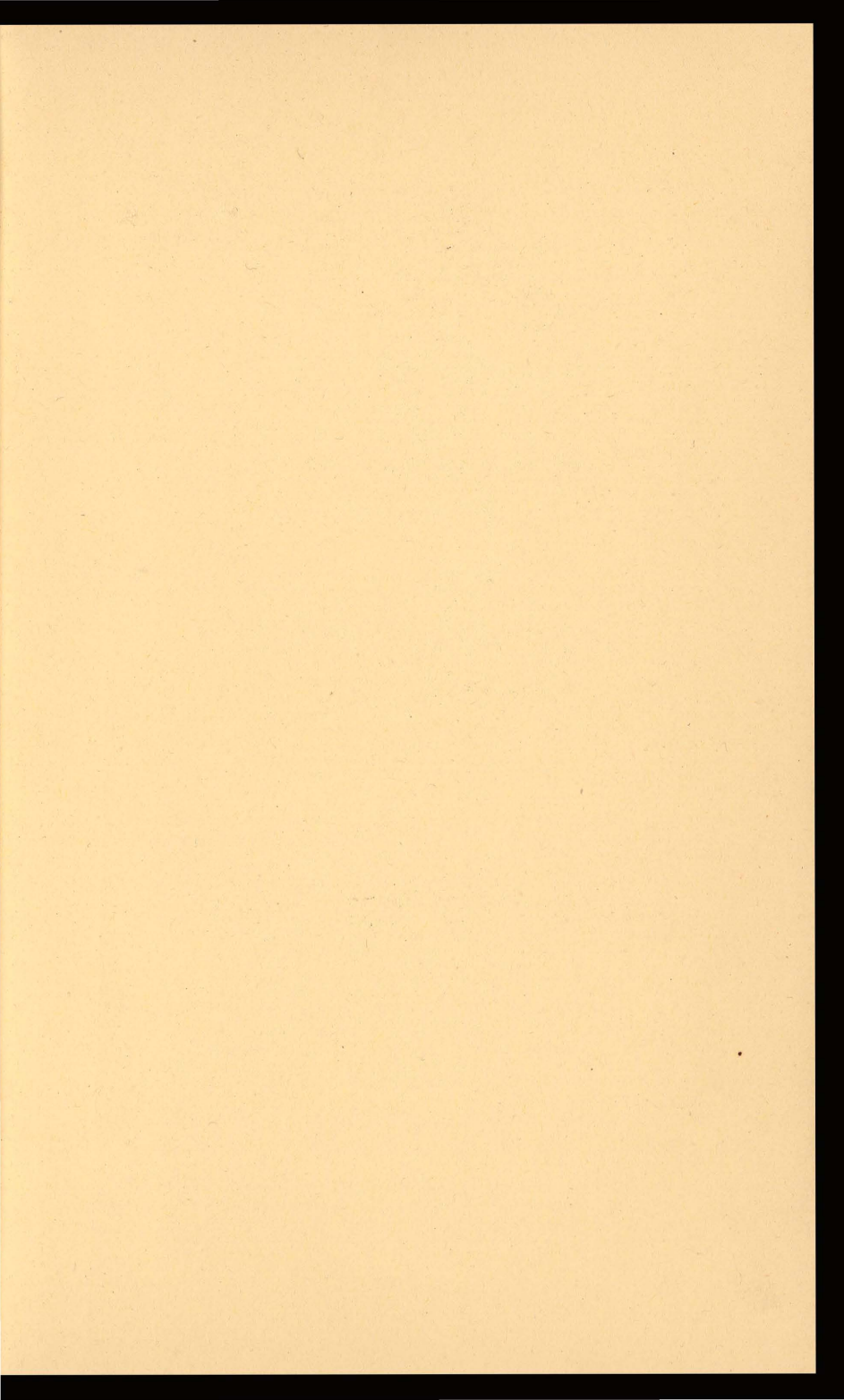
time." In these, and similar examples, it is probable the virus adhered to the clothes of those who had been with the infected. When such articles are exposed to through ventilation the danger soon ceases; but when the infectious miasmata happened to adhere to substances not exposed to ventilation, or to merchandise which is soon closely packed up, they retain their vigor unimpaired for a long while. * * * * *

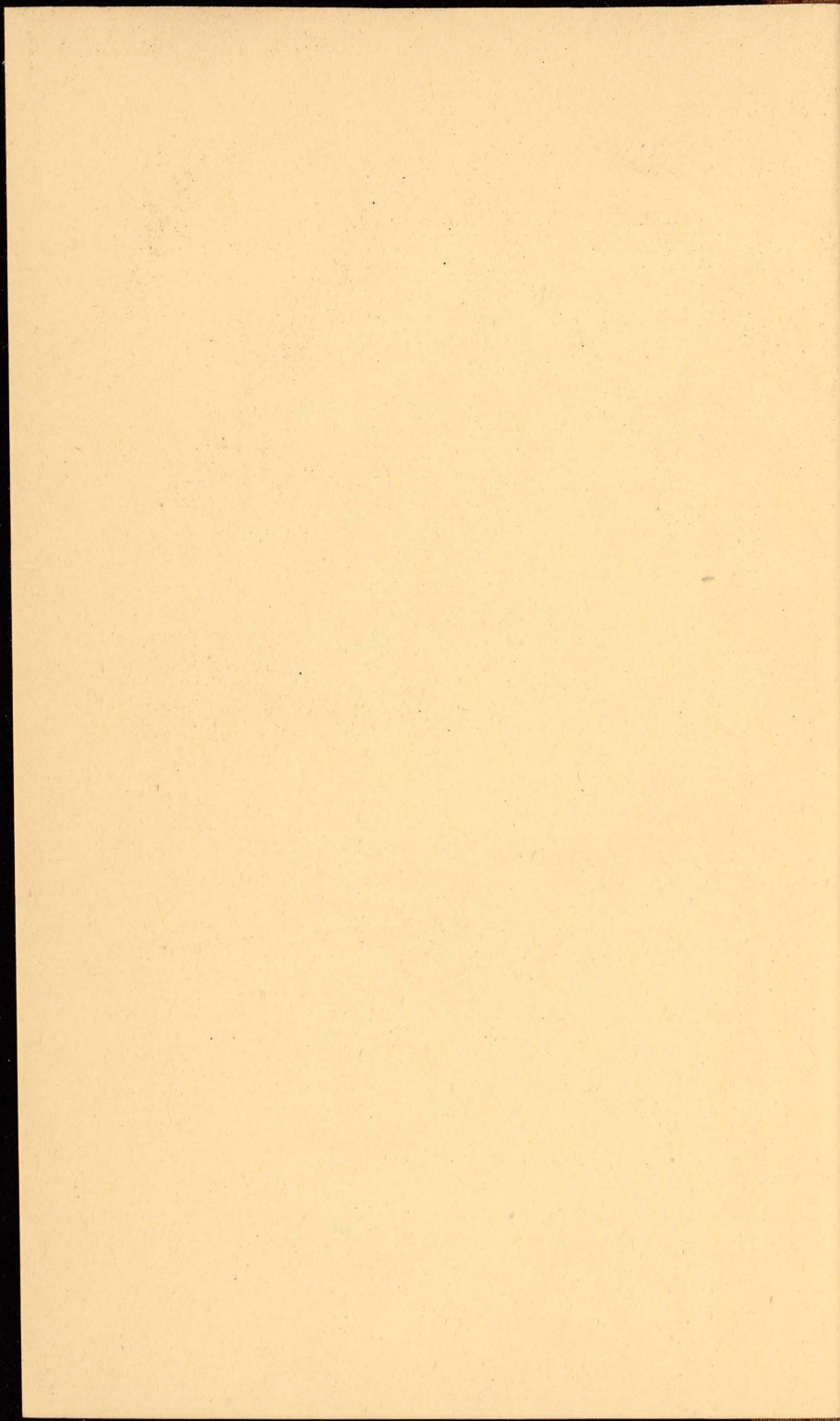
Let those who are enabled, take the advice of Franklin, and leave an infected spot "as soon as they can, go as far as they can, and stay away as long as they can." By this means fewer victims are offered for the ravages of the malady. Let those who cannot move, adopt the most rigid rules of quarantine in their houses until the epidemic ceases, and they will not be less safe than the French consuls were in Syria, or the sagacious Moravians of Sarepta. In all other contagious diseases, the poisonous exhalations extend to very small distances from the sick, so that medicines may be administered and the ordinary attentions bestowed with less danger than is supposed. The history of contagious epidemics proves, that a large volume of atmosphere is never tainted, and that the notion of a town or village being enveloped in pestilential vapors is a vulgar error. Dr. Russell is of opinion, that the morbid exhalations of plague patients do not taint the atmosphere at any great distance, and are soon rendered innocuous. We know that the distance at which small-pox exhalations are dangerous is very circumscribed. The three great disinfectants are cold, time, and ventilation. The first appears to have invariably mitigated plague, small-pox, and Cholera; the germs of these maladies decay or undergo decomposition in time; and ventilation dilutes morbid exhalations as surely as water does hemlock. * * * *

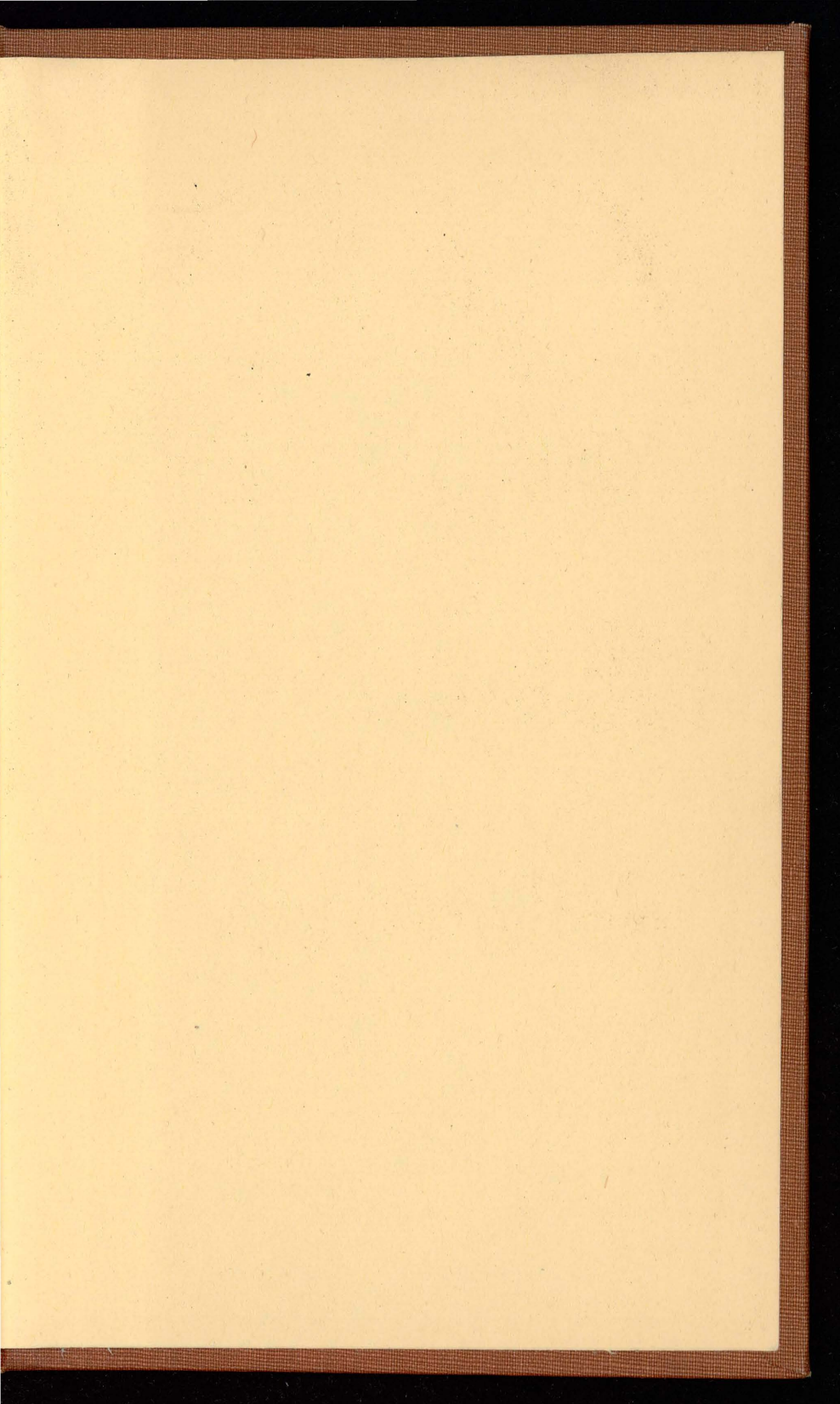
We have endeavored to convey to the reader the impressions which the various documents on our table have left on ourselves;—we have neither sought to exaggerate the horrors of the picture, nor to conceal them. The public mind ought to be roused to meet an impending danger with energy. The magnitude of the evil requires not only the vigilance of government, but of every individual. The ignorance, the folly, the cupidity, and the carelessness of mankind, are all arranged against their safety, which perhaps not even the candid exhibition of the whole truth may secure. Should all prove vain, and the difficulties of enforcing quarantine regulations on our coasts be found insurmountable, the evil must be counteracted, not by national despondency or despair, but by prompt and decisive means.











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