

Official reports made to government by Drs. Russell & Barry, on the disease called cholera spasmodica, as observed by them during their mission to Russia in 1831 : with an appendix, and other papers, extracts of letters, reports, and communications received from the continent, relating to that disease.

Contributors

Russell, William, 1773-1839.
Barry, David, 1780-1835.
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E library@wellcomecollection.org
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PUBLISHED BY AUTHORITY OF THE LORDS OF HIS
MAJESTY'S MOST HONOURABLE PRIVY COUNCIL.

OFFICIAL REPORTS

MADE TO GOVERNMENT

BY

DRS. RUSSELL & BARRY,

ON

THE DISEASE CALLED

✓
CHOLERA SPASMODICA, ✓

AS OBSERVED BY THEM DURING THEIR

MISSION TO RUSSIA IN 1831.

WITH AN

APPENDIX,

AND OTHER PAPERS, EXTRACTS OF LETTERS, REPORTS, AND
COMMUNICATIONS RECEIVED FROM THE CONTINENT,
RELATING TO THAT DISEASE.

LONDON:

WINCHESTER AND VARNHAM, STRAND;
SIMPKIN AND MARSHALL, STATIONERS' COURT; AND
HATCHARD AND SON, PICCADILLY.

1832.

PUBLISHED BY AUTHORITY OF THE HOUSE OF COMMONS
PRINTED BY W. CLOWES, STAMFORD STREET.

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DR. HENRY J. BARRY.

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LONDON:

PRINTED BY WILLIAM CLOWES,
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APPENDIX

AND OTHER PAPERS, EXTRACTS OF LETTERS, REPORTS, AND
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REPORT.

*Board of Health, College of Physicians,
August 12, 1831.*

THE Board of Health, in compliance with the Directions of the Lords of his Majesty's most Honourable Privy Council, have examined the following gentlemen, formerly employed in different branches of the Medical Department in India, viz.—

Dr. DAUN,
Dr. ALEXANDER,
Dr. ASHBURNER,
Dr. BIRCH,

Mr. WYBROW,
Mr. BOYLE,
Mr. MEICLE,

respecting the disease called Cholera Spasmodica in that climate. From their evidence, and from the great body of information contained in the printed medical reports drawn up by order of the several governments of Bengal, Madras, and Bombay, the Board have formed a detailed account of the symptoms of the disease, and given a view of the great outlines of practice adopted in India.

Description of the Disease.

The attack of the disease in extreme cases is so sudden, that, from a state of apparent good health, or with the feeling only of trifling ailment, an individual sustains as rapid a loss of bodily power as if he were suddenly struck down, or placed under the immediate effects of some poison; the countenance assuming a death-like appearance, the skin becoming cold, and giving to the hand (as expressed by some observers) the sensation of coldness and moisture which is perceived on touching a frog; by others represented as the coldness of the skin of a person already dead. The pulse is either feeble, intermitting, fluttering, or lost; a livid circle is observed round the eyelids; the eyes are sunk in their sockets; the tongue is cold, and either clean or covered with a slight white fur; and, in many instances, even the breath is cold. In cases of this severity, the vomiting and purging characteristic of the disease do not commonly take place so early as in milder attacks, but seem to be delayed until the almost overpowered functions of the body make a slight effort at reaction. It is

worthy of remark that, unless death takes place in these extreme cases within a few hours, some effort of [the animal power is made to rally the constitution; and this point is insisted upon here, because it will direct the mind of practitioners to the particular moment when bleeding, and certain other parts of practice, recommended in the Indian reports, can be enforced in this country with probable success. Vomiting soon succeeds; first of some of the usual contents of the stomach, next of a turbid fluid like whey, white of egg, water-gruel, or rice-water; described, perhaps, more accurately as a serous fluid, containing flocculi of coagulated albumen. The lower bowels seem to let go their contents; what happens to be lodged in the rectum is passed more or less in its natural state; the next discharges are similar to those thrown up from the stomach, and are passed with violence, as if squirted from a syringe. The same similitude may be applied to the vomiting. Spasms, beginning at the toes and fingers, soon follow, and extend, by degrees, to the larger muscles of the legs and arms, and to those of the abdomen. These vary in intensity, but are sometimes so violent as to put on the appearance of tetanus.

In some severe cases the vomiting is slight, in others considerable, and the purging and vomiting precede each other without any known rule; but whichever may be the precursor, a severe burning heat is early felt at the præcordia; there is an invincible desire for cold liquids, particularly water; and, although the skin and tongue are cold to the touch, and the pulse nearly lost, or even imperceptible, the patient complains of intense heat, and has an almost insuperable aversion to any application of it to the skin. The spasms increase, sometimes spreading gradually, sometimes suddenly, to the abdomen, as high as the scrobiculus cordis. The next severe symptoms are, an intolerable sense of weight and constriction felt upon the chest, accompanied with anxious breathing, the spasms continuing at the same time; a leaden or bluish appearance of the countenance, the tongue, fingers, and toes assuming the same colour; the palms of the hands and soles of the feet becoming shrivelled; the fingers and toes giving the appearance of having been corrugated by long immersion in hot water. There is, throughout, a suppression of the secretion of urine, of the secretions of the mouth and nose; no bile is seen in the evacuations, and it may be generally observed, that all the functions employed in carrying on life are suspended, or alarmingly weakened, except that of the brain, which appears, in these extreme cases, to suffer little, the intellectual powers usually remaining perfect to the last moment of existence. At length a calm succeeds, and death. The last period is commonly marked by a subsidence of the severe symptoms, without improvement of the pulse or return of natural heat; but occasionally terminates in

convulsive spasm. Within an hour or two from the commencement of such a seizure, and sometimes sooner, the pulse is often not to be felt at the wrist, or in the temporal arteries. If it be discoverable, it will usually be found beating from eighty to a hundred strokes in a minute; this, however, is not invariable, the pulse being not unfrequently quicker. The powers of the constitution often yield to such an attack at the end of four hours, and seldom sustain it longer than eight.

We have described the symptoms of the extreme case, in the usual order of their occurrence; but it will be obvious, that in a disease which proceeds so quickly to a fatal termination, medical practitioners will seldom see their patient until the greater number of these symptoms have taken place.

In the less rapid and more ordinary form, sickness at the stomach, slight vomiting, or perhaps two or three loose evacuations of the bowels, which do not attract much attention, mark the commencement of the attack; a burning sense of heat soon felt at the præcordia excites suspicion of the disease; an increased purging and vomiting of the peculiar liquid, immediately decides its presence, unless previously proved by the prostration of strength, and an expression of the countenance not often exhibited, except when death is to be expected within a few hours. The symptoms before described follow each other in similar but slower succession: the spasms of the extremities increase with the vomiting and purging, and particularly in proportion to the constriction of the thorax; and this form of the disease, which creeps on at first insidiously, and is in its progress more slow, by giving a greater opportunity for assistance, is, if treated early, more tractable; but if neglected, equally fatal with the more sudden seizures. Such cases last from twelve to thirty-six hours.

The principal difference consists in the diffusion of the symptoms through a greater space of time; a misfortune, it is true, to the patient, if the disease prove ultimately fatal, but advantageous, by affording an interval for the natural powers of the constitution to rally themselves, and for the employment of the resources of medical art. But there is another remarkable distinction well worthy of attention. It has been observed before, that in the more rapid cases, the intellectual faculties suffer but little; and it may be added here, that the disturbance of them is not delirium, but rather a confusion and hesitation of mind resembling slight intoxication. In those of longer duration, if the individuals, either by the natural vigour of their constitution or medical assistance, sustain the shock beyond the period of twenty-four hours, suffusion of the *tunica conjunctiva* often takes place, not unfrequently delirium, and even coma.

It is remarked that those who survive seventy-two hours generally recover, but there are exceptions even to this: for though

according to the Reports of the Medical Practitioners in the Presidencies of Bombay and Madras, the recovery from this seizure commonly terminates the disease; or, as is stated in the latter, the sequelæ are those dependent upon some previous ailment of the individual; yet the Bengal Report details a series of subsequent symptoms resembling those of low nervous fever, which, when they proved fatal, usually terminated within eleven days from the commencement of the seizure called Cholera. To complete the outline, an account of these symptoms, extracted from the Bengal Report, will be given hereafter; and we may observe, that they correspond accurately with the description given by Dr. Keir of the second stage of the disease, as it appeared at Moscow from the beginning of the month of October to the earlier part of the month of March. But we will previously point out the manner in which the recovery from this seizure commonly takes place. The first symptoms are the abatement of the spasms and difficulty of breathing, a return of heat to the surface of the body, and a restoration of the pulse; these, however, are equivocal, from being often only temporary, and the prognostic from them is very uncertain unless they follow a progressive march of amendment; sleep and warm perspiration attending it are of more importance and more certain signs of recovery. The return of the secretion and evacuation of urine is reckoned one of the most favourable signs; the next is the passage of bile by the bowels, and if this be freely established, and accompanied with an improvement of the pulse and of the temperature of the skin, the patient is soon placed in a state of security from the attack; but it will appear from the following extract from the Bengal Report, that upon this recovery he has often a serious stage of disease to encounter, the description of which is given in the words of the author. Before, however, we proceed to this, we must remark that the seizure, when not fatal, has three modes of termination; one in immediate convalescence, accompanied only with great weakness;—a second, in which large evacuations of vitiated bile are passed for several days, sometimes attended with blood, and with peculiar pains in the bowels, particularly in the rectum. The third is of a febrile nature, of which the following account is supplied from the information given in the Bengal Report, viz. :—

‘ The fever, which almost invariably attended this second stage
 ‘ of the disease, *** partook much of the nature of the common
 ‘ bilious attacks of these latitudes. There was a hot, dry skin, a
 ‘ foul, deeply-furred tongue, parched mouth, thirst, sick stomach,
 ‘ restlessness, watchfulness, and quick variable pulse, sometimes
 ‘ with delirium and stupor, and other marked affections of the
 ‘ brain. Generally, when the disorder proved fatal in this stage,
 ‘ the tongue, from being cream-coloured, became brown, and
 ‘ sometimes black, hard, and more deeply furred; the teeth and

‘ lips were covered with sordes, the state of the skin varied, chills alternating with heats, the pulse became extremely quick, weak, and tremulous, hiccough, catching of the breath, great restlessness and deep moaning succeeded, and the patient soon sunk incoherent and insensible under the debilitating effects of low nervous fever, and frequent dark, tarry alvine discharges.’ It is to be observed that the able author of the Bengal Report doubts whether these symptoms can be considered as ‘ forming any integral or necessary part of the disorder itself,’ or whether they belonged to the bilious seizures of the climate. A reference to the annexed account of the second stage of the disease at Moscow, during the coldest season of the year, will probably satisfy this doubt, by proving that climate was unconcerned in producing them.

Appearances on Dissection.

The appearances after death varied much in different individuals, and apparently according to the duration of the disease. In those who died within eight or ten hours, the stomach was generally found in a relaxed, dilated state, loaded with the same fluids as had been thrown up during life: sometimes containing food, which had been swallowed and not returned, although the vomiting had been excessive. The internal and peritoneal coats of the stomach were, in these instances, pale and bloodless; the small and great intestines bore the same appearance; the arch of the colon, when the spasms had reached the abdomen before death, and sometimes the sigmoid flexure of it, were so contracted as to be less in diameter than the duodenum. The former was most commonly observed, the latter only occasionally. No appearance of bile or fæces was found in the intestines. The bladder was generally empty. The liver, and vessels which pass to the vena cava inferior, were turgid with blood; this turgescence extended to the vena cava superior, to the right side of the heart, and in some instances to the left ventricle: blood was in the same manner stagnant in the lungs, marking a congestion in the whole venous circulation of the larger vessels: the blood in the vessels was unusually *black*, resembling tar in colour and consistence. It is worthy of remark, that this local accumulation of blood was uniformly found in all fatal cases, whether they were of rapid or slower termination, and was particularly evident, as might be expected, in those in which the oppression of the breathing had prevailed with most violence. The gall-bladder was turgid with bile; the gall-duct commonly pervious, but bearing no marks of bile having recently passed.

In cases of longer duration, the same leading appearances were observed, but often with great addition. The vessels of the

stomach, in these instances, were found loaded with blood, presenting a surface sometimes of a pale pink hue, sometimes of a deep blue, at others of so dark a tint as to resemble sphacelus of the membrane, from which it could only be distinguished by the firmness of texture, and the appearance of vascular congestion on holding up the stomach between the eye and the light: in other instances the arteries of the stomach presented the appearance of having been penetrated by a vermilion injection; the same was observed in the smaller intestines, very rarely in the larger. In those cases in which coma had existed, serum was found effused, sometimes between the membranes of the brain, sometimes into the ventricles, and in some there was merely congestion of the blood in the vessels. Those who died of the subsequent illness showed no appearances after death different from such as are usually observed in other cases of febrile disease, attended with corresponding symptoms.

Treatment of the Disease in India.

The modes of treatment adopted in India were very various. From the rapid accumulation of patients daily falling down with the disease, and the small success of any treatment in the earlier appearance of it, a feeling of disappointment, and almost despair, seems at times to have dispirited the medical officers, and they are described (from the hopeless state in which they found their patients) as changing from one extreme of practice to another. Thus the strongest stimulants and bleeding were used in a disease of the duration of but a few hours, according to the instinctive view of the symptoms presented to each practitioner, sometimes with, and sometimes without success; but from the vast body of evidence collected by their industry and zeal in India, and detailed by them with great ability, it is not difficult to form a rationale of their practice.

The first objects were to rally the animal powers by the application of heat, by internal and external stimuli, and to quiet the vomiting, purging, and spasms, by opium or other sedatives; the next to restore the passage of bile, and the last to relieve the oppression of breathing. The difficulty of their position will be readily understood by calling to mind, that in extreme cases patients were seldom seen until all these symptoms were found existing together, with a pulse at the wrist either fluttering or not to be felt.

The measures pursued for these objects were by almost all practitioners, in the first instance, to administer opium, and as soon as the vomiting was abated, to give purgatives, of which calomel was commonly a principal ingredient; others relied upon calomel combined with opium, and subsequent purging, with the more ordinary laxative medicines. An opinion was entertained

that calomel alone was the best sedative of the vomiting, and relieved the anguish occasioned by the burning heat at the præcordia; but the evidence in favour of this fact is met by so many contrary statements as to leave the question in great doubt. The doses of opium were in general sixty or eighty drops of laudanum, or an equivalent in solid opium, which was upon the whole found to be best retained upon the stomach. With this, ten, fifteen, or twenty grains, and sometimes more, of calomel were given, and it may be generally observed, that the most common practice was to administer sixty drops of laudanum and twenty grains of calomel, which were repeated in larger or smaller doses once in two, three, or four hours, according to the judgment of the practitioner. Others, who had the greatest confidence in calomel, but felt, at the same time, the real or probable advantage of the sedative, combined five, ten, or twenty grains of calomel with one or more of opium. The purgatives generally used were jalap, scammony, rhubarb, the compound extract of colocynth, purgative pills, of which croton oil was an ingredient, senna, salts, magnesia, and particularly castor oil. For the purpose of relieving the coldness of the surface of the body, and determining the blood to the skin, every kind of internal and external stimuli was immediately applied;—of the former, brandy and other spirits, æther, ammonia, oil of peppermint were principally used; assafœtida was used by several, and this alone, or combined with opium, and sometimes opium alone, sometimes turpentine, were used in the form of glyster. It is proper to remark, that in evidence submitted to the Board, it is stated that cajeput oil, in the quantity of thirty to fifty drops, was administered by the servant of a resident in India to some of the natives, in the beginning of the disease, with beneficial effect. Of external stimuli, blistering plasters of cantharides were applied to the scrobiculus cordis; or, in cases of great depression of power, boiling water, so as to raise an immediate blister; nitric acid was also applied and neutralised by chalk, to prepare the skin for the application of the blistering plasters, and enable them to produce effect with more expedition; sinapisms to the same place, to the feet, calves of the legs, and arms; hot baths at the temperature of 112° of Fahrenheit's thermometer, vapour baths, fomentations, simple friction with warm flannels, bottles containing hot water, hot sand, friction with various liniments, with oil of turpentine, and cajeput oil, and such other stimuli as occurred to each practitioner, or were in his power, according to the emergency of the case. A milder practice was adopted by others, of giving magnesia in milk, to the amount of a drachm or more, every half hour or hour, with the intention of pacifying the vomiting, and acting upon the bowels by gentle means. Some considerable success which attended this practice induced, for a short time, a frequent repetition of it, but the sub-

sequent failure of these means leaves upon the face of the Report a doubtful opinion of their efficacy. Of the milder modes of treatment, one not unfrequently adopted was to empty the stomach by infusion of chamomile and other light evacuants of that organ, afterwards to give opium, and purge either with calomel or without. Emetics were given by some practitioners, but not generally; and there is some record in the Indian Reports and in the evidence before the Board of their utility.

Almost every plan seems to have had its success and its failure; and we may observe again that, in most cases, if death did not take place within twenty-four hours, and that warmth returned to the skin, and the circulation became considerably restored within that period of time, and the improvement, either by the natural powers of the constitution, or the assistance of medical art, was sufficient to protract the patient's life for seventy-two hours, he almost always recovered from the seizure. But the remedy which is described to have been most uniformly successful, when it could be used, is bleeding, and this even in cases when the pulse was scarcely perceptible at the wrist. This practice seemed to apply itself to the root of the disease, by relieving the congestion of the venous system, which was invariably found loaded on examination after death, and which congestion (though only an effect of the first impression made by the attack of disease upon the constitution) appeared to be the immediate cause of death. In the lighter cases, or in those of a severe nature which came under medical treatment before the pulse at the wrist was lost, or had become fluttering, bleeding was attended with the most decided advantage. The oppression of the chest, the burning heat of the præcordia, the spasms, the vomiting and purging, are stated in some instances to have ceased at once, in others on a repetition of the bleeding. In such as allowed a free extraction of blood, these effects very uniformly occurred; but even in some, when the pulse was indistinct, bleeding was successful if it could be carried to the extent of eighteen, twenty-four, or thirty ounces, the pulse rising in power, and becoming more distinguishable, in proportion to the flow of blood. If the pulse, in this state of feebleness, was distinct enough to give to the finger the feeling of oppression, bleeding was almost always successful. The blood drawn was always black, whether procured from a vein or an artery, and flowed with great difficulty, commonly first coming from the vein in drops, and gradually in a stream; but before it could be induced to flow with freedom, the patient often required the warm bath, friction, external and internal stimuli, to produce a sufficient quantity for his relief. If a small quantity only could be procured, the heart seemed to feel the loss without being relieved; the bulk of the blood actually circulating being reduced, while the great mass of it, congested in the inferior and superior vena cava, did not make its way to the heart.

The effect of bleeding was mechanical, and acted only as removing an obstruction to the passage of the blood from the distended venous system; and if not carried far enough to remove this impediment, and allow the large veins to empty themselves into the heart, such weakness was produced as is occasioned by the loss of blood in constitutions worn out by disease. This black blood was not inflamed. The quantity required for relief varied in different individuals; the best criteria of the proper time for desisting from bleeding, were the abatement of the spasms and oppression of the breath, the increased vigour of the pulse, the removal of the burning heat at the præcordia; but perhaps the most sure guide was the change of blood from a black to a more florid colour.

It is to be observed, that though sometimes bleeding was followed by immediate sleep, restoration of pulse and natural warmth, and a speedy solution of the disease, it appears never to have been solely relied upon, but to have been followed or accompanied more or less by the other plans of practice above mentioned.

The Board of Health has drawn up the above statement for the purpose of diffusing more generally a knowledge of the symptoms of the disease as it appeared in India, and of the plans of treatment there adopted.

With this statement before them, and with the official documents obtained from those parts of Europe where the disease has prevailed, medical practitioners in this country will be prepared for its first appearance. So much knowledge and intelligence are diffused among them, that until more uniformly successful modes of practice are devised, the Board wishes to leave their minds unbiassed. At the same time, all communications from those by whom the disease may be seen will be received with great attention; and they are invited to give the result of their observations to the Board, the Members of which will be happy at all times to advise with their medical brethren on the subject.

In the name of the Board,

HENRY HALFORD, President.

EXTRACT from the *Report on the Epidemic Disease called 'Cholera Morbus, which prevailed in the City of Moscow, and in other parts of Russia, in Autumn, 1830, and Winter, 1831.'*—By Dr. KEIR.

No physician who is acquainted with the able works which have been published on the epidemic of India, improperly called

Cholera Morbus, and has had an opportunity of treating the Russian epidemic, can have any doubt of the identity of the two: the complaint has most certainly made its way somehow or other from Hindostan to Vologda.

The symptoms of the disease, as it appeared in Moscow, were the following:—

The mode of attack and the primary symptoms were not uniformly the same, though the difference in these respects was not great. It most commonly began 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 fore part of the head, usually succeeded by giddiness, and sometimes with 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 underwent a proportional, if not a greater diminution, compared with the defect of the circulation; the mechanical part of 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 in those of the toes, feet, legs, and forearms, sometimes of the thighs, rarely of the trunk, generally supervened, and the patient frequently complained much of 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-coloured ring, the features sunk, the general volume of the body was much diminished, the extremities frequently looked livid, the blood stagnating in the vessels, and the hands and feet shrivelled, the skin on the inside appearing as if it had been long macerated in water; a general coldness overspread the surface, particularly the extremities, and partial clammy sweat appeared on the forearms, 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; in one case, when the bulb of Reaumur's thermometer had been kept for two minutes under the tongue, the mercury stood at 25° , and in another at 20° of heat, and I have no doubt that, in many cases, it must have descended lower. 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. In other cases, the sick continued a long time in this state without pulse, and preserved their intellectual faculties till a short time before death.

In some cases the disease showed itself in the form of an ordinary diarrhœa, which hung about the patient perhaps for a few days, or seemed to be excited by some error in diet, or other less evident cause. If this was not attended to, it generally ended with the symptoms proper to the epidemic. Several of those employed in the temporary hospital for the treatment of the disease, who had not the epidemic in a decided manner, were affected with nausea, vomiting, and bilious diarrhœa.

In a third set of cases the disease put on a more formidable appearance from the first, and the patient looked as if he had been brought to the ground by a violent blow or a stroke of lightning, so great was the oppression of the vital powers. In such cases it was evident that the action of the vital organs, and particularly of the heart, had been paralysed at a very early period of the attack. Here all human aid was vain; the patient frequently died before there was time to try any remedy.

When the purging and vomiting first appeared, the contents of the stomach and bowels were first thrown out, and afterwards the mucous secretions of these organs, sometimes slightly tinged with green-coloured bile; these evacuations, however, were soon followed by vomiting and purging of a watery fluid, sometimes like whey, and at others like a thin decoction of rice or barley, occasionally containing a white flocculent-looking matter; the evacuations frequently were without odour, but sometimes their odour was strong, and very particular.

In order to the better understanding of what follows, I shall borrow the language of Drs. Armstrong and Ayre, and consider the disease as consisting of three periods:—the first, oppression; the second, reaction; and the third, collapse.

The above description of the symptoms and modes of attack of the disease comprehends the first period, where neither nature nor art have been able to overcome the sedative effects induced on the vital powers by the action of the efficient cause; where, however, the operation of that cause has been less in a degree, or where the vital powers, aided by art, have been able to maintain a struggle against its fatal tendency, the violence of the symptoms gradually gives way, the purging and vomiting become less frequent, the pulse begins to be more distinctly perceived, the external heat gradually returns, the spasms of the extremities become less troublesome or cease entirely, the patient gets a little sleep, and is then perhaps able to take some light nourishment: this favourable change in the state of the patient comprehends the second period, that of reaction. A febrile state, more or less distinctly

marked, now takes place, and lucky is the case where it is moderate, for such generally recover. The secretions which were suppressed in the first period now begin to reappear; a gentle perspiration sometimes takes place; urine is discharged frequently, more or less tinged with bile, and the stools chiefly consist of bile in a very vitiated state; now and then blood in considerable quantity, of a dark colour, or a bloody fluid, is passed by stool for some days; in a few cases, a bloody mucus, as in dysentery, is discharged; and in some, a thick yellow or light-brown looking mucus, or yeasty matter, is passed. If, however, attention is paid to the due regulation of the digestive organs, and the patient, avoiding errors in diet, is otherwise careful, he commonly recovers. Much more frequently, however, a second ordeal now begins, sometimes as severe, and frequently not less fatal, though more slowly so, than the first: this is probably the effect of the morbid changes which have been induced during the first period of the disease. The appearance of the complaint is now entirely changed; insomuch that one who had not seen the patient during the first period, or been told of the symptoms, could not possibly know that he was suffering from the epidemic. I have observed the disease in this, its second period, to assume four forms: the first, an inflammatory, or rather sub-inflammatory state of the stomach and bowels, most frequently the latter, sometimes conjoined; the second, inflammatory irritation of the lungs, with pain of the chest, cough, viscid expectoration, and fever, appearing as a critical metastasis of the disease; the third, bilious or bilio-nervous fever, with suppuration of the parotid glands; in one case, with axillary suppurating bubo, towards the end of the fever, an inflammatory irritation of the lungs took place, ending in vomica; and the fourth, a congestive sub-inflammatory state of the brain and spinal chord: this last, as was natural to expect from the nature and seat of the affection, proved by far the most dangerous and most frequently fatal form of the second period. It appeared generally to supervene after the purging, vomiting, and cramps had been relieved, and the external heat in some degree restored; the patient complained of pain in the back, between the shoulder-blades, or in some other part of the spine—sometimes along its whole tract. He appeared sleepy to such a degree, that at first I was disposed to attribute this state, in part at least, to the effects of the opium given in the first period; but I was soon convinced that the cause of this symptom, and of another strongly characteristic of this form of the disease, namely, the filling of the vessels of the sclerotica with red blood, was a congestive, sub-inflammatory state of the brain and spinal chord. This striking symptom at first began to show itself in the inferior part of the globe of the eyes: it gradually increased, and little by

little reached the upper part, while the eyes turned upwards, exposing the lower part gorged with blood. This state of the patient generally ended in a complete coma, and proved fatal a few hours afterwards.

It was singular and interesting to observe how long the patients would sometimes live without pulse at the wrist, and with other symptoms which showed the approach of death. I remember particularly conversing with one whose arms, breast, and face were covered with cold clammy sweat, the vessels of the eyes injected with blood, the pulse at the wrist had ceased for many hours, yet she answered questions readily and properly, though with a low whispering voice; a frequent symptom of the first and last periods of the disease: she died about six hours afterwards.

The more rapid and violent attacks of the disease were sometimes terminated by convulsions; and, in a few cases, where biliary and intestinal irritation had prevailed, a cutaneous eruption, resembling the nettle-rash, or the measles, but with a larger spot, appeared on different parts of the body, and continued a few days. The patients under my care, who were so affected, recovered.

The duration of the disease was various, from a few hours to several days.

Where the efforts of nature and of art did not succeed, the second passed into the third period, which was marked by total collapse of the vital powers; this frequently took place without the intervention of the second period.

The convalescence of the patients, excepting in those cases where the complaint was stopped by early bleeding, was slow; and day after day copious evacuations of morbid bilious matter was discharged from the bowels, under the use of alterative doses of calomel.

I have seen no case where the patient was a second time affected by the disease, though I understand others have met with such cases; a relapse sometimes took place from errors in diet, and in one case proved fatal.

ORDER IN COUNCIL.

At the Council Chamber, Whitehall, the 20th day of October, 1831, by a Committee of the Lords of his Majesty's Most Honourable Privy Council,—

Their Lordships this day took into consideration certain rules and regulations proposed by the Board of Health, for the purpose of preventing the introduction and spreading of the disease called cholera morbus in the United Kingdom, together with an account of the symptoms and treatment of the said disease; and were pleased to order that the same be printed and published in the 'Gazette,' and circulated in all the principal ports, creeks, and other stations of the said United Kingdom, with a view that all persons may be made acquainted therewith, and conform themselves thereto.

W. L. BATHURST.

The measures of external precaution for preventing the introduction of the cholera morbus by a rigorous quarantine have hitherto been found effectual; but as the disease approaches the neighbouring shores, not only is the necessity of increased vigilance more apparent, but it is also consistent with common prudence that the country should be prepared to meet the possible contingency of so dreadful a calamity. The intention of the following observations, therefore, is to submit to the public such suggestions as it appears to the Board of Health should either be immediately acted upon, or so far carried into operation, as that, in any case, the country should not be found uninformed as to the best means of providing for its internal protection.

To prevent the introduction of the disorder, not only the most active co-operation of the local authorities along the coast in the measures of the government, but likewise the exercise of the utmost caution by all the inhabitants of such parts of the country, become indispensably necessary. The quarantine regulations established by the government are sufficient, it is confidently hoped, to prevent the disorder from being communicated through any intercourse with the Continent in the regular channel of trade or passage, but they cannot guard against its introduction by means of the secret and surreptitious intercourse which is known to exist between the coast of England and the opposite shores.

By such means this fatal disorder, in spite of all quarantine regulations, and of the utmost vigilance on the part of the government, might be introduced into the United Kingdom; and as it is clear that this danger can only be obviated by the most strenuous efforts on the part of all persons of any influence to put a stop to such practices, their utmost exertions should be used to effect this end. The magistrates, the clergy, and all persons resident on the coast, it is hoped, will endeavour to impress upon the population of their different districts (and particularly of the retired villages along the sea-shore) the danger to which they expose themselves by engaging in illicit intercourse with persons coming from the continent; and should appeal to their fears in warning them of the imminent risk which they incur by holding any communication with smugglers, and others who may evade the quarantine regulations.

To meet the other objects adverted to in the introduction, namely, to prepare for the possible contingency of the country being visited by this disorder, as well as to assist in its prevention, it is recommended that in every town and village, commencing with those on the coast, there should be established a local board of health, to consist of the chief and other magistrates, the clergymen of the parish, two or more physicians or medical practitioners, and three or more of the principal inhabitants; and one of the medical members should be appointed to correspond with the Board of Health in London.

Every large town should be divided into districts, having a district committee of two or three members, one of whom should be of the medical profession, to watch over its health, and to give the earliest information to the Board of Health in the town, whose instructions they will carry into effect.

As the most effectual means of preventing the spreading of any pestilence has always been found to be the immediate separation of the sick from the healthy, it is of the utmost importance that the very first cases of cholera which may appear should be made known as early as possible. Concealment of the sick would not only endanger the safety of the public, but (as success in the treatment of the cholera has been found mainly to depend on medical assistance having been given in the earliest stage of the disease) would likewise deprive the patient of his best chance of recovery.

To carry into effect the separation of the sick from the healthy, it would be very expedient that one or more houses should be kept in view in each town or its neighbourhood, as places to which every case of the disease, as soon as detected, might be removed, provided the family of the affected person consent to such removal; and in case of refusal a conspicuous mark ('Sick') should be placed in front of the house, to warn persons that it is in quaran-

time ; and even when persons with the disease shall have been removed, and the house shall have been purified, the word (' Caution ') should be substituted, as denoting suspicion of the disease ; and the inhabitants of such house should not be at liberty to move out or communicate with other persons until, by the authority of the local board, the mark shall have been removed.

In some towns it may be found possible to appropriate a public hospital to this purpose ; or, should any barrack exist in the neighbourhood, it might, under the authority of the Commander of the Forces, be similarly applied.

Wherever it may be allowed to remove the sick from their own habitations to the previously selected and detached buildings, the houses from which they have been so removed, as well as the houses in which the sick have chosen to remain, should be thoroughly purified in the following manner :—

Decayed articles, such as rags, cordage, papers, old clothes, hangings, should be burnt ; filth of every description removed ; clothing and furniture should be submitted to copious affusions of water, and boiled in a strong ley ; drains and privies thoroughly cleansed by streams of water and chloride of lime ; ablution of wood-work should be performed by a strong ley of soap and water ; the walls of the house, from the cellar to the garret, should be hot lime-washed ; all loose and decayed pieces of plastering should be removed.

Free and continued admission of fresh air to all parts of the house and furniture should be enjoined for at least a week.

It is impossible to impress too strongly the necessity of extreme cleanliness and free ventilation ; they are points of the very greatest importance, whether in the houses of the sick, or generally as a measure of precaution.

It is recommended, that those who may fall victims to this formidable disease should be buried in a detached ground in the vicinity of the house that may have been selected for the reception of cholera patients. By this regulation it is intended to confine as much as possible every source of infection to one spot ; on the same principle, all persons who may be employed in the removal of the sick from their own houses, as well as all those who may attend upon cholera patients in the capacity of nurses, should live apart from the rest of the community.

It should here be observed, that the fewer the number of persons employed in these duties the better, as then the chance of spreading the infection by their means will be diminished.

Wherever objections arise to the removal of the sick from the healthy, or other causes exist to render such a step not advisable, the same prospect of success in destroying the seeds of the pestilence cannot be expected.

Much, however, may be done even in these difficult circum-

stances by following the same principles of prudence, and by avoiding all unnecessary communication with the public out of doors. All articles of food, or other necessities required by the family, should be placed in front of the house, and received by one of the inhabitants of the house after the person delivering them shall have retired.

Until the time during which the contagion of cholera lies dormant in the human frame has been more accurately ascertained, it will be necessary, for the sake of perfect security, that convalescents from the disease, and those who have had any communication with them, should be kept under observation for a period of not less than twenty days.

The occupiers of each house where the disease may occur, or be supposed to have occurred, are enjoined to report the fact immediately to the local board of health in the town where they reside, in order that the professional member of such board may immediately visit, report, and, if permitted to do so, cause the patient to be removed to the place allotted for the sick.

In every town the name and residence of each of the members of the district committee should be fixed on the doors of the church or other conspicuous place.

All intercourse with any infected town and the neighbouring country must be prevented by the best means within the power of the magistrates, who will have to make regulations for the supply of provisions; such regulations, however, are intended only for extreme cases, and the difficulty of carrying such a plan into effect on any extended scale will undoubtedly be great; but, as a precaution of great importance, it is most essential that it should be an object of consideration, in order to guard against the spreading of infection.

Other measures, of a more coercive nature, may be rendered expedient for the common safety, if unfortunately so fatal a disease should ever show itself in this country in the terrific way in which it has appeared in various parts of Europe; and it may become necessary to draw troops, or a strong body of police, around infected places, so as utterly to exclude the inhabitants from all intercourse with the country; and we feel sure what is demanded for the common safety of the state will always be acquiesced in with a willing submission to the necessity which imposes it.

The board particularly invites attention to a fact confirmed by all the communications received from abroad, viz. that the poor, ill-fed, and unhealthy part of the population, and especially those who have been addicted to drinking spirituous liquors and indulgence in irregular habits, have been the greatest sufferers from this disease; and that the infection has been most virulent, and has spread more rapidly and extensively, in the districts of towns

where the streets are narrow and the population crowded, and where little or no attention has been paid to cleanliness and ventilation. They are aware of the difficulty of removing the evils referred to, but they trust the attention thus awakened will ensure the most active endeavours of all magistrates, resident clergymen, and persons of influence or authority, to promote their mitigation; and as the amount of danger and the necessity of precaution may become the more apparent, they will look with increased confidence to the individual exertions of those who may be enabled to employ them beneficially in furtherance of the suggestions above stated.

Board of Health, College of Physicians, Oct. 20, 1831.

The following are the early symptoms of the disease in its most marked form, as it occurred to the observation of Dr. Russell and Dr. Barry, at St. Petersburg, corroborated by the accounts from other places where the disease has prevailed:—

Giddiness, sick stomach, nervous agitation, intermittent, slow, or small pulse, cramps beginning at the tops of the fingers and toes, and rapidly approaching the trunk, give the first warning.

Vomiting or purging, or both these evacuations, of a liquid like rice-water or whey, or barley-water, come on; the features become sharp and contracted; the eye sinks, the look is expressive of terror and wildness; the lips, face, neck, hands, and feet, and soon after, the thighs, arms, and whole surface, assume a leaden, blue, purple, black, or deep brown tint, according to the complexion of the individual, varying in shade with the intensity of the attack. The fingers and toes are reduced in size; the skin and soft parts covering them are wrinkled, shrivelled, and folded; the nails put on a bluish-pearly white; the larger superficial veins are marked by flat lines of a deeper black; the pulse becomes either small as a thread, and scarcely vibrating, or else totally extinct.

The skin is deadly cold, and often damp; the tongue always moist, often white and loaded, but flabby and chilled, like a piece of dead flesh. The voice is nearly gone; the respiration quick, irregular, and imperfectly performed. The patient speaks in a whisper. He struggles for breath, and often lays his hand on his heart, to point out the seat of his distress. Sometimes there are rigid spasms of the legs, thighs, and loins. The secretion of urine is totally suspended. Vomiting and purging, which are far from being the most important or dangerous symptoms (and which, in a great number of cases of the disease, are not profuse), generally cease, or are arrested by medicine early in the attack.

It is evident that the most urgent and peculiar symptom of this disease is the sudden depression of the vital powers; proved by the diminished action of the heart, the coldness of the surface and extremities, and the stagnant state of the whole circulation. It is

important to advert to this fact, as pointing out the instant measures which may safely and beneficially be employed where medical aid cannot immediately be procured. All means tending to restore the circulation and maintain the warmth of the body should be had recourse to, without delay. The patient should always immediately be put to bed, wrapt up in hot blankets, and warmth should be sustained by other external applications, such as repeated frictions with flannels and camphorated spirits; poultices of mustard and linseed (equal parts) to the stomach, particularly where pain and vomiting exist; similar poultices to the feet and legs to restore their warmth. The returning heat of the body may be promoted by bags containing hot salt or bran applied to different parts of it. For the same purpose of restoring and sustaining the circulation, white wine whey, with spice, hot brandy and water, or sal volatile, in the dose of a teaspoonful in hot water, frequently repeated, or from five to twenty drops of some of the essential oils, as peppermint, cloves, or cajeput, in a wine-glass of water, may be administered; with the same view, where the stomach will bear it, warm broth with spice may be employed. In very severe cases, or where medical aid is difficult to be obtained, from twenty to forty drops of laudanum may be given in any of the warm drinks previously recommended.

These simple means are proposed as resources in the incipient stage of the disease, where medical aid has not yet been obtained.

In reference to the further means to be adopted in the treatment of this disease, it is necessary to state that no specific remedy has yet been ascertained; nor has any plan of cure been sufficiently commended by success to warrant its express recommendation from authority. The Board have already published a detailed statement of the methods of treatment adopted in India, and of the different opinions entertained as to the use of bleeding, calomel, opium, &c. There is reason to believe that more information on this subject may be obtained from those parts of the continent where the disease is now prevailing; but even should it be otherwise, the greatest confidence may be reposed in the intelligence and zeal which the medical practitioners of this country will employ in establishing an appropriate method of cure.

In the name of the Board,

HENRY HALFORD, President.

Dr. Russell's first Letter.

St. Petersburg, July 1st, 1831.

SIR,—I have the honour to submit the following information on the subject of the identity of the disease at present prevailing here, with that which I have had so many opportunities of seeing in India, under the denomination of Spasmodic Cholera.

By the kindness of Sir James Wylie, at the head of the medical department of his Imperial Majesty's army, since the evening of our arrival, we have been admitted to see eight cases of the disease in the military hospitals of St. Petersburg. Of these, *two* died, one in sixteen, the other in seven hours after admission; four remained, at 10 P. M. last night, in a very precarious state; hopes might be entertained of the seventh case; and the eighth, a boy, who had been long ill, appeared in a favourable state for recovery.

After a careful examination of all the symptoms of these cases, in different stages of the disease, I do not hesitate to state my unqualified conviction of its perfect identity with the Indian spasmodic cholera.

In all, on its first attack, sickness, retching, purging, and cramps prevailed; there was the same leaden hue of the countenance, with collapsed features and sunk eyes, the shrivelled cold skin with blue nails, the weak pulse, in many not to be felt, the squeaking indistinct voice scarcely to be heard; the evacuations colourless, like diluted starch or muddy water, the entire absence of bile in the vomiting or stools, the suppression of the secretion of urine and of all the other secretions: the same appearance of the blood drawn, more resembling black pitch than blood; and the entire prostration of strength, combined, in some, with great general uneasiness, jactitation, and most painful spasms. I ought to add, that in some of the cases, the patients complained of headache and vertigo; and in one or two individuals, the evacuations, though colourless, were offensive. The vomiting of fluid from the stomach, and the retching, were not so incessant as with us in India, neither were the evacuations so copious or so frequent; and though, in the secondary stage, in the only case I have seen promising recovery, the state of fever from reaction exists, it is not to the same extent as usually followed the first stage of cholera in Calcutta, where the patients did not recover without the intervention of the secondary fever.

I have the honour to be, Sir,

Your obedient and faithful servant,

WILLIAM RUSSELL, M.D.

To the Clerk of the Council in waiting.

Dr. Barry's first Letter.

St. Petersburg, 1st July, 1831.

SIR,—You will no doubt learn, through many official sources, that the cholera morbus of the north of Europe made its first appearance in this city on Sunday last, the 26th ultimo. This deplorable event, and our arrival on the 29th, has afforded to my colleague, Dr. Russell, ample means of satisfying himself as to the perfect identity of the disease now rapidly spreading, with the *Indian cholera spasmodica*, of which he saw so much during his residence in the East.

On the evening of our arrival, we visited and examined, with Sir James Wylie, to whose kind assistance we are much indebted, the second and third cases that had occurred amongst the military; the first case had died early in the day. On the next morning we saw the survivor of these two cases and four others just brought into the General Military Hospital, who had been seized from two to four hours before our arrival.

The appearance of these men fully confirmed Dr. Russell in his opinion, as to the most unqualified identity of the two diseases. Indeed, though one of the two first cases was in the second stage of the disease, Dr. Russell exclaimed, after the first glance at him, 'This is the genuine disease.' Dr. R. also pointed out, with a practical tact, which seemed to strike Sir James Wylie, some remarkable features of the disease in the four recent cases, not noticed by the medical gentlemen then present; viz., the coldness of the tongue, which, though clean, and apparently natural, felt to the touch like a morsel of dead flesh; the tone of the voice, the same in all, resembling the efforts to speak which persons make who have lost their voices; the sunken, dim eye.

The above, with the more prominent and well-known symptoms of the first stage, such as the leaden purple of the face, hands, and feet; the shrunken features, the shrivelled fingers and toes; the short, hurried, anxious respiration; the collapse of the arteries; the squalid, corpse-like appearance of the whole body; the rending spasms of the limbs and belly, in some resembling tetanus; the low whine, like that of a dog dying from arsenic; the unceasing jactitations; the fruitless efforts of some to vomit, resembling a deep, short, convulsive bark, in which air alone seemed to be violently expelled from the stomach; the colourless, watery evacuations:—In fine, the sufferings of these athletic young men (grenadiers of the guards) have furnished me with the type of a disease, which I had certainly never seen before, which cannot be forgotten after having been observed, nor, I think, confounded with any other malady.

After what I have said, it is almost needless for me to add the expression of my entire conviction, that the disease now rapidly

spreading around us, is identical with the Indian cholera; the symptoms of which, up to the day before yesterday, I knew only through the writings and conversation of those who had seen it.

Whilst on the subject of identity, two shades of difference between the diseases ought to be mentioned:—first, that in the eight cases which we have seen, the first evacuations, by stool, are said to have been unnaturally offensive; secondly, that the vomiting has not been frequent, nor excessively copious.

One important object of our mission seems to be already accomplished, and on this point we have judged it proper to write separately. In our joint letter we shall enter more fully into particulars. We are both in good health.

I have the honour to be, Sir,

Your most obedient servant,

D. BARRY, M.D.

To the Clerk of the Council in waiting, &c.

Letter from Drs. Russell and Barry.

St. Petersburg, July 5, 1831.—1 o'clock P. M.

SIR,—We had just drawn up the draft of a circumstantial letter, on the subject of the present epidemic, when we were informed that all letters to go to-morrow must be put into the post-office to-day, before two o'clock. We must therefore now limit ourselves to say, that 57 cases which we have carefully observed, and two dissections at which we have assisted, confirm our opinions as to the identity of this with the Indian cholera.

The state of the sick, up to the 21st of June, O. S.,—the latest date to which we have been able to obtain returns,—is, 262 sick, 123 dead,—remaining 132.

We begin to hope that the treatment of the disease, by three grains of subnitrate of bismuth, every three hours,—recommended by Dr. Leo of Warsaw, and ordered to be tried here by his Imperial Majesty, will be found highly useful. We cannot as yet speak positively.

Having arrived here just as the disease broke out, we trust that the Lords of the Council will approve of our having halted to watch its progress.

The malady is spreading rapidly. The people are in the midst of a solemn fast;—the streets thronged with processions and other crowds;—the churches filled all day. The intemperance likely to follow this fast will add to the violence of the disease.

We had the honour of addressing separate letters to you on the 1st of July, and remain,

Your most obedient humble Servants,

WILLIAM RUSSELL,

D. BARRY.

To the Clerk of the Council in waiting.

First Report from Drs. Russell and Barry.

St. Petersburg, July 6, 1831.

SIR,—In our separate letters of the 1st instant from this place, we confined ourselves to one object, viz. the comparison of the disease now most rapidly spreading here with the genuine Indian cholera. Up to last evening at 10 o'clock, we have seen and carefully examined between 70 and 80 cases. Every one of these, with the dissections at which we have assisted, confirm our opinion, that with the shades of variety alluded to in our last, the disease, which we are now investigating, is the same as that which, under the name of spasmodic cholera, has committed such ravages in India, since the year 1817.

Through the very great kindness of Sir James Wylie, who continues to afford every facility in his power to the prosecution of our inquiries, we have visited the military hospitals containing cholera patients,—either with him or by his permission,—generally twice a-day. The cases have been, with but few exceptions, of the most malignant kind, and death has taken place in a very large proportion, from 10 to 48 hours. From 80 to 100 cases had occurred amongst the troops up to yesterday evening, and certainly 400 amongst the civil population. With but few exceptions, and these amongst the intemperate and infirm, the disease hitherto appears to be confined to the lower orders.

With the sanction of Dr. Rehman, head of the Civil Medical Department, to whom we were introduced by letter from the Minister, and with permission from Dr. Meyer, chief physician of the great city hospital of Aboucoff, we have thrice visited a very extensive temporary hospital for cholera patients, attached to the Aboucoff. At our first morning visit to the physician, there were but three patients; at our evening visit of the same day (Monday), there were 52, all of the most severe kind. In this hospital we are now anxiously watching the success of the mode of cure lately recommended by Dr. Leo of Warsaw, which his Imperial Majesty has ordered to be fully tried, both in the civil and military hospitals of this city. This mode of cure is published in the Prussian 'Royal Gazette,' Berlin, 20th of June, 1831, and is as follows—*abridged* :—

Three grains of the magisterium bismuthi every two or three hours, with sugar; drink, infusion of melissa.

When the pains in the hands and feet are violent, the following liniment to be applied hot. Liquor. Ammoniaë causticæ, one oz.; spirit. Angelicæ comp. six oz.

This treatment to be persisted in, to the exclusion of all other remedies, until the secretion of urine and natural heat return.

We shall not fail to report upon this plan of cure, as soon as we have sufficient data. We have already seen more than 30 cases in

which the bismuth alone is given; but, from the overwhelming number of the patients, we believe that the other items of the plan have not been strictly adhered to.

Origin and Spread of the Disease.

The facts which we have been able to collect on this subject, since our arrival here, are the following :—

The cholera having lately shown itself in several towns and villages, high up the Wolga, and all supplies of provisions and merchandise for this place from the interior being brought by water-carriage; short quarantines, or rather inspections, had been for some time established at Twer, Vischneivologok, and, since the 1st of May, O. S., at the town of Novgorod, against all barks coming to St. Petersburg. The crews and passengers were examined and slightly fumigated. It is now, however, generally known, and acknowledged by those acquainted with the facts, that even these trifling precautionary interruptions were in many instances omitted or evaded.

All the authorities here had been preparing to meet the disease ever since its appearance at Astrachan in 1823; at Moscow last year; at Yaroslav, Rybensk, and Archangel this year. Temporary receiving-houses and hospitals were ordered to be established, and medical and police inspectors appointed to every district of this city. The strictest orders had been given, that every case, at all resembling cholera, should be immediately reported by the medical man who might happen to be called in.

A merchant had arrived from his native town, Witagra, on the 28th May, O. S., on board a decked boat, and was taken ill about one o'clock on the morning of the 26th June, N. S. He was seen by Dr. Udenich, police physician, at five A. M., who is said to have found him labouring under vomiting, purging, and cramps of the limbs. This man told Dr. U., that he had slept from the deck of his boat on Saturday the 25th, had wet his feet, and caught cold.

A house-painter's journeyman, named Peter Demitrieff, an habitual drunkard, resident in the quarter where the barks lie, was attacked about the same time; was brought to the same receiving-house with the merchant; was seen also by Dr. Udenich, who reported both cases to Dr. Rehman already mentioned. Dr. R. and his assistant saw both these men about eleven o'clock, A. M.; the merchant was already better, the painter getting worse. Professor Dietchofsky, who had witnessed the disease at Moscow, was now called in, and immediately recognised the painter's as a very bad case of true cholera (he died at seven that evening); the merchant's as a mild case. The latter is quite well, but we have not ventured to seek an interview with him, owing to the state of excitement in which the

people are just now on this subject. The precautionary measures adopted by the government here, appear to be liberal, humane, and wise; but the populace is dissatisfied with the indiscriminate removal of their sick to the temporary hospitals. More of this by the first courier.

Dr. Rehman has promised us the copy of the *procès verbal*, drawn up and signed on the spot by himself and the other medical and police authorities, who first saw these two cases, but has not yet sent it.

The third case was an invalid soldier, who was employed as a watchman, and was on duty in the same quarter, not far from the barks. He was attacked early on the morning of Tuesday; was the very first military case; was carried to the artillery hospital, and died on the night of the 28th. We have got his case and dissection from Sir James Wylie. There is no doubt that his disease was genuine cholera.

A billiard-marker, who had arrived a few days before from Yaroslav, was also seized on the morning of the 28th, N. S., and died after a few hours' illness. Of this man we only know generally, that the cholera was at Yaroslav when he left for St. Petersburg.

The second military case was a boy, an under kind of hospital pupil at the artillery hospital. He was attacked about two hours before the invalid was brought in. This boy had drunk freely of cold water over night, when heated by exercise.*

No direct personal intercourse has been as yet traced between any two of the first five or six cases. It is certain, however, that the first three were from the same district, Rojestvenskoy, that in which the suspected barks are stationed. This quarter is the easternmost of the whole city, the first you arrive at coming down the stream, and during the late and present perseverance of easterly winds, the very spot from whence effluvia of any kind might be most conveniently blown over the town. We are informed by Dr. Rehman, that many have been taken ill on board the barks themselves.

The weather was mild and agreeable up to the middle of June, O. S., the prevailing winds westerly. Since that period, and during our residence here, there have been great heats, with easterly winds. The thermometer in our apartment has ranged from 70° to 78°.

The number of civilians attacked up to yesterday morning was 615, dead 287.

Although we feel that the time since our arrival here has been much too short to allow of a full investigation of the facts tending

* We saw this boy on the evening of our arrival, the 29th, and considered him in the second stage of the disease. He is mentioned in our letters of the 1st instant.

to illustrate the origin of the disease, yet under all the circumstances of our position, we have resolved not to defer the expression of those conclusions on this subject to which we have already arrived with the most perfect unanimity.

From everything we have been able to learn as to the progress of cholera morbus in the north of Europe ; from its first appearance in the towns and villages of this country having been generally, if not always, preceded by the arrival of persons, or vessels, or both, from infected places ; from the manner in which the disease has now broken out in this city, we see no other mode of accounting for its sudden appearance here, than by concluding that the barks from places on the Wolga where the disease prevails, have brought something with them, which, disseminated in this atmosphere, has been the immediate cause of the eruption of cholera which has just occurred. It must however be remarked, that both the inhabitants and the atmosphere of St. Petersburg were highly fitted, at the moment, to entertain such a malady.

The coarse acescent food ; the sheep-skin clothing of the peasant, seldom changed, and worn even at this season ; the protracted religious fasts ; the subsequent intemperance both in eating and drinking ; the intolerably close apartments of the Russians of all ranks ; their consequent sensibility to sudden change of temperature, render them, in our opinion, particularly liable to suffer from the present disease.

All St. Petersburg is at this moment in the midst of a solemn fast ; the streets are crowded with processions, and other more tumultuous meetings ; the churches are filled all day ; many are attacked after coming from these meetings, and some have *suffered* whilst *attending* them.

We cannot as yet say one word as to the personal communicability of this terrible malady ; we are, however, from what we observe here, inclined to hope that, should it unfortunately reach England, cleanly habits and a mild climate will mitigate its severity.

Trusting that the Lords of the Council will approve of our having halted here to watch the progress of the present epidemic from its very-origin, which we arrived in time to witness, and waiting their Lordships' further commands,

We have the honour to be, Sir,

Your most obedient humble Servants,

WILLIAM RUSSELL, M.D.

D. BARRY, M.D.

To the Clerk of the Council in waiting.

Extract of a Letter from Alexander Gibsone, Esq., His Majesty's Consul at Dantzic.

July 8, 1831.

THE mortality among the military is comparatively small, in consequence, it is thought, of their being less harassed than usual with exercising; their being better fed, warmly clothed, and required to live in all respects moderately; to their quarters being kept cleanly; and in particular to their being immediately provided with medical assistance when attacked. Individuals can apparently protect themselves better against the sickness by using proper precautions than they can be protected by cordons, through which the sickness seems to break on all sides, it having appeared at St. Petersburg, and also at Memel or its vicinity.

The cholera at Ramel and the neighbourhood, on the road to Pomerania, has also diminished; and it was probably overrated, nervous fevers having lately prevailed much in that quarter. It has extended to other villages in that vicinity.

A few days ago twenty-five physicians here had a consultation on the question of the sickness being contagious or not. Of these, twenty-one declared it was not so, and four that it was; but the latter not having facts to advance sufficiently clear to be proofs. If contagious, it must be so only in a very limited degree, and under the particular circumstances of the disease being very virulent, and the body being predisposed to catch it.

The cholera has lately become again more malignant at Warsaw, it is said in consequence of the return of the army from Ostrolenka, of the fatigues it had undergone, and of the sick and wounded brought in; and further, from the number of people who passed the night in the streets, living also irregularly, during the late commotion there.

Two days ago the vessels from Russia commenced discharging their cargoes at the quarantine establishment. The crews remain in good health.

Second Report from Drs. Russell and Barry.

St. Petersburg, July 16th (Saturday), 1831.

SIR,—Since our last, dated 6th instant, we have been assiduously watching the progress of the disease, and are sorry to say that it has continued to spread with considerable rapidity, though not with that violence, either as to the number or the fatality of the attacks, which Dr. Russell witnessed in the epidemic cholera in Calcutta, in 1817.

In the hundreds of cases which we have now seen, we have not observed any symptoms at all analogous to plague. We have

certainly not seen, nor have we even heard of, glandular swellings, nor carbuncles, nor petechiæ, nor even fever or delirium, except in the stage of reaction.

Although the overwhelming number of sick daily brought to all the hospitals, together with the paucity of medical men, and their alarm for their personal safety, have hitherto prevented a steady trial being made of Dr. Leo's plan of cure, mentioned in our last, we are inclined, from what we have ourselves observed, to consider the *magisterium bismuthi* as the best medicine used here in the treatment of cholera. It seems to be more particularly useful in cases where profuse evacuations, and spasms or cramps, constitute the prominent and distressing symptoms. As this medicine is now very generally used in all the hospitals, the absolute amount of its merits will soon be finally settled.

We had offered, and Sir James Wylie had kindly approved of our offer, to take the exclusive charge of a certain number of military cholera patients; but the violent excitement of the people against all foreigners, more particularly against medical men, whom they lately looked on as emissaries employed by their enemies to poison them, has rendered the adoption of our proposition inadmissible. One physician, a German, was killed by the mob; two others narrowly escaped the same fate; and six were severely beaten on the 26th and 27th of June, O. S.

This city is now perfectly tranquil, and the poor deluded people beg for the assistance of the very men whom but a day or two ago they would have torn to pieces. Much of this favourable change is owing to the noble conduct of the Emperor, who harangued the mob in the Hay-Market, and told them that they ought to be most grateful to medical men who risked their own lives to save theirs.

Fifteen hospital physicians had been attacked, and six had died of cholera up to the morning of the 13th instant, N. S., out of 264 medical practitioners of all descriptions, who were in St. Petersburg at the breaking out of the present epidemic. Some are reported to have fled.

In the hospital of the Semanofsky Guards, not far from the barks, six were attacked, and two died by cholera, between the mornings of the 11th and 13th, out of forty invalids, attendants upon the cholera patients. In the same hospital two surgery boys have been attacked out of eleven also employed about the sick.

In the temporary hospital, got up by the merchants, three attendants have been attacked; and in the Great Aboucoff Hospital, where there were no cholera patients, but to which a temporary cholera hospital had been attached, behind the building, ten persons residing within the area of the establishment had been severely attacked up to the 12th inst. (N. S.) with cholera.

In the Military General Hospital, in which upwards of 400

cholera patients had been admitted from distant quarters, up to the morning of the 13th, one attendant had been attacked.

The casualties since our last, amongst the upper orders, have been somewhat more numerous, but are still in very moderate numbers.

Up to eleven o'clock of the 14th inst., the day before yesterday, 4502 had been attacked from the beginning, and 1998 had died; 334 had fallen ill within the twenty-four hours, which, though a greater number than had been attacked the preceding day (235), shows a considerable diminution in the daily cases, when compared with the returns of the 10th, 11th, and 12th inst. (N. S.) when the numbers attacked were respectively, 579, 570, and 515.

When we had the honour of being presented to Count Zakrevsky, the Minister of the Interior, we obtained his permission to submit some written questions to the chief medical authorities. These questions we have drawn up in French, and handed to the chief civil physician, Dr. Rehman, and shall have the honour of forwarding a copy of them to you with our next communication.

We enclose translations from the copies in Russian, of the protocol of the first and second cases, and of the report of the chief civil physician, drawn up on the spot, and signed by the police and medical authorities. The report made to Dr. Rehman, by the police physician of the Rajestnovenskoy district, as to the case of the merchant, referred to in No. 2, we have not yet obtained, Dr. Rehman being ill, though not of cholera.

We continue to receive every possible assistance from the authorities. Count Zakrevsky sent one of his aides-de-camp to conduct us, in one of our visits to the hospitals, in order that we might be publicly known to be under the protection of the Russian government.

We are particularly indebted to Count Orloff, who was our fellow passenger from Lubeck, and who is now military governor of one of the divisions of this city. Sir James Wylie has been unceasing in his attentions both of a public and private nature. We have been cautioned not to enter, for the present, into minute personal inquiries as to the origin of the disease. Even the government authorities, in consideration of the state of popular feeling, have forbidden all dissections, except at the General Military Hospital; and even there, except in cases of medico-legal doubts as to the cause of death.

The *mujiques*, or serfs, who come from the interior to this city, in the summer, to seek for employment, have been returning, for several days past, to their owners' estates in very considerable numbers; some say that as many as 20,000 have already fled.

The cordon, established at Slissleburg, about sixty versts, or forty miles up the river, since the breaking out of the disease here, was

broken through by the retiring serfs three days ago. The medical man, and the police in charge, were very roughly treated. The neighbouring villagers, who believed that the medicines sent up by the authorities were all poison, joined in the attack, and the disease, by yesterday's accounts, had appeared amongst them, and on the Ladoga. The disease had also appeared at a village on the Riga road.

On the 12th the cholera showed itself amongst a depôt of about 2500 recruits, stationed twenty miles from hence. The recruit here receives one pound of meat per week, but the soldier has one pound per diem.

A medical commission, sent by the Swedish government, to be disposed of by the Swedish minister in the manner best calculated to make them acquainted with the disease, arrived here one day before us, and have remained. This commission is also composed of two physicians, Drs. Setterblad and Oughterlony. We meet them occasionally at the hospitals.

Dr. Walker, whom we saw shortly after our arrival, kindly communicated to us a letter which he had received from Mr. Consul Tupper, at Riga, and which he no doubt has already forwarded to you. The Dutch minister here, Baron Heikermann, has promised us some important information, received from the consul of his nation at Riga, as to the origin of the disease in that city and at Archangel.

The thermometer continues above 70° in the shade; and the wind has been from the west since yesterday morning. We hear it generally observed, that the number of funerals has diminished within the last twenty-four hours.

We have the honour to be, Sir,

Your most obedient and most humble servants,

WILLIAM RUSSELL, M.D.

D. BARRY, M.D.

To the Clerk of the Council in waiting.

P. S. Up to eleven o'clock yesterday—

Attacked from the beginning	5367
Dead	2521
Taken ill in the last twelve hours	188
Died in ditto	130

D. B.

Translation of the Protocol drawn up on the First Case of Cholera Morbus in St. Petersburg.

(Copy) Protocol sur le premier Malade, 1831, June 14 (O.S.)

THE senior physician of the police has reported, through his superiors, a man who fell sick, first section of the Roshestvenskoy

division, in the house of a merchant named Bobatoff. This man was a journeyman of a master painter named Gelshoem, and was a domestic slave of the Lady Zenovieff. To this man, named Paul D'mitrieff, Dr. Blank, the first of the police physicians of the section, was called to afford medical aid at four o'clock in the morning. He was found in a state of extreme weakness, with constant vomiting and purging, the evacuations were watery and without smell; spasms in his hands, feet, and stomach; the upper and lower extremities were cold, the pulse scarcely perceptible, oppression and tightness of the chest, the countenance changed, eyes sunk, livid lips, uneasiness (stupor), and constant moaning,—all these symptoms resembled those of the epidemic cholera.

After the arrival of the Senior Police-Doctor, between four and five in the morning, the above-named person was found to be rather better as to the symptoms described; vomiting and purging still continued, but not so frequent. Spasms came on occasionally, and only in the calves of the legs.

The hands and feet were coldish, the sensation of oppression in the breast, and pain in the belly, were not so severe. The tongue was covered with whitish mucus; the face and eyes betrayed darkness and fatigue.

The man, after the first medical assistance, which consisted in bleeding to 10 ounces, 20 leeches to the scrobiculus cordis, rubbing the whole body, and giving the *mistura ricrii*, was carried from the above house to the hospital, which was prepared in case of cholera, in the house of Slavitscheff, where he was again bled to four ounces, put into a hot bath, given to drink hot tea, calomel, and opium.

Owing to the importance of the symptoms stated in the Police-Physician's Report, Dr. Rehman, head of the Civil Medical Department, Major-General Kokoshkin, Chief of the Police, and Dr. Tarasoff, came to see this sick man at 12 o'clock at noon in the hospital, and found, in addition to the symptoms already named, that the pulse had ceased, the colour of the feet, legs, thighs, hands, back, a bluish red; the skin of the palms and fingers corrugated; the blood of the second bleeding thick and black, without serum; respiration difficult; the tongue icy cold. He was ordered cold affusion, which was immediately carried into effect; he was placed in a warm bed, had hot tea, and stimulating drops, with calomel, alternately. Sinapisms were applied to the stomach, spine, and extremities; nevertheless, seeing that the attacks (fits) resisted all these remedies, and that they corresponded perfectly with the symptoms of the epidemic cholera, it was thought necessary to call in Professor Diadkoffsky, Member of the Medical Council and Central Commission, as a physician who had much experience and practice, acquired with the Minister of the Interior, in his journey through different towns of Russia

severely affected by contagious cholera, in which towns he had treated many sick of the disease.

The Professor, after an attentive examination of the sick man personally, declared to all present, that he, Paul D'mitrieff, had, without doubt, the same cholera which he had seen in other provinces during his journey last year.

By the advice of the Professor, the sick man had a steam-bath, and the remedies directed by the General Staff-Doctor were ordered by him to be continued. But the patient, in spite of all these remedies, remained with cold extremities and without pulse, in a hopeless state. He died at seven o'clock in the afternoon.

Although all present admitted this disease to be that of India, and the more so, as the other invalid who had entered at the same time, appeared to be suffering with a slight appearance of cholera, and which, up to the present moment, continues in the appearance of a watery diarrhœa; besides which, as it is not yet ascertained, notwithstanding all investigation, from whence the germs of this disease could have been communicated to the man who resided for a long time in this capital, and who had no immediate intercourse with persons who had come from any other parts, and therefore the decision of the question, as to whence the disease originated, is considered by the faculty unanswerable, until it be decided by further information and experience. However, as the suspicions of the contagious nature of this disease are too strong to wait quietly for its further development, it is therefore, at the suggestion of the Master of the Police, and with the general consent, resolved, to take all the necessary means for preventing it from spreading further; such as fumigating the apartment from whence the man was taken, and placing it under strict observation. All persons leaving the hospital are also to be fumigated, and the servants of hospitals are to be kept under observation.

(Signed) Le Général KOKOSKIN, Maître de Police
et A. D. C. de l'Empereur.

Dr. O. REHMAN, Médecin en Chef de
la Partie Civile.

S. D. TARASOFF.

DIATKOFFSKY, Professeur de Moscou.

TAUDENITCH, Chirurgien de la Police.

Translated by me, from the Copy in Russian,
furnished to the British Medical Commission, by Dr. REHMAN.

(Signed) J. R. WILKINS.

St. Petersburg, 28th June, 1831.

Report of the Civil General Staff-Physician to the Minister of the Interior.

In pursuance of the arrangements made by me, for some time past, for the purpose of obtaining, without delay, the most accurate information concerning each case of illness giving a suspicion of the cholera having made its appearance in this capital, the Senior Physician of the Police of this place laid before me at a quarter past ten this morning, the annexed document, marked A. Being thus apprized that two individuals, in the Roshestvenskoy quarter, had been suddenly taken ill, with symptoms resembling cholera, I, without delay, proceeded, in company with the General Staff-Physician Tarasoff, to the hospital established for cases of cholera, in the Roshestvenskoy quarter, and personally satisfied myself that Paul Demetriooff, a journeyman painter, the second person marked in the document, had, in the highest degree, the usual symptoms of the worst description of cholera. Professor Diadkoffsky, Member of the Medical Council of the Central Commission, having been present on this occasion at my request, has confirmed the above. I remained several hours with the patient, for the purpose not only of observing the course of the disorder, but likewise to apply the necessary medical remedies, to lessen the severity of the attack. During my stay there, Major-General Kokoskin, the Master of the Police, arrived, and remained for a considerable time an eye-witness of the circumstances.

Considering it my duty, without delay, to apprise your Excellency of the above, I have also the honour at the same time of laying before you a copy of a document (*protocol*) marked B, drawn up by my direction for the present occasion, bearing the signatures of the persons who were present at the time.

Though this is as yet the first instance that has happened here, it is not on that account the less deserving of the full and active attention of the Government, for St. Petersburg is threatened on every side to be attacked by the cholera.

It appears, by the reports received by me to-day from the Medical Council of Esthonia, that, at the quarantine established by the government authorities of Esthonia, on the other side of Narva, at about a distance of 200 versts from hence, on the station called Raena Fooegern, two peasants, on their way from Riga, and a journeyman baker, were attacked with cholera. As, in all probability, these men performed their journey on foot, and may consequently have been from twelve to fifteen days on their road before they were placed in quarantine, this circumstance serves as another proof of the length of time which the infection may remain concealed before it manifests itself.

In my opinion, a strict system of quarantine is the only one by means of which this capital can be preserved from the cholera;

but I am by no means satisfied that complete dependence can be placed upon the strict observance of our quarantines ; and, therefore, with respect to the spreading of the disorder now, or to its being introduced from some quarter or other, the danger is very great ; and it is with sorrow I am obliged to say, that all the measures hitherto adopted seem exceedingly insufficient to preserve us from this evil.

With respect to this object, nothing more is at present required from the Civil General Staff-Physician than the appointment of medical officers to the quarantines, and to the boundaries of observation, formerly not in any degree falling under his direction, he not even having been apprised of the original establishments of the quarantines.

I imagine that the measures taken generally by the police against contagious and epidemic diseases, can only be attended with success when conducted under the direction of persons of high rank, by medical officers already experienced in those matters. At all events, I consider it necessary that the precautionary measures adopted here should be rendered more uniform and effectual. With this view, an imperial order was forwarded to the Committee appointed for this purpose last year, to enter again upon its duties, or else to nominate a new Committee, which should occupy itself with devising all sorts of measures, not only to preserve the capital from contagion, but to stop its progress should it make its appearance.

(Signed) O. REHMAN,

General Staff-Physician.

(Witnessed) General Staff-Physician

No. 1670, 14th June, 1831.

TARASOFF.

Translated by me, from a copy in Russian,
furnished to the British Medical Commission by Dr. Rehman.

(Signed) J. R. WILKINS.

St. Petersburg, 28th June, 1831.

Dispatch from His Majesty's Minister at Berlin.

Berlin, July 26, 1831.

MY LORD,—The cholera has broken out at Thorn, notwithstanding the strict measures of precaution adopted there.

It reigns, though not with great violence, in the Russian army which has just passed the Vistula, at Nieszawa, and it is probable that its appearance at Thorn was caused by the neighbourhood of those infected troops.

I have, &c.

(Signed)

G. W. CHAD.

The Viscount Palmerston, &c., &c., &c.

Extract of a Letter from John Booker, Esq. His Majesty's Vice-Consul at Cronstadt.

July 26, 1831.

It is utterly impossible to account for the nature of this fatal complaint, as its attacks are most capricious, and the methods of cure are as various as incredible.

The small village of Tolbuhin, mentioned in my letter of the 28th May, containing a population of about 150 inhabitants, and in daily communication with this place, as it supplies the town with milk and vegetables, has escaped the visitation entirely, and not one being to this day has fallen a sacrifice to the complaint, or had an attack; therefore to them it has been neither epidemical nor infectious, though their manner of life is not in any way different from the inhabitants of this place.

The wind has turned to the westward; and though the air is not so dreadfully close and oppressive as formerly, still we have neither rain nor thunder-storms to relieve us.

Third Report from Drs. Russell and Barry.

St. Petersburg, 27th July, 1831.

SIR,—Although there can be no doubt that the disease now prevailing here is strictly identical, in all essential points, with the epidemic cholera of India; and although there are many descriptions extant of that malady, much more ably and accurately drawn up than any which we can pretend to give, yet we are induced to believe that a short account of the symptoms which we ourselves have actually witnessed and noted at the bed-side in some hundreds of cases, since our arrival, may be useful: 1st—because we are not aware that any description, by an eye-witness, of European cholera, has yet been addressed to the British government. 2dly—Because the disease, as it has shown itself in this capital, when closely compared with the Indian cholera, appears to have undergone some modifications. 3dly—Because, having now studied the disease in all its stages, our description, however imperfect, will at least assist towards establishing a standard of comparison with other local epidemics of cholera in Europe, and may perhaps enable those who have not seen this disease to recognise it with more certainty than they would otherwise be able to do.

The cholera morbus of the north of Europe, to which the Russian peasants have given the name of 'chornaia bolezn,' or *black illness*, like most other diseases, is accompanied by a set of symptoms which may be termed preliminary; by another set which strongly mark the disease in its first, cold, or collapsed stage;

and by a third set, which characterize the second stage, that of reaction, heat, and fever.

Preliminary Symptoms.—We have had but few opportunities of witnessing the presence of all these symptoms, some of which precede the complete seizure by so short an interval, that the utmost diligence is scarcely sufficient to bring the patient and the physician together, after their occurrence, before the disease is fully formed. Diarrhœa, at first feculent, with slight cramps in the legs, nausea, pain or heat about the pit of the stomach, *malaise*, give the longest warning. Indeed purging, or ordinary diarrhœa, has been frequently known to continue for one, two, or more days, unaccompanied by any other remarkable symptom, until the patient is suddenly struck blue, and nearly lifeless. Often the symptoms just mentioned are arrested by timely, judicious treatment, and the disease completely averted. When violent vertigo, sick stomach, nervous agitation, intermittent, slow, or small pulse, cramps beginning at the tips of the fingers and toes, and rapidly approaching the trunk, give the first warning, then there is scarcely an interval.

First Stage.—Vomiting or purging, or both these evacuations, of a liquid like rice-water, or whey, or barley-water, come on; the features become sharp and contracted; the eye sinks; the look is expressive of terror, wildness, and, as it were, a consciousness on the part of the sufferer, that the hand of death is upon him. The lips, the face, the neck, the hands, feet, and even the thighs, arms, and whole surface assume a leaden, blue, purple, black, or deep brown tint, according to the complexion of the individual, varying in shade with the intensity of the attack. The fingers and toes are reduced at least a third in thickness; the skin and soft parts covering them are wrinkled, shrivelled, and folded; the nails put on a bluish pearl white. The larger superficial veins are marked by flat lines of a deeper black; the pulse is either small as a thread, and scarcely vibrating, or else totally extinct. The skin is deadly cold, and often damp; the tongue *always moist*, often white and loaded, but flabby and chilled like a bit of dead flesh. The voice is gone; the respiration quick, irregular, and imperfectly performed. Inspiration appears to be effected by an immense effort of the chest, whilst the *alæ nasi* (in the most hopeless cases and towards the close), instead of expanding, collapse, and stop the ingress of the air. Expiration is quick and convulsive. The patient asks only for water, speaks in a plaintive whisper (the ‘*vox cholERICA*’), and only by a word at a time, from not being able to retain air enough in his lungs for a sentence. He tosses incessantly from side to side, and complains of intolerable weight and anguish around his heart. He struggles for breath, and often lays his hand on his stomach and chest, to

point out the seat of his agony. The integuments of the belly are sometimes raised into high irregular folds, whilst the belly itself is violently drawn in, the diaphragm upwards, and inwards towards the chest. Sometimes there are tetanic spasms of the legs, thighs, and loins; but we have not seen general tetanus, nor even trismus. There is occasionally a low suffering whine. The secretion of urine is *always* totally suspended, nor have we observed tears shed under these circumstances. Vomiting and purging, which are far from being the most important or dangerous symptoms, and which in a very great number of cases of the present epidemic have not been profuse, generally cease, or are arrested by medicine early in the attack. Frictions remove the blue colour for a time from the part rubbed, but in other parts, particularly the face, the livor becomes every moment more intense and more general. The lips and cheeks sometimes puff out and flap in expiration, with white froth between them, as in apoplexy. If blood be obtained in this state, it is black, flows by drops, is thick, and feels to the finger colder than natural. Towards the close of this scene the respiration becomes very slow; there is a quivering among the tendons of the wrist. The mind remains entire. The patient is first unable to swallow, then becomes insensible; there never is, however, any rattle in the throat, and he dies quietly, after a long convulsive sob or two.

The above is a faint description of the very worst kind of case dying in the cold stage, in from six to twenty-four hours after the setting in of the bad symptoms. We have seen many such cases just carried to the hospital from their homes or their barracks. In by far the greater number vomiting had ceased; in some, however, it was still going, and invariably of the true, serous kind. Many confessed that they had concealed a diarrhoea for a day or two. Others had been suddenly seized, generally, very early in the morning.

From the aggravated state which we have just described, but very few indeed recover, particularly if that state have been present even *for four hours* before treatment has commenced. A thread of pulse, however small, is almost always felt at the wrist, where recovery from the blue or cold stage is to be expected. Singular enough to say, hiccup, coming on in the intermediate moments between the threatening of death and the beginning of reaction, is a favourable sign, and generally announces the return of the circulation.

In less severe cases, the pulse is not wholly extinguished, though much reduced in volume; the respiration is less embarrassed; the oppression and anguish at the chest are not so overwhelming, although the vomiting, the purging, and the cramps, may have been more intense. The coldness and change of colour of the surface; the peculiar alteration of the voice; a greater or less

degree of coldness of the tongue ; the character of the liquids evacuated, have been invariably well marked in all the degrees of violence of attack which we have hitherto witnessed, in this epidemic. In no case or stage of this disease have we observed shivering, nor have we heard, after inquiry, of more than one case in which this febrile symptom took place.

Fever, or Hot Stage.—After the blue, cold period has lasted from twelve to twenty-four, seldom to forty-eight hours or upwards, the pulse and external heat begin gradually to return ; headach is complained of, with noise in the ears ; the tongue becomes more loaded, redder at the top and edges, and also dryer. High coloured urine is passed with pain, and in small quantities ; the pupil is often dilated ; soreness is felt on pressure over the liver, stomach, and belly ; bleeding by the lancet or leeches is required ; ice to the head gives great relief. In short, the patient is now labouring under a continued fever, not to be distinguished from ordinary fever. A profuse, critical perspiration may come on, from the second or third day, and leave the sufferer convalescent, but much more frequently the quickness of pulse and heat of skin continue ; the tongue becomes brown and parched ; the eyes are suffused and drowsy ; there is a dull flush, with stupor and heaviness, about the countenance, much resembling typhus ; dark sordes collect about the lips and teeth ; sometimes the patient is pale, squalid, and low, with the pulse and heat below natural ; but with the typhous stupor delirium supervenes, and death takes place from the fourth to the eighth day, or even later, in the very individual, too, whom the most assiduous attention had barely saved in the first or cold stage. To give a notion of the importance and danger of the cholera fever, a most intelligent physician, Dr. Reimer, of the Merchants' Hospital, informs us, that of twenty cases treated under his own eye, who fell victims to the disease, seven died in the cold stage, and thirteen in the consecutive fever.

This singular malady is only cognizable, *with certainty*, during its blue, or cold period. After reaction has been established, it cannot be distinguished from an ordinary continued fever, except by the shortness and fatality of its course. The greenish, or dark, and highly bilious discharges produced, in the hot stage, by calomel, are not sufficiently diagnostic ; and it is curious, that the persons employed about these typhoid cases, when they are attacked, are never seized with ordinary fever, but with the genuine, cold, blue, cholera. Nothing, therefore, is more certain, than that persons may come to the coast of England, apparently labouring under common, feverish indisposition, who really and truly are cases of cholera in the second stage.

The points of difference between the present epidemic and the cholera of India, when the two diseases are closely compared, appear to us to be the following

1st. The evacuations, both upwards and downwards, seem to have been much more profuse and ungovernable in the Indian, than in the present cholera; though the characters of the evacuations are precisely the same.

2dly. Restoration to health, from the cold stage, without passing through consecutive fever of any kind, was by far more frequent in India than here; nor did the consecutive fever there assume the typhoid type.

3dly. The proportion of deaths in the cold stage, compared with those in the hot, was far greater in India, according to Dr. Russell's experience, than here.

4thly. 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 264. 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 Abou-coff, since we wrote last. It is certain, however, that in some cholera hospitals, favourably circumstanced as to site, ventilation, and space, very few of the attendants have suffered. Of these facts we are likely to receive accurate statements, in answer to the written questions which we have submitted to the medical authorities, through the government here.

Convalescence from cholera has been rapid and perfect here, as is proved by the following fact. The Minister of the Interior had given orders that all convalescents, civil as well as military, at the General Hospital, should be detained 14 days. We inspected about 200 of these *détenus* some days back, with Sir James Wylie, and found them in excellent health, without a single morbid sequela amongst them.

Relapses are rare in this epidemic, nor have they been often attended with fatal results. Hospital servants seem to have been most liable to them. One physician had three attacks, the second severe, in which he states, that he derived great benefit from the magisterium bismuthi.

The preceding two paragraphs are in reply to the second head of the Additional Instructions, contained in your letter of the 27th June, which we have just had the honour of receiving from Riga. We shall not fail to make such inquiries relatively to the other heads of that letter, as will enable us to afford some information on the subjects to which they refer.

With regard to the progress of our opinions on the subject of the communicability of European cholera, and also with regard to

some of the facts from which these opinions are taking their bias, we beg leave to refer to Dr. Russell's private letter to Mr. Allen, herewith enclosed, and left unsealed. In a future communication we hope to be able to state these and other important facts, in a more authentic and official form.

Both the number and the fatality of new cases have been rapidly diminishing for some days past. On the 10th, 11th, 12th, 13th, O. S., the attacks were 174—140—104, (47 in 12 hours); the daily deaths 95—94—60, (35 in 12 hours); the whole number attacked up to the 13th (the day before yesterday) 7567—died 3804. In our next we shall resume the medical history of the disease, and

Have the honour to be, Sir,
Your most obedient humble servants,

WILLIAM RUSSELL, M.D.
D. BARRY, M.D.

To the Clerk of the Council in Waiting, &c. &c.

*Extract of a private Letter from Dr. Russell, dated St. Petersburg,
July 27th, 1831.*

In my first communication to the Government, after stating my entire conviction of the perfect identity of the disease now prevailing here, with the true Indian cholera, I noticed that the vomiting of fluid and retching were not so incessant as with us in India; neither were the evacuations from the bowels so copious or so frequent. Further observation of the disease has confirmed the truth of what I then remarked; and even when the vomiting and purging exist at the commencement, they much sooner cease, or are more easily checked.

But the disease appears in this country to be further modified, and to present *a new feature to me* in the nature of the fever, which, in the second stage, succeeds to the first—the state of collapse—and which appears to be fully as dangerous, if not more so, than the cold stage. Persons attacked with the cholera in India were generally convalescent in a very short time, and restored to health in a most surprising manner, without passing through any intermediate state of fever; and when the reaction was followed by a feverish state, it generally partook of the character and type of the common bilious fever of the country, and was rarely, except in some circumstances and constitutions,

attended by cerebral, abdominal, or other congestions, but yielded readily on the removal of acrid vitiated bilious accumulations in the bowels by means of purgatives, &c.

Here, however, the cases of recovery from the first—the cold or collapsed stage of the cholera—are few; and so soon almost as the reaction takes place, they fall into a state of fever, partaking very much of the typhoid character, which is indicated by a dry brown foul tongue, suffusion of the countenance and eyes, stupor, low and languid pulse, &c.; and *many*, I should even say *more*, from what we have observed, are carried off in this stage than in the first or primary attack of the disease; neither is this form of fever, so like typhus, at all modified by the treatment of the first stage of cholera; for, notwithstanding the infinite and contradictory variety of medicines that have been employed to meet the first attack of the epidemic, the secondary fever assumes almost uniformly the same type, differing only in the degree of the duration and fatality. Nor does it possess apparently the specific character of contagious typhus; for we have not observed among the attendants of the hospitals, many of whom have been taken ill, a single case in which fever has been the primary disease; but on the contrary they have been all, even when secondary fever has constituted the most numerous class of patients in the hospital when attacked, seized with the symptoms of the primary stage of spasmodic cholera; and in comparison with the other classes of society, the proportion of medical men and attendants on the sick, who have been taken ill during the present epidemic here, is infinitely greater than in India, and forms another important feature of difference.

Out of 264 medical men in St. Petersburg, twenty-five have been seized, and nine have died of cholera since the breaking out of the epidemic, and four others have died at Cronstadt, out of the small number residing there. Though we have not yet obtained official returns of the number, we are satisfied, from the statements we have personally received in the numerous hospitals we have visited, that the proportionate number of attendants, of all descriptions, on the sick, who have been taken ill with cholera, is fully greater than that of the medical men.

What I have just stated, with other startling facts we have learnt here with regard to the introduction of cholera in different parts of Russia, and its exclusion by precautionary measures, have necessarily a good deal shaken my belief as to the disease not being communicable by persons or effects. It seems tolerably well ascertained that the cholera has not broken out spontaneously in any place without communication by persons or effects coming from infected places; but it is somewhat singular and unaccountable that the disease has appeared in situations where the persons arriv-

ing did not themselves labour under the disease at the time of their arrival. I shall here quote one of the best-authenticated instances of the above, as it is also further important in showing the length of time during which the disease may remain in the human constitution without declaring itself. About the month of November last year, when the epidemic cholera was on the decline at Casan, and when the prisoners were assembling from different parts of the empire to be transported to Siberia, a party of them were despatched from Casan to Perma, which they reached in about twenty-five days. They were all healthy at the time of their setting out,—no casualties occurred on the road,—the cholera was not prevalent in any part of the country through which they passed,—and when they arrived at Perma, the principal town of the district or government of that name, the disease was unknown *there*; never having reached it. They were conveyed to a jail out of the town, by a *détour*, so that they might not pass through it at all. A few days after their arrival, the cholera broke out among them, and spread to the other prisoners in the jail, and about fifteen died in all. The only two other persons who were taken ill were two soldiers, one of whom was sentry at the prison gate, and the other had accompanied the funeral of some of the deceased to the place of interment. In consequence of the precautions taken by the governor of the town and district, the cholera never appeared beyond the prison, and the town remained free from the disease. At a consultation of forty of the most respectable physicians of this city, thirty-eight came to the conclusion, after mature deliberation of the documents laid before them, that the disease was infectious, and only two were of an opposite opinion. We are promised the protocol of this meeting, which we shall of course transmit to our government.

Public opinion here, as elsewhere, continues much divided as to the communicable or infectious nature of the disease; and it is extremely difficult to get at the truth of the facts which bear directly on the point, as they are often denied, frequently contradicted, and explained away.

But we had the following from the mouth of a highly respectable medical officer, in the presence of Dr. Rehman, the principal civil physician in the empire,—one of the ablest, clearest, and most intelligent men we have yet met with:—

‘ In a village of the government of Pensa, where this medical officer was sent in consequence of the breaking out of the cholera, to trace its origin and to afford medical aid, he learnt the following circumstances, which are attested by all the village authorities, and of which we are promised an authenticated copy, signed by himself. The son of a villager, who was coachman to a nobleman, at fifty versts distance, died of cholera; the father went to the place to collect the effects of the son, and brought home with him his

clothes, which he put on and wore a day or two after his arrival at his native village. He was shortly thereafter seized with cholera and died of it: three women, who had watched him in sickness and washed his body after death, were also seized and died of the disease: the doctor arrived in time to see the fourth case, and, finding that it spread on that side of the village, he had the common street barricaded on the side where the disease had not reached, and interdicted all communication to the two sides of the village, even for the purpose of going to church. In that side in which the disease first broke out, upwards of one hundred cases of cholera occurred,—of whom forty-five died, but the disease did not appear on the other side of the barricade.'

Further Report from Drs. Russell and Barry.

St. Petersburg, 20th September, 1831.

Origin and spread of the present epidemic.—We have availed ourselves of every opportunity, but more particularly of the interval since our last report (24th August), to collect information and investigate facts tending to illustrate the means by which cholera extends or is conveyed from place to place, from an infected to a healthy community, and subsequently propagated in the latter. As it was probable that notions on this subject, acquired in countries where cool air and open space are, at all times, so eagerly sought after, might not hold good in latitudes where every crevice is sealed, every room heated, and every individual wrapt in furs during the largest portion of the year, we resolved, from the very opening of our mission—

First, To dismiss from our minds all previously-formed opinions, whether founded on actual experience in other climates, or on reading and theory.

Secondly, Not to rest our conclusions on general historical accounts of the disease, nor on statements made by persons who had not themselves witnessed the events of which they spoke, and who might either have received these statements coloured by the views of others, or have added a shade of their own views in repeating them.

Thirdly, To observe facts for ourselves, and to confine our reasoning to the events of the epidemic, in the midst of which we actually were.

Fourthly, To pursue our investigations always together; to have as many persons as possible of the same establishment present when we asked questions; and to record nothing before it

had been fully verified by us both, as the true sense and meaning of the replies received, or of the facts observed.

Upon these principles we have hitherto proceeded, and in stating the details which we have collected, with the opinions to which these details have led, we beg that their Lordships may look upon us merely as giving honest evidence of what we have seen and investigated; but not as presuming to offer, for their Lordships' adoption, our own conclusions drawn from facts which others may view in a different light from ourselves.

We have visited and examined, indiscriminately, many of the institutions, manufactories, and other establishments of this city, where large numbers of either sex are congregated, and where various kinds of precautionary measures had been adopted, or all precaution omitted. We have been to several of the neighbouring villages, where the disease showed itself much later than in the city. We have spent six days in Cronstadt, employed in tracing the entrance of the disease into that fortress, and into the several ships of war lying in the roads at that station during the epidemic; we have watched the progress of the disease in the hospitals here; we have carefully examined the quarter of the city where it first appeared, in June last. The following are the results of our investigation upon this head.

1. *City Prison*.—From the moment that the disease was proclaimed, the strictest precautions were adopted; no person was admitted without medical examination; rooms were set apart for a cholera hospital, and persons of both sexes appointed to attend the cholera cases, should any occur. Dr. Bish, who resides within the walls of the jail, and who, it must be observed, *was* an anti-contagionist, as acknowledged by himself, showed us a plan of the prison, illustrating the introduction of the disease amongst the prisoners, led us round the whole building,* and communicated to us the following information from his journal, which had been most accurately kept. 'A woman had been sent out some weeks before to be treated for a syphilitic complaint,† in a public hospital. Her husband was also in confinement at the time, in a different part of the building, but remained. The woman was returned to jail, on the 23rd June, O. S., with a diarrhœa upon her. She saw and embraced her husband for a moment, as she passed on to be placed in the room of observation. In a few hours she was seized with true cholera, and died that night. This was the very first case. The next persons attacked in the prison were three women in the same room with the former, one of whom had rubbed the deceased. These three died all within three days after

* July 30.

† It is a rule, that this disease shall not be treated in the prison hospital.

the first. The next prisoner attacked was the husband of No. 1 ; he lived in a separate part of the jail. After this man, others in his room, all numbered on the plan, and registered in Dr. Bish's journal. In short, of twenty-seven attacked (fifteen dead), there is but one to whom communication cannot be traced. He was confined for a capital offence, and had less liberty than the others. There were about four hundred prisoners and attendants: the former are well kept and treated with great indulgence. None of the noble class, who are lodged in a separate part of the building, were attacked.

August 1.—2. Mr. Baird's Works.—On the left bank, close to the Neva, western extremity of the city on that side. This establishment is from a quarter to half a mile long, and of considerable depth. Three hundred and fifty men and their families, the serfs or property of Mr. B., live and work within the enclosure. They are fed by Mr. B. on fresh beef, *ad libitum*, good soup, and quass, fresh brewed every day. Of these were attacked twelve men, five women ; five men and two women died. First case on the 19th June, O. S., an old man of eighty ; second case on 30th, a young man of nineteen ; not the slightest connexion could be traced between them. Mr. Baird, as soon as the disease broke out, enlarged the space in which his people slept, and erected a wooden, temporary, cholera hospital. He also took measures, through the clergy, that there should be no fasts observed by his people during the epidemic. They therefore continued their usual meat diet, in which no alteration was made, except that cucumbers were not allowed. There were besides the above, about one hundred men employed in a sugar refinery on the premises, not one of whom was attacked, though exposed to great heat and unrestricted communication with the world as before the cholera: these were free men. Three hundred and fifty other free men live outside, and work within Mr. B.'s establishment, in the various manufactories carried on by him. Of these, thirteen men (eight dead) and four women (two dead) were attacked with cholera. First case, a woman, on the 23rd June. She concealed herself for twelve hours, from fear of being sent to a public hospital, and died a few hours after being discovered. Mr. Baird owns five steam-vessels, which ply to and from Cronstadt, and are estimated by Mr. Baird, Junior, to have carried at least five thousand persons during the epidemic. Two cases only occurred on board these boats—two of the captains, one about fifty, the other thirty-five years of age and of sober habits.*

August 8.—4. La Nouvelle Saratova.—Arrived at Alexandrofsky at nine o'clock, A. M., and crossed the Neva with General

* Both died within twenty four hours of their respective attacks.

Wilson*, to the German colony named as above. This village is inhabited exclusively by Germans, whose ancestors were located here in 1765. There are now about one thousand souls. The houses are placed in a single line, (on the right bank, which is here from twenty-five to thirty feet above the level of the water,) and at such distances from each other as to occupy two miles in length. There are a road and small gardens in front towards the river, extensive and highly cultivated fields in the rear; potatoes, oats, and rye the chief crops. The inhabitants are a well-fed, robust, comfortable-looking people. They drink the water of the Neva, which is very light and pure. Many families come out from St. Petersburg to pass the summer here; this year, forty-three families came, partly flying from the cholera. A servant-maid belonging to one of these families, who arrived on the 26th June, O. S., complained of being cold and slightly indisposed that very day, but attended to her ordinary occupations until the 30th, when she was suddenly attacked with vomiting and purging towards evening. During the night violent cramps came on; she had but three motions, and vomited but twice in all. Hands and feet very cold, lips blue, hands and feet blue also; she died in twenty hours from the first attack of purging. The above is the evidence of the woman of the house. The medical man who saw the sick maid about an hour before her death, stated, that she had all the symptoms of cholera. The woman of the house, the mother of the maid, and others, were about her in her illness. None of them attacked. The bed and bedding on which she lay and died were given away to a beggar-man, who has not been seen since;† the room was purified with vinegar, and left unoccupied for ten days; the woman of the house herself now sleeps in it. The above has been the only case resembling cholera in this colony during the epidemic. This village is thirteen versts from St. Petersburg, and opposite to the Russian villages of Aribachi and Saravenka, on the left bank,‡ where a considerable number of cases and a large proportion of deaths from cholera have occurred this summer. There is a ferry-boat plying between the banks of the river, which is somewhat broader at this point than the Thames at London Bridge. There is no carriage road, no traffic, along the right bank of the Neva. A guard, an invalid from the village, stationed at the river's side, received us on the path from the ferry, and fumigated us with the smoke of green juniper burnt.

August 8.—Colpina.§—Proceeded to this village, still accom-

* We are very largely indebted to General Wilson both for his personal kindness, and the important assistance he has afforded us in the prosecution of our researches.

† The bed has been traced by General Wilson. See his Letter.

‡ The thoroughfare to Moscow has been through these villages, since the placing of the Cordon at Zarcozelo and Peterhoff.

§ Twenty-seven versts from St. Petersburg to the S. W.

panied by our excellent friend General Wilson, who has been twenty-five years in the Russian service, and superintends the government works and manufactories both here and at Alexandrofsky. Colpina is on the little river Yshora, which falls into the Neva, and is navigable by heavy barks. Here extensive manufactories of iron-work and foundery for the navy, machinery for steam-boats, &c., are carried on. About 1700 persons are employed in the works; in the whole village there are from four to five thousand souls. Eighty cases of cholera (twenty-nine deaths) and forty-eight cures have occurred here up to yesterday. The first case in this village was on the 27th June, O. S.; one of a party of marine soldiers or regimented sailors, seventy-six in number, who set out from St. Petersburg for Colpina on the 21st, and arrived at the latter place on the 23rd. They had been all examined before they marched, and brought a certificate of good health. On the day of their arrival they were also examined by Dr. Bowmann, the physician of the works, from whom we have this information in presence of General Wilson, and found in good health. On the 27th, the first man was attacked as already stated; No. 2 on the morning of the 28th, an invalid, resident at Colpina, who had been the pot companion of No. 1 since his arrival; No. 3 on the 28th also, an old woman who attended or nursed the second case. For further information on the sanatory history of this village, we refer to General Wilson's letter (A), and Dr. Bowmann's report (B).

German Colony, about one verst and a half from Colpina, on the Moscow road, that is, the Moscow road used *since* the establishment of the quarantine at Peterhoff and Zarcozelo. There are two little groups of houses, both on the Yshora, which at this point is expanded and rushy, from 50 to 80 yards wide. Ever since the epidemic the thoroughfare to Moscow has been through these little villages, which are separated by about half a verst, and contain about 200 souls. Yet, though at the village of Yshora, two versts further on, situated on the former, as well as the present Moscow road, there have been several cases and deaths; and though there were so many at Colpina, there has not been a single case amongst the colonists up to this date. This we have from the authorities of the village, from General Wilson, who occasionally resides at Colpina, and from Dr. Bowmann. The houses, as at Saratova, are set far apart, all built of wood, and the fields around are in the highest state of cultivation. The authorities say that no precautions of any kind were taken; but it is remarked by Dr. Bowmann that travellers to and from Moscow never halt at the colony; Yshora on one side, and Colpina on the other, being so much better resting-places. The German colonists do not use the Russian bath

Alexandrofsky, on the left bank of the Neva, about 12 versts from St. Petersburg, from 25 to 30 feet above the level of the water. The admirable order, cleanliness, and humane, parental regulations, maintained by General Wilson, both here and at Colpina, and which we ourselves have seen in operation, cannot be passed unnoticed in attempting the sanatory history of these two places. For the details of the first appearance of cholera in this village, in the person of a flax-dealer, lately arrived from Yaroslavl, we refer to the General's letter marked A.

August 15.—Foundling Hospital—accompanied to this institution by General Soblacoff, who speaks English perfectly, and kindly introduced us to the chief physician, Dr. Duppé, residing in the house, with whom we conversed in French. This magnificent building is in the middle of the town, not far from the Nevesky Prospect-street. It contains about 3,000 souls, of whom nearly 400 are sucking infants. Amongst the whole there have occurred, during the present epidemic, 146 cases of decided cholera; 74 deaths. There were, besides, 80 incipient mild cases, of whom none died. The first case occurred on the 19th June (O. S.); a girl, 17 years of age, a *garde malade*, in one of two convalescent wards adjoining to, and communicating with each other, in which there were several convalescents from ordinary complaints at the time. She concealed her illness from the morning up to twelve o'clock, when she had an emetic. Dr. Duppé saw her about half an hour after. She was then blue, cold, and without pulse; a genuine case of cholera. No communication has been traced between her and any cholera-sick. She could not have gone out of the house, being a foundling; but being a *garde malade*, she had the privilege of going to the kitchen by a back staircase. She could also see friends from the outside, such as foundling girls who had been married out to soldiers, and others who sometimes bring their male friends to select a wife. The sick girl was placed in a room apart, with two nurses, neither of whom caught the disease; but two of four girls, *gardes malades*, who rubbed her before she was separated, were attacked the second day after. The girl herself recovered. On the 20th there were no fresh cases, but on the 21st there were several taken ill, all belonging to the room where the first was attacked, except two who belonged to the second convalescent room already mentioned. A free woman, who lived in the yard below, was also attacked and died the same day. She was nursing, and her infant, a little before her death, was taken from her bosom and given to another nurse, who suckled it, but as is always done, before this last woman was admitted into the nursing apartments, she and the child were both bathed and new dressed. This woman continues in good health up to the present time. Cases of this description frequently occurred during the epidemic in

this institution : many nurses were severely attacked, and some died. In every instance the child was handed over to another nurse, who was often obliged to give double suck. In no instance could the disease be traced as having been communicated by the child to its new nurse ; though when the transfer took place within the nursing rooms, no change whatever was made in the child's dress. In many instances the bed of the deceased nurse was occupied shortly after her removal by another woman, without any other precaution than a change of bed-clothes, yet no infection followed. On the 22d June (O. S.) there were nurses seized in a different section of the house. The first attacked had been out on the 19th ; the second belonged to the same room, but had not been out ; the third to the same section. These lived on the third floor (Russian fourth floor), each section having free internal communication, but perfectly separated from the other two sections. The three sections or floors of nurses are distinguished from each other by red, green, and blue head-dresses. The green section, that occupying the middle floor between the other two, was not attacked before the 30th June. There were about 30 persons employed in the kitchen, of whom 15 were attacked. This apartment at dinner hour, when we were there, resembled a fair, a sort of bazar, where hundreds of people were assembled from all parts of the establishment to carry off the meal to the different sections and employés. A priest, a deacon, and two acolothists, or servitors, were attached to the establishment. The priest alone could hear confessions, and attend the dying with his clerk. The priest had the cholera, and his clerk's wife died of it (the nurse first mentioned). The deacon and his clerk have continued in good health. The priest was about 40, and caught the disease in the second week of the epidemic ; the deacon about the same age. There were 70 attendants of all classes employed about the cholera hospital of the Foundling Hospital, of whom 15 were attacked ; two prescribing physicians, one attacked. Dr. Duppé was seized on the 22d. He had seen no sick before the first case of the garde malade already mentioned. Dr. D. knows of no case which can authorize the conclusion that the disease was communicated by clothes. The first kitchen attendant was attacked on the 23d. The room in which the first case, the garde malade, was attacked, is on the first floor, spacious, well ventilated, beautifully clean, and overlooks a dry pleasure garden. The whole establishment is kept in the most perfect order and neatness, nothing being omitted which can, in any way, contribute to the health and comfort of its inmates. There are, however, a considerable number of cases of purpura and scurvy amongst the foundling boys from eight to fourteen years of age. We feel ourselves much indebted to the kindness of General Soblacoff and Dr. Duppé, the latter of whom has been obliging

enough to promise us a written statement of the progress of the cholera in the Foundling institution, more in detail than the verbal information given above, which was taken down by us from his dictation.

Cronstadt, August 26.—Information received from Dr. Lange, Chief Physician at this station, written from his dictation:—“ On the 17th June (O.S.) at 11 P. M., a lighter (row-boat) from St. Petersburg, loaded with oats, which she had taken on board direct from a bark near the Nevesky Convent, off the Rojestvensky quarter, presented herself at the entrance of the Merchant's Mole. She had 11 men on board, rowers, and had been two days on her voyage. A medical man, who had been stationed at the guard-house on the bastion, forming the west side of the entrance, and was constantly on duty ever since the 1st of June, for the purpose of sanitary inspection, demanded from the pilot of the boat “ whether all his people were in good health ? ” to which the reply was, “ All except one man, who was seized with vomiting some hours ago.” The boat was made fast to a ring in the bastion ; no person was permitted to land. The Inspecting Physician went on board, had the man bled by a *feltcher* (barber-surgeon), gave him a few drops of Hoffman ; suspected the case to be one of cholera, and sent for Dr. Lange, who came immediately ; and though he had never seen the genuine disease, it struck him also, from what he had read on the subject, as the true destructive cholera. Upon this, the boat, with her people, the sick man, and the feltcher who had bled him, were sent to the very westernmost point of the island,* where a small hospital had been prepared, to meet an emergency of this kind, ever since May. The men in health were placed in observation in a separate, detached house, the whole perfectly isolated. The poor man died in 20 hours, as did three others who were sent to this hospital from Cronstadt, on the 20th and 21st. The other 10, six attendants at the hospital, the medical man in charge, and the feltcher, continued in close quarantine for five or six days, that is, until the town was generally infected, yet not one of them was taken ill. The boat, with her cargo, was placed in the little basin of Cronslat, an insulated battery, about a quarter of a mile to the south of the mole. Second case :—At three o'clock on the morning of the 18th, a Russian Cronstadt merchant, named Chavasoff, was seized with cholera ; he had arrived from St. Petersburg, on the evening of the 15th, by the steam-boat, where he had just bought some timber, at the barks near the Nevesky. Since his arrival, he had worked in his garden, is said to have eaten and drank cold things, but he went to bed in health. On the evening of the 17th, Dr. Lange was called immediately, and found him affected exactly in the

* Three or four versts from the fortress.

same manner as the lighterman. He was about 50 years of age, and had been generally healthy. He died in 18 hours. His house is in the centre of the town, more than a quarter of a mile from the mole-head: not a trace of communication between him and the first case. The house was closed, put in quarantine, and continued strictly guarded for four days. The surviving inmates were nine in number, four of whom had assisted the dying man; not one of them was attacked.* The dead body was removed on a truck to the detached hospital mentioned above, and examined most minutely by Dr. Lange at the same time with that of the lighterman. The liver, in both, looked as if it had been boiled. The gall-bladders enormously distended; the urinary contracted to the size of walnuts, and empty. A viscid reddish mucus lined the stomach, and hollow intestines—not a particle of fæces. Third case:—On the 18th and 19th there were no new cases. At two o'clock, A. M., on the 20th, a custom-house military guard, or *dasmothernick*, was attacked.† He had been on duty on the bastion, where the boat had come with the sick man on the 17th, and where many other boats and lighters were lying which had arrived on preceding days from St. Petersburg. He died in six hours. Fourth case:—Another *dasmothernick*, who had been on duty the day before on the same bastion, and had assisted to carry the third case to the hospital. This man died in 10 hours. Fifth case, same day (20th):—This man came from St. Petersburg, with 13 others, in a hemp-lighter. The men said that they had come from the station of the barks near the Nevesky. For some days after this, almost all the cholera sick were from the bastion and its immediate neighbourhood, where the first *dasmothernick* was attacked. Amongst others, an officer who was on guard there. Many cholera cases were also received into hospital, who had either recently arrived in health, or had been attacked on the passage from St. Petersburg. The disease then spread into the town, and amongst the shipping in the mole, (the first ship attacked was a Dane, in ballast), amongst the soldiers and sailors in barracks. The latter suffered much: when not afloat, they are very poorly fed. A regiment of two battalions arrived from St. Petersburg on the 19th, and remained four days without sick. One of these battalions, which had been badly lodged, and rather sickly in the winter, suffered much more from cholera than the other, which had been well taken care of. A soldier, 10 months in hospital, with occasional hæmoptysis, and who had not quitted his bed for several days before the cholera broke out, was seized with that disease on the 23rd, and died in

* The above information is most fully confirmed by the documents received from Mr. Vice-Consul Booker, marked (C 1, 2, 3, 4, 5.) See also a memorandum in French, by Admiral Count Heyden (E.)

† These men are chiefly from the invalids,

12 hours. This man lay on the upper, or third floor, to leeward of the cholera hospital, from which he was separated by a detached range of barracks.*

‘*School of Cadets at Cronstadt.*—There were 150 pupils on the officers’ side, which is kept perfectly distinct from the school, for petty officers and sailors. The gates were shut on the 19th June, and as strict a quarantine as possible maintained to the 6th August (O. S.) No case amongst the pupils, who are from nine to twenty years of age. The general health of this establishment was rather better than usual during the epidemic. Great praise is due to the officers of this establishment, and particularly to Dr. Arden, for the very prudent sanitary and dietetic regulations recommended by him.† The discipline and cleanliness of this school are perfect. There were one or two cases amongst the servants, some of whom were unavoidably obliged to go out of bounds. The situation is close to the inner mole for merchant ships, called the Italian Pond, north of the *fatal bastion* ‡.

‘*Maison de Santé, at Cronstadt,* where sick British sailors are taken in and treated by any medical man whom the Captain chooses to employ. This is an old, inconvenient wooden house, with low, ill-ventilated rooms, and close back premises inhabited by some poor families. About forty cholera patients are said to have been treated here. The following persons were attacked on these premises:—1st, A sailor who had been admitted with fractured head and ribs before the epidemic began. 2. The owner of the house, named Christian, who acts as steward and chief attendant. 3. A child, twelve years old, in the back premises. 4. The waterman. 5. A woman nurse. Of these four died and one recovered. We have not been able to obtain an accurate return of British sailors admitted for cholera into this house; but Dr. Southee’s practice,§ who treated most or all of them, appears to have been attended with very favourable results.

‘*August 29.*—With the permission of the Governor-General, to whom we brought a letter from General Benkindorf, one of the confidential aids-de-camp of his Imperial Majesty, we proceeded to visit the ships of war then lying in the roads, which had lain there, or had arrived from sea, during the epidemic. We were conveyed in His Excellency’s own barge, and accompanied by one of his aids-de-camp who spoke English, and by Dr. Lange.

The *Bellona* frigate, forty-four guns, 320 men, had sixteen sick of cholera; first case on 30th June, O. S.:—this man had not been

* There are six parallel ranges of barracks, two of which were occupied as hospitals; the second only during the cholera.

† See Dr. Arden’s letter (D.) with plan and explanation (*a b.*)

‡ We were unable to procure an authentic history of the sailors’ side of this establishment.

§ To be noticed under the head of *Treatment*.

on shore. The first communication which the ship had with the shore was on the morning of that day, when the Captain, some of the officers, and a boat's-crew went to Cronstadt. In the evening the first man was seized, and in quick succession fifteen others, not one of whom had been on shore. No officer was attacked.

'The Navarino corvette, Captain Nachinoff, 200 men. She had been placed two miles to the eastward of Cronstadt, during the epidemic, to question and examine all craft from St. Petersburg. She had eleven severe cases of cholera, of whom eight died. Her first and second cases occurred on the 26th June, O. S. These two men belonged to the boat that examined the vessels coming from St. Petersburg, on board many of which they had been. The next men who fell ill were of those who carried the two first cases to the hospital in town. Forty slight cases were retained and cured on board. All vessels (lying within the mole) in which the disease showed itself, were immediately hauled out and placed in quarantine in the roads, under the orders of the Navarino, which last was in constant communication with the shore. No officer caught the disease. The last case on the 4th July. Informed by Captain Nachinoff, that the frigates Anna and Olga arrived from Dantzic about the end of June, were ordered ten days' quarantine, during which time they had no sick; but that immediately upon being admitted to pratique, they had some cases of cholera.

'The Venus frigate, 275 men, was stationed four versts to the south-west of the fortress, during the epidemic, had four sick of cholera; first case on 26th June.* This man had been to town the day before; remained on board but six hours. Another case same day. There was a great deal of diarrhœa, with cramps, among the men. No officer attacked. Last case 4th July. This man had assisted to convey a sick comrade to hospital, and was seized the same day. This ship had been here twenty-three days before the epidemic. In consequence of her having sick, she had two short quarantines of five and three days, during which time the Captain states that his ship was more healthy than when in free communication with the shore and other ships.

'The Olga frigate, 280 men, arrived here from Dantzic on 7th July, and had five days' quarantine, after which free communication with the shore for captain and officers. First case 18th July; second, same day: three cases of cholera in all; none dead. The three attacked had not been out of the ship. Last case, 19th July; no officer. The sick were separated from the healthy whilst they remained on board, and were sent to hospital as quickly as possible.

* A Drunkard.

' Dr. Lange treated, *himself*, all the cholera-sick of both navy and army, amounting to 1815 *, from the very beginning, and did not observe even one relapse.

' The Phoenix brig, Captain Baron Loeventhall, had been stationed for two months midway between Cronstadt and Peterhoff, about six versts, or four miles, from either, to the S. E. of the former, for the purpose of telegraphic communication with his Majesty. She continued in this situation to the 15th of July, in perfect health, though she sent her boat twice a week to the fortress for provisions. On the 15th she took up her station one verst to the S. W. of the town, and had two men attacked with cholera on the 17th. Neither of these men had been on shore. The surgeon only had gone to Dr. Lange's hospital on the 16th, for the purpose of observing the cholera, which he had not seen before. The doctor said to him, "you had better not remain here long, else you may carry the disease to your ship, and I shall be responsible." Seven cases in all, and one death. Not a man of the seven had been out of the ship, and not one of those who had been on shore was attacked then or since. As soon as a man was observed to be seized, he was sent on shore forthwith.

' Our reception on board all these vessels was of the most friendly and gratifying kind to us personally, and as British subjects. Our questions were answered with candour and good-nature, always, when the question would admit, by reference to the records of the ship. In all we found that well-directed attention had been paid to everything tending to promote the health of the people. The crews are most liberally provisioned, and when afloat are able to save largely for the period of their residence in barracks on shore.'

To be continued in our next.

We hope that their Lordships will not look upon details, such as we are now giving, as tiresome or unnecessary. They are the materials upon which our opinions, as to the propagation of cholera, are founded. They are, in fact, our notes taken on the spot, and copied without selection or omission, in the very order in which they were indiscriminately collected.

The disease is all but extinct here, though still a genuine and fatal case occurs at intervals.

We have the honour to be, Sir,

Your most obedient and most humble servants,

WILLIAM RUSSELL, M.D.

D. BARRY, M.D.

To the Clerk of the Council in Waiting, &c., &c., &c.

* See letter and return by Dr. Lange, marked F. The documents above referred to being too voluminous to be sent by post, are kept back for the present, with the exception of General Wilson's letter.

General Wilson's Letter.

Alexandrossan, 29th of August, O. S. 1831.

DEAR SIR,—With this you will receive Dr. Bowmann's statement concerning the number of people who were affected with cholera in Colpina, his mode of treatment, &c. The first case was noticed on the 27th of June, only two days before my arrival from the quarantine at Bronnitsa. I had made arrangements last year, when we expected a visitation of this disease, for a temporary hospital, committee, &c. and wrote from Bronnitsa, repeating the order for carrying the measures formerly pointed out, so that an exact register was kept from the beginning, and, for the first two or three days, all those who were attacked with cholera were taken to the hospital. On arriving, I allowed the women, and all such as were comfortably lodged, to be treated at their own houses, principally by the assistant surgeon. Measures were taken to enforce the observance of cleanliness in the workshops, barracks, and houses in general. Chlorate of lime, vinegar, &c. were liberally supplied. These last were so far of some use as they inspired more confidence in those who were afraid of infection, and could do little harm.

The first patient was a non-commissioned officer of a ship's crew, who had arrived from Petersburg a few days before; and he had been free from any complaint at that time, as he had undergone the usual surgical examination before leaving town. No. 2* was an invalided workman who had been working at the mouth of the river Tosna, landing firewood, which is floated down to that place from a considerable distance, and there fished out of the water by labourers of the lowest class, who are much exposed to wet, and generally drink hard. This man, No. 2, was noted for his bad conduct, and had been ill for at least a day before he was brought to the hospital. No. 1 had been in company with him, and had been drunk the day previous to his being taken ill. The woman, No. 3, had nursed No. 2 while at home; so that there appears a strong case of communication of the disease, which cannot be traced further. From a plan which I had made out, marking the houses in which disease occurred, it appears that some rows remained free of cholera, but there is a sprinkling in most of the streets. None of the officers nor any of the foreigners employed at Colpina were attacked with cholera, except Dr. Bowmann, slightly, and three others who had some symptoms, and were treated for them. None of these are in the lists. The hospital is empty since the 7th of this month, and no cases of disease have since come to my knowledge.

* The patient, No. 2, had left Tosna with many other labourers, who dispersed when the disease broke out at that place.

At Alexandrofsk, which contains nearly 4,500 inhabitants, besides those in the village and country houses near it, the first appearance of the disease was on the 23d of June, when a flax dealer, who had arrived from Yaroslav on the 8th of June, and continued to enjoy good health till the above date (23d), was violently seized with cholera, was sent to the military hospital in town, and died next day. He had drunk two bottles of Kisly Shtshy in the morning early. Soon after, he ate a mess of crumbs of rye bread, with honey, and bathed in the river. A free labourer was the next victim, who also died at the hospital in town. A house appointed to be an hospital for cholera, containing 100 beds, was opened next day, and, with the exception of the invalids who were at first sent to the military hospitals in town and afterwards to Kurakino, all the workmen, women, and children, who are employed at the place, or live in its neighbourhood, were received at the above hospital; but most part of them were brought to the house when in an advanced stage of the disease. Of 18 received 13 died, and 5 recovered. The invalids were at first sent to the military hospitals in town, and afterwards to that at Kurakino, to which last also two peasants belonging to the village of Lesnoy were sent. Besides those sent to the hospital, several were treated in their houses by our medical officers; and learning that one of our stocking weavers had been successful in curing one of the workmen's wives by giving warm milk till the vomiting abated, and then a table spoonful of olive oil, rubbing the extremities, &c. but was afraid to continue without permission—as the number of sick was considerable, and the medical officers were unable to attend all, I permitted him and a Mr. David Bell, who had got some direction from a medical man in town, and had himself been benefited by using it, to render such assistance as they could to all who chose to apply to them. Pruhén, the stocking weaver, had three patients who all recovered; one a decided case of cholera. Mr. Bell had above 100 from the 1st of July up to this date, of whom he lost five. Some of these cases were slight; but many were very serious—only, being taken early, were relieved, much attention being paid to them by their village doctor. Very warm water as an emetic,—castor oil, with 20 to 40 drops of laudanum,—and afterwards a table spoonful, once an hour, of a mixture composed of equal parts of castor oil, honey, and camphorated mixture, with some drops of ether, were his only internal medicines. Friction of the joints and extremities; blisters on the pit of the stomach, and foot bath; sometimes taking the patient to the Boiler-house, where the temperature is above 90° Fahrenheit, were the principal means employed by him, giving light nourishing food as soon as the attack yielded to his exertions. Out of above 800 foundlings of both sexes, from the age of 13 up to 25, employed at the manufactory, none have yet had any

symptoms of the disease. They are mixed among the other workmen, some of whom were taken ill daily, and several died; but all the foundlings escaped. The foundlings, as I have stated, were mixed among the other workmen when employed in the various workshops during the common hours of work, but none were permitted to leave the enclosure of the establishment from the time that the disease was first noticed till last Sunday. They are never allowed to go out excepting on holidays, and that only for a few hours after dinner; but the inner court being of considerable extent and the play-rooms spacious, they are not deprived of means of exercise in the open air in good weather, and under cover when the weather is bad. The girls have a large garden. Their food is plain but wholesome, and the allowance ample; the bed-rooms and workshops are well ventilated, and as clean as the work carried on will admit. The Russian vapour bath is in use once a-week. The floors of the workshops were washed with lime-water once a-week; aspersions with vinegar and the fumes of chlorine were not spared;—whether of much use or not I will not pretend to determine. I still hear of no cases of cholera in the colonist villages. I traced the bedding and clothes of the woman who died at Saratofka to a peasant in Ribatchy, the village opposite. He had given them to his daughter, a woman of loose character, who made no scruple in using them. She experienced no bad effect from this, and is now well. A small proportion of those who died of cholera were addicted to drinking to excess; and, from all I had heard and read on the subject, I was led to expect that this visitation would have made a clean sweep of all the drunkards.

I hear this evening that cholera has broken out at the brick-fields on the right bank of the river, opposite to Alexandrossny, about which I will procure correct information to-morrow. If this is true Saratoffka will run great risk.

I enclose a note of the number of people who were affected with cholera at Alexandrossan and its dependencies. Those who died under Mr. Bell's care are included, but not the number treated by him. I have a list of above 100 whom he attended or supplied with medicine, but they were not entered in the official reports, and it will require some time to ascertain their description, age, &c. which I will wait for no longer.

The Colpina Report may be depended upon as being correct. It being a military establishment, and having appointed a commission or committee, the daily reports were regularly checked, and the result cannot deviate from the truth. At Alexandrossan the description of people is so various, and divided among so many departments, which do not all depend from one overseer, that it is more difficult to procure a correct abstract.

You must be out of all patience by this time at the tardiness on

my part in communicating the information I promised so long ago ; but I am certain that if you knew how much and how variously my time is occupied you would excuse me.

May I beg the favour of you to present my respects to Dr. Russell. I would be extremely happy if you could still find time to come out to Alexandrossan, to see the general arrangement of the place, in what relates to the lodging, feeding, and clothing of the foundlings, workmen, &c. Though I suppose you are now tired of lion hunting in Petersburg and its environs.

With best wishes I remain,
Dear Sir, your obedient servant,

T. WILSON.

To Dr. Barry.

Extract of a Letter from Dr. Barry.

St. Petersburg, Oct. 8, 1831.

THE cordons around Zarcozelo and Peterhoff were removed last week. We immediately visited these places, and saw, for the first time, Sir William Crichton and Sir James Leighton. Both these gentlemen separately and positively asserted, repeated the assertions, and permitted us to note it, that no case had occurred within the sacred precincts of either cordon since their establishment, though the circle of demarcation was completely surrounded with the disease, and though the enclosure around Zarcozelo contained from 8000 to 10,000 souls.

Letter from His Majesty's Minister at Berlin.

Berlin, 29th August, 1831.

MY LORD,—A case supposed to be Asiatic cholera has occurred this morning at Charlottenburg. The doctors are gone thither in order to make their report on the subject.

The great unhealthiness of Potsdam, where a fever reigns at present, had induced the king to relinquish his intention of fixing himself in that neighbourhood, and his Majesty had decided upon the palace of Charlottenburg as the place of his residence, and preparations were making there accordingly.

I know not whether this event will change that determination.

I have, &c.

(Signed)

G. W. CHAD.

The Viscount Palmerston.

Letter from his Majesty's Minister at Berlin.

Berlin, 29th August, 1831, 4 P. M.

MY DEAR SIR,—Since the government express went off, the question as to the cholera has been decided

The man is dead, and the doctors have declared it to be a case

of Asiatic cholera. The king has in consequence determined to leave Charlottenburg this evening (as I learn), in order to fix himself in the Great Palace here. When I had written so far, I was interrupted by my doctor who has been dissecting the body, and he says that there is no doubt of its being a case of Oriental cholera. The deceased was a boatman who came up in his barge from Oranienburg yesterday; he died within an hour after the doctor was called in to him. This letter will still be in time for the common post, and will probably reach London on the same day as my communications of this morning by the government express.

I am, &c.

(Signed)

G. W. CHAD.

John Backhouse, Esq.

Extract of a Letter from Berlin.

Berlin, Sept. 8, 1831.

The official cholera report of this morning is as follows:—

From August 30 to Sept. 8, at 8 A.M.—Persons attacked, 102; dead, 58; in treatment, 44.

Dr. —, a physician, who denied the contagious nature of the cholera, and who, in order to establish his opinion, had made some very disgusting experiments upon his own person, caught the malady, and died of it yesterday, after a few hours' illness.

Although the number of persons cured is so small, the disease has not extended itself rapidly. This favourable circumstance is ascribed by many doctors to the sudden change of weather which took place here on the day on which the cholera first appeared, when fine sunshine and cool autumnal breezes succeeded to the hot, close, and wet weather which had continued, without intermission, for many weeks preceding that day.

Extract of a Letter from J. Chatfield, Esq., the British Consul at Memel to the Right Hon. Viscount Palmerston, &c. &c.

Memel, Sept. 20, 1831.

THE ravages of the disease here have been appalling. During the first twenty-three days of its appearance it carried off twenty-six in each 1000 of the population, according to the imperfect returns procured at the magistracy. Memel contains 17,000 inhabitants, including the military: 832 cases, 490 deaths—being a proportion of 49 cases and 26 deaths in every 1000 inhabitants. It is generally known that the number of cases reported falls short of the truth by many hundreds: the above, however, is sufficient to convey a notion of the great virulence with which the disease has prevailed here.

Copy of a Report of Dr. Becker, of Berlin, to Mr. Chad, his Majesty's Minister in that Capital.

Oct. 12, 1831.

THE comparatively small number of persons attacked with cholera in the city of Berlin, during the first month of the prevalence of this disease, seems to be owing chiefly to the following causes:—

1. The manner in which Berlin is *built*, compared with other populous cities. It has few crowded and narrow streets, and a great proportion of the lowest classes of the population inhabit the outskirts of the town, where the streets are large and distant from one another.

2. The attention which has before and since the appearance of the disease been directed to the necessity of *avoiding cold and intemperance*.—The advice given on this subject by the civic authorities, as well as by the medical men, which, as everybody can read here, must have reached all classes of the population, has been practically assisted by food and clothing distributed among the poorest inhabitants. The almost complete immunity of the garrison of Berlin from cholera is chiefly to be ascribed to the pains taken to give the soldiers additional warm clothing, and to force upon them a healthy diet.

3. The measures taken to prevent the spreading of the contagion:—The method adopted is, when a case of cholera occurs in a family, to put those who have had intercourse with the patient, as well as the patient himself, under a sort of quarantine: this lasts for five days after the patient has died, recovered, or been removed to an hospital. It is left to the choice of the friends whether they will pass this time in their habitation, or go to houses appropriated to the purpose of receiving them (*contumaz*, *anstalten*). During the time the rooms in which the cholera has prevailed are cleaned, and '*disinfected*' with chlorine*.

All these measures are directed by the local committees, of which there are 61 in the city and suburbs, consisting of respectable inhabitants, medical men, and a police-officer, and having in their service men who devote themselves to nursing the sick, and preventing intercourse with other persons. These servants of the committee are generally lodged in particular houses, where they are always to be found. It cannot be said, however, that these regulations are, in all instances, rigidly adhered to; they are often neglected, owing to the prejudices of the patients and their families, who conceal the disease, the remissness or connivance of the medical men, who do not wish to cause inconvenience to themselves and their patients; and the inactivity of some of the committee.

* Of the superior efficacy of this substance, however, there is no evidence.

Experience has shown that the spreading of the cholera has been most efficaciously prevented when the patients have been *immediately removed to an hospital*, and where those who had lived in the same room with them also left the infected house, and returned to it only after it was cleaned and aired. This measure having been adopted wherever circumstances admitted of it, may, in fact, be regarded as the chief cause of the very moderate extent to which the cholera has till now prevailed.

In reply to the other queries put, the following answers may be given:—

1st. What description of persons has most suffered from the disease at Berlin?

The great majority of persons attacked with cholera in Berlin consists of those who, on the one hand, are exposed to the usual causes of disease, viz. cold, fatigue, and particularly intemperance in food and drink, or are labouring under previous disease, particularly diarrhœa;—and, on the other hand, are, by their business, or by chance, brought into intercourse, direct or indirect, with those already attacked by the disease, and *with their dead bodies*. Of course the greatest number of patients occur in the lower orders, who form the bulk of the population; but there have not been few instances among persons in easy circumstances; in them also, previous disease, intemperance, fatigue, or anxiety of mind, have generally, although not uniformly, preceded the disease.

2ndly. Whether the disease was confined, for any length of time after its appearance, to one street or one district of the city?

The first cases of cholera in Berlin occurred among the skippers on the boats lying *on the river Spree*, which flows through the town, and in *houses in the immediate neighbourhood of the river*. The disease has prevailed to a considerable extent in all those streets which lie along the navigated branch of the river, and whose inhabitants at the same time live in frequent intercourse with the skippers and fishermen. On the fourth and fifth days cases appeared in other parts of the city, and, in many instances, they were those of individuals who were known to have had intercourse with cholera patients, or at least with the boats lying on the river, and with the streets first infected. In the part of the city chiefly inhabited by people in easy circumstances (Friedrichstadt) such cases generally remained solitary, and the disease did not spread in the streets where it had thus appeared; in those districts, on the other hand, which are peopled by the labouring classes (in the centre of the town, and in the eastern suburbs), the disease once having occupied one house of a street, was observed to attack other houses successively. Three weeks after its commencement, the cholera had spread in all directions, without any regard to situation, high or low, damp or dry, or to exposure northern or southern, eastern or western, but occurring in solitary instances

only in the Friedrichstadt, whilst it found numerous victims in four or five other quarters remote from one another, and inhabited by the poor.

3dly.—Whether, when the disease attacked one member of a family, the other individuals in the same family suffered from it?

This is the case so frequently, that it may almost be considered as the rule, and the contrary as the exception, unless the patient be removed from his family. It is not possible to give any numeric returns of the recurrence of the disease in *families*, but the following is a statement of its reappearance in the same *houses* where it had shown itself:—

From Aug. 29th to Sept. 26th, there have been reported cases of cholera in Berlin, 770.

During that period, a second case has happened in the same house where one case had been reported:

After one day	65 times.
two days	34 „
three days	23 „
four days	16 „
five days	21 „
six days	7 „
seven days	3 „
eight days	2 „
nine	0 „

In order to illustrate this point, it may not be superfluous to mention some instances of the recurrence of cholera in the same families and buildings:—

1. A physician (Dr. Calow), who had attended cholera patients, being at the time in bad health, and labouring under diarrhœa, died of cholera; on the day following, his landlord (Mr. Steibelt) died; a day afterwards, two children of the landlord died, and the servant-maid was taken ill of cholera, and recovered. The landlord's wife had been removed to quarantine. There have been no more cases of cholera in this street and its neighbourhood.

2. A family, living on the river side, consisting of husband and wife, four children, and a servant-maid, were *all successively* attacked with cholera; only the husband and one child survived.

3. In a house (Alte Jakobstrasse, 66), the following cases of illness have occurred:—

1. Sept. 7th. W. M., 27 years of age, seized by cholera; recovered.
2. — 8th. Miss M., 32 years of age, with vomiting and purging; recovered after twelve hours.
3. — 11th. A boy of two years and eight months, son to a cutler, cholera; died on the 12th, after eleven hours' illness.
4. — eod. A journeyman of the cutler, vomiting and purging; recovered.
5. — 13th. The child of a tailor, aged two years and nine months; died of cholera after nine hours' illness.

6. Sept. 15th. An apprentice of the cutler, vomiting and purging ; recovered.
7. — eod. The man who had been in attendance on No. 5, took the cholera, and was sent to the hospital.
8. — 16th. Another apprentice of the cutler, vomiting and purging ; recovered.

4. The *workhouse* (*arbeitshaus*), a large building occupied by a numerous poor population, had a cholera patient, on Sept. 3d, *five* days after the appearance of the disease in the city : the following cases successively occurred in this building :—

Sept. 3d	.	.	.	2 cases.
5th	.	.	.	2 „
11th	.	.	.	1 „
15th	.	.	.	1 „
16th	.	.	.	5 „
17th	.	.	.	7 „
18th	.	.	.	6 „
19th	.	.	.	9 „
20th	.	.	.	4 „
21st	.	.	.	6 „
22d	.	.	.	2 „
23d	.	.	.	6 „
24th	.	.	.	3 „
25th	.	.	.	2 „
26th	.	.	.	4 „
				60

Immediately beside the workhouse there is another building (*Familienhaus*), inhabited by a great number of very poor families, who there find employment of various kinds ; here the disease did not show itself till September 8th, *five days after the first case in the workhouse* : from that day to the 26th of September, twenty-seven cases occurred in this house.

It may finally be stated, that the manner in which the cholera has appeared and spread in Berlin, perfectly warrants the conclusion, that this disease is always produced by a peculiar human effluvium, which in its mode of generation and diffusion shows some analogy with that of the *common typhus fever of Great Britain*, but extends its deleterious effects to a limited number of persons only, who are rendered eminently susceptible by cold, intemperance, fatigue, fear and anxiety, diarrhœa, and other previous diseases.

(Signed) F. W. BECKER, M.D.

Berlin, Oct. 5, 1831.

From the Appendix to the 'Post and Inrikes Gazette.' Stockholm, 26th September, 1831.

Brief Instructions respecting the Manner of guarding against the Cholera, and of treating it until Medical Aid can be procured: communicated by the Swedish Society of Physicians.

THE cholera morbus is of such a nature that it is easier to prevent than to cure it, as it only attacks those who are predisposed to it; and such disposition may be avoided by attending to the following rules:—

To be moderate in food and drink, to avoid indigestible or spoiled food, unripe or spoiled fruit, raw carrots, turnips, &c.; to watch over the state of the skin, so as not to stop perspiration; to choose such clothing as is adapted to the season and the weather; to keep the feet warm and dry, and either to wear flannel near the skin, or at least a flannel bandage round the abdomen; to study the utmost cleanliness; to keep the room well aired, either by means of opening the windows or by lighting a fire, and to avoid whatever can corrupt the atmosphere; to take daily exercise in the open air; if you come in contact with a cholera patient, to bathe your face and hands, and rinse your mouth, with vinegar; to call in medical assistance the moment you begin to feel yourself indisposed; and, above all, to endeavour to keep your mind cheerful and not to fear the distemper. Experience has shown that, by observing the above rules, a person may without risk discharge the sacred duty of assisting, in case of illness, his fellow-creature; while they who live in constant apprehension of being attacked by the disease more easily fall a prey to it.

If, notwithstanding these precautions, cholera actually break out, a physician ought instantly to be sent for, and if the disease cannot be arrested in its progress, care should immediately be taken of the patient's admission into some hospital, and until that can be effected he should be treated as follows, because any the least delay cannot be compensated by art:—

It is easiest to effect a cure when only the first symptoms have made their appearance. These are—

Uncomfortable sensations throughout the whole frame, heaviness in the head, vertigo, weariness, uneasiness, want of sleep, failure of appetite, pain in the pit of the stomach, a rumbling noise and sense of tightness in the abdomen, nausea, and looseness of body. The moment that these symptoms show themselves, the patient must be put into a room by himself, take a warm bath for his feet up to the knees; be undressed and laid into a warm bed, and, if possible, into such a bed, in which, should there be occasion, he can be conveyed into a hospital, and be well covered with blankets, whereupon he ought to drink plentifully an infusion of elder-flowers, or common souchong tea, or, if neither of these can be had, toast and water as hot as it can be

borne, till a general perspiration is breaking out. At the same time the abdomen must be rubbed with camphorated brandy, which operation ought to be performed by several persons at once with warm flannel, lest the patient catch cold, and ought to be continued till the perspiration appears, which must be kept up with hot tea. Should no sweat come out, recourse must be had to a bath, to be prepared as hereinafter prescribed. A cup of strong coffee made of one ounce, without cream, and taken on the first symptom of the distemper, has sometimes been of great use. The disease thereby is most frequently arrested in its beginning; but if the sickness proceeds notwithstanding, or if the cholera should show itself at once, without any of the above symptoms, then it must be treated in another way.

When the cholera breaks out, it may be known by violent vomiting and diarrhoea, which is colourless—by violent thirst—burning pain in the pit of the stomach—with uneasiness and anguish—cramp in legs and feet, which ultimately ascends to the hands and arms—feeble, rapid, and almost imperceptible pulse—hands and feet as cold as ice, which coldness at last extends over the rest of the body—cessation of urine—sunk features, &c. This state requires the most speedy attendance, and the following method of cure must be resorted to instantly:—

1. If the patient be a full person and complain of great head-ach, vertigo, and pain in the pit of the stomach, he must be let blood, and three or four pints taken from him.

2. Simultaneously, or, if venesection be not required, the following remedies are employed internally:—Put four table spoonful of salt into a quart of boiling water, and give half of it to the patient, who generally will vomit after it violently. In an hour's time this solution of culinary salt is given him cold, a spoonful every half hour, till regular evacuation ensues. If this should not take place in the space of two hours, then exhibit the camphor-drops, No. 3, one tea-spoonful every quarter of an hour in warm tea.

3. In the meantime continue rubbing with the camphorated brandy, No. 1. On the feet, legs, arms, and the sides ought to be placed jugs or bottles, filled with hot water, or bags with hot sand or ashes, while the patient is plentifully to drink tea.

4. Should this, however, not succeed in producing the flow of urine, then place the patient on a stool, wrap him up in blankets, and put under the stool three or four cups, with two spoonful of brandy in each, which are lighted successively, so that the heat may increase gradually. If the patient be unable to sit, place him well wrapped in blankets in a bed, the bottom of which consists of girths or of planks, which latter must be able to be taken out on the sides, and which are wrapped about with blankets; under these the cups with burning brandy are placed.

5. This will produce copious perspiration all over the body, and

then the patient is to be put into a warm bed, well covered, and surrounded with warm jugs or bags of ashes, continuing all the while to drink tea.

6. Immediately after put on the pit of the stomach, particularly if the vomiting be violent, a warm bag of mustard, filled with four table spoonsful of mustard-seed, and one or two table spoonsful of rye meal, which is made into a dough with water, and spread to the thickness of a thumb, on a piece of linen of the size of a plate. If the pains of the stomach and the vomiting be vehement, then place the mustard bag there in the very beginning.

7. As the perspiration must be kept up at least for twelve hours, the clothes penetrated by it must be exchanged for others which are dry, care being taken lest the patient should catch cold.

Extract of a Letter from Alexandria.

July 21, 1831.

I have to perform the painful duty of acquainting you, that the cholera morbus broke out in the *Hejaz* in the middle of April last, and that it continued to rage in that province up to the 24th May,—the date of the last official report received from Mecca, where it had, up to that time, carried off, in the space of twenty to thirty days, 5500, including such pilgrims as died with the disease within the town, but exclusive of an immense number who perished in the neighbouring villages, and particularly on *Mount Arafat*, on the very day of their 'feast of the sacrifice,' called by them the *Corbam Baïram*, the 22d May.

The number of pilgrims is stated to have been 50,000, of which 20,000 are said to have fallen victims to the cholera morbus.

The remainder set out on the day following the Baïram, on return to their respective homes, in two columns, the principal of which is composed of the Persian, Mesopotamian, Armenian, and Syrian pilgrims, who cross a perfect desert, and reach Damascus in two months. The other, composed of Africans, those of Constantinople, Asia-Minor, Caramania, and Egypt, to the number of 4000, arrived on the 13th instant at Cairo, having therefore performed the journey in fifty-one days.

Cordons sanitaires had been previously established at Suez and Cosseir, and other places; but little can be expected from these measures for stopping the progress of a distemper which has hitherto baffled all human opposition, and consequently the arrival of the pilgrims in the suburbs of Cairo has caused the greatest consternation; but hitherto no well authenticated case of cholera has, to my knowledge, occurred in that city, or any town or village in Egypt.

If this dreadful disease be similar in its progress to its march

from Bussora through Mesopotamia to Aleppo, and along the coast of Syria to Damascus, in the years 1820, 21, 22, 23, and 24, it will not travel so fast as the ordinary rate of the caravan; for while it consumed five years in reaching Damascus, the same space might have been traversed by a caravan in as many months.

It is impossible to ascertain whence the cholera morbus was imported into the *Hejaz*, but it may be supposed by analogy to have been brought to Jeddah from Bombay, as it was carried to Bussora from that place in 1819-20, there being a similar commercial intercourse with India between the port in the Red Sea and that in the Persian Gulf.

First, that the epidemic disorder which has carried off so many of the pilgrims to Mecca this year is undoubtedly the cholera morbus; and, secondly, that it is infinitely more virulent than the same disorder was which terminated its career in Damascus, in 1824, having been myself an eye-witness to several cases in Aleppo and in Antiochia.

I never heard of its ending fatally in less than twenty-four hours, and the most ordinary period, from the first attack to death, was nearer forty-eight hours; but in the *Hejaz* (where, however, the thermometer of Réaumur stood at 31° in the shade) many were carried off in much less time, with the usual symptoms of convulsive retchings and diarrhœa; and on the correctness of the following circumstances attending the death of Abdin Bey, commander-in-chief of the Viceroy's troops in the *Hejaz*, I do not entertain the least doubt.

He expired at four o'clock, P.M., on the 11th Zilhegge, the day after the *Corbam Baïram*. He had headed the pilgrims on their procession to *Mount Arafat*, and returned to his palace in *Mina* at five o'clock in the afternoon. He received the usual visits of etiquette till sunset. He sat down to his evening meal in perfect health; he retired soon after to bed with his wife; at midnight they were both awakened by the incipient pains of the disorder; and although they had the assistance of the chief medical officer of the army, who gives this report, the woman died in twelve, and the Bey in fourteen hours after.

Extract of a Letter from Alexandria.

August 23, 1831.

Two cordons sanitaires were established on the 20th instant, for cutting off all communication between Cairo and Alexandria, but they have proved, as was anticipated, insufficient to prevent the cholera morbus breaking out here.

On the 21st, there were several cases among the troops who

formed the second or inner line from *Aboukir* to *Marabout*, and two or three in town.

On the 22nd, they increased to ten or twelve; and to this hour, three P.M., there are from thirty-five to forty well authenticated cases, of which one is an European in the city, and five are individuals on board four Egyptian vessels in the harbour.

In consequence of one of the women in the palace dying yesterday of the cholera, his Highness, the Viceroy, embarked immediately on board a frigate, and went to join his squadron which is cruising in the offing.

Some of his court have followed him, and others have shut themselves up in their houses, and taken the usual precautions for cutting off all communication with the other inhabitants, as is practised in time of plague.

His Highness had been himself in the same seclusion for some days, but which had not prevented the disorder penetrating into his family.

It is the uncertainty whether these measures of seclusion, which experience has proved to be efficient against the plague, are equally sure against the *cholera*, that renders our present situation so highly distressing.

The telegraph this morning announced that the mortality in Cairo yesterday was 450; and we have to-day received intelligence that all the European agents in Cairo had abandoned their posts on the 17th instant.

Alexandria, Sept. 2, 1831.

. On the 23d ult., the Board of Health, seeing the imminent danger to which their persons were exposed by their sittings, delegated their whole authority to Charles Sloane, Esq., British Vice-Consul, who, in quality of Secretary to the Committee, was solely charged with the execution of all its complicated and important functions; but on the 26th August, considering that both the *Cordons Sanitaires* were infected; that 800 soldiers were in the hospital without medical aid, from the deaths or desertions of all the physicians and apothecaries; considering, moreover, that a complete disorganization in the public service rendered their measures not merely unprofitable, but highly prejudicial, as impeding the free entry of provisions into the markets, the Committee found itself under the necessity of throwing up their commission, —abandoning to each individual's own suggestions such precautions as experience had proved to be useful under similar disastrous circumstances. Our confidence in the efficacy of the usual precautions adopted in the time of plague is daily increasing, as another day is added to the past without the pestilence having penetrated our dwellings.

We are now in the thirteenth day of the *cholera's* breaking out in Alexandria; and, to my knowledge, *not one European of those*

who have been properly SHUT UP in their houses, as in time of plague, has become a victim to the disorder, or died of any other distemper. It is, however, with the greatest regret that I have to announce the sudden deaths, by *cholera*, of two of the officers attached to the British Consulate. Mr. Butros Antachi, first interpreter here, died on the 30th ult.; and Mr. Bademgi, second interpreter in Cairo, died a few days previously. In considering the loss the service has sustained by the untimely deaths of these two meritorious servants, it is a great consolation in reflecting that they were not exposed to the danger of infection in the execution of their duty, having been both left, from the beginning of the contagion, to their own judgment of the means of providing for their personal safety, whether by flight or seclusion. The principal facts come to my knowledge of the progress of the *cholera morbus* in Egypt since the 23d of August last, are the following:—

That the official lists of the deaths in Cairo, from the 21st of August to the 1st instant, are from 550 to 650 daily; and that, in fourteen days, 7735 have been swept away, in a population of 300,000;

That in Alexandria, in a population of 50,000 to 60,000 (including the soldiers and sailors), from the 26th of August to this day, the mortality announced by Government has been from 100 to 115 daily, with one day 136, and the two last days of 94 and 113; and that the whole number of deaths, in thirteen days, is 988;

That, in the above lists, the native Christians and Europeans are not included; but their numbers are not great, owing to the precautions which they have generally taken to avoid the infection;

That the *cholera morbus* spread all over Lower Egypt, making everywhere nearly equal ravages, and nearly at the same time infecting Mansoorah, Fua, Alexandria, Rosetta, Bruloh, Damietta, and all the towns and villages of the Delta; that is, about the 21st of August, five days after it broke out in Cairo;

That the *cholera* is committing ravages on board most of the Viceroy's ships of war, of which there are now only seven or eight in the offing—the remainder of his fleet, ten or eleven, being come into port.

Extract of a Letter from the Chief Secretary at Malta.

October 19.

I am happy to say the accounts from Alexandria are much more favourable than in my last letter of the 7th ult. The *cholera* is certainly decreasing.

(Signed)

E. HANKEY, Chief Sec.

Extract of a Letter from Valeni del Mount.

August 18, 1831.

From official returns communicated to me by the Russian Vice-President, the number of fresh cases of cholera morbus at Bucharest, during the period of eleven days, from the 26th July to the 6th August inclusive, are found to amount to 2207, of which 883 fatal, making an average, per day, of about 200 fresh cases, including 80 deaths,—the highest number of cases in one day, during the above period, having been 247, of which 106 fatal.

Although it had been expected that the mortality would prove greater among the Jews, (who were ultimately permitted to remain) than among the other classes of inhabitants, it has nevertheless been found to have been proportionally much smaller,—a circumstance justly attributed to the practice, adopted on this occasion by them alone, of assisting each other during the paroxysms of the malady.

If the reports of persons just arrived from Bucharest may be trusted to, the disease appears to be fast declining in that city,—the latest number of fresh cases being stated at fifteen only.

At Ploesh, it is also reported to have nearly ceased; but it has begun to make its appearance in Lesser Wallachia, combined with the symptoms of plague. At this place we have lately had five or six cases, all of them terminating fatally in the course of a few hours.

Having observed in the public prints an opinion put forth by some physicians that the cholera morbus, even when epidemic, is not contagious, I think it right to state, that, in this country at least, it is undoubtedly communicated in the same manner as plague or scarlet fever,—by contact or approximation. Thus the thirteen cases of that malady that have hitherto occurred in this place, have been all of them distinctly traced to the above source. But as the contaminated atmosphere surrounding each individual labouring under the malady, the inhaling of which by others is found to be a sufficient cause of infection, extends to a considerable distance from his person, it is not difficult to conceive, that, during the progress of the epidemic, the whole atmosphere of a city may from this cause become gradually so contaminated, as that mere seclusion alone shall cease to be a sufficient preservative against its attacks; and an erroneous conclusion be hence deduced, that the disease is caused by *miasmata* of unassignable origin existing in the air, and conveyed from one place to another by the action of the winds.

Extract of a Dispatch from Lord Heytesbury.

St. Petersburg, Oct. 12, 1831.

In one of my last dispatches I informed your Lordship that the cholera had begun again to extend itself in St. Petersburg. From ten to fifteen persons still continue to fall ill daily; and I am sorry to say, we learnt yesterday that it had broken out again at Cronstadt, where, during three weeks, there had not been the slightest appearance of disease.

Drs. Russell and Barry left St. Petersburg yesterday for Lubeck, on board the steam-vessel Nicholas I. They will make the best of their way to England as soon as their quarantine at that port shall be ended.

The following questions were sent to Dr. Rehmann, the principal Civil Physician in the empire of Russia, by Drs. Russell and Barry, on the 14th July, 1831:—

La Commission Médicale Anglaise, composée de MM. les Docteurs Russell et Barry, envoyée par le Gouvernement de sa Majesté Britannique, pour examiner la nature et observer le progrès du coléra morbus actuellement régnant dans cet empire, prennent la liberté, avec la permission de son Excellence le Ministre de l'Intérieur, de proposer les questions suivantes—

Question No. 1. Dans quel endroit, et à quelle époque est-ce que le coléra morbus s'est manifesté primitivement dans l'empire de la Russie? comment fut-il introduit, et comment propagé?

2. Les premiers cas de la maladie ont-ils été indiqués avec exactitude dans des villes ou dans des villages: a-t-on remarqué que la maladie s'est étendue de ces premiers cas, comme par une chaîne de communication personnelle?

3. A-t-on observé que la maladie s'est propagée des points connues, lentement, ou si elle a éclaté en plusieurs endroits de la même population, au même tems, sans qu'il existât aucune communication directe, entre ces endroits?

4. A-t-on observé que la maladie ait régné en deux districts, ou deux populations quelconques, séparées par une troisième, dont la santé publique fut normale, sans avoir pris, préalablement, des précautions nécessaires?

5. Une séparation totale de personnes, endroits, et effets suspectés, a-t-elle toujours préservé la population ainsi isolée de la maladie?

6. A-t-on des preuves incontestables, que la maladie ait commencé spontanément dans une population sans la moindre communication suspecte?

7. Quelle a été la durée ordinaire des épidémies du coléra morbus en Russie? Combien de tems prend la maladie pour

son maximum et à son déclinaison ? à quelle saison commence-t-elle pour la plus part ? Est elle modifiée par l'élévation, et par des autres circonstances des localités ?

8. Quel a été le plus souvent l'état météorologique de l'atmosphère, durant lequel la maladie a régné ?

9. A quoi doit-on attribuer l'origine de cette maladie en Russie ?

10. Si la maladie est contagieuse, quel est le maximum du tems qu'elle peut rester cachée dans l'organisme, avant de se manifester ?

11. Quelle est la classe de la société, quelle condition ou état, quel est l'âge, le sexe, le tempérament, le plus exposé à être attaqué, et à périr de cette maladie ?

12. Les enfans sous l'âge de sept ans, sont-ils aussi sujets à la maladie que les adultes ?

13. Les personnes qui ont déjà eu la maladie de coléra morbus, sont-elles exemptes d'une seconde attaque, c'est-à-dire, peut-on gagner cette maladie en deux épidémies différentes ?

14. Quelle a été la proportion pour cent d'attaques, dans une épidémie quelconque qui fut bien observée (celle de Moscou, par exemple, l'année passée), parmi les classes suivantes ?

a. Les médecins ;

b. Les employés dans les hôpitaux ;

c. Les prêtres ;

d. Les blanchisseuses.

e. Ceux qui n'avoient aucune relation immédiate avec les malades, ni avec leurs effets ?

15. Quels étoient les préservatifs hygiéniques, ou médicaux les plus efficaces, contre la maladie ?

16. Quels étoient les mesures de précaution recommandés aux districts, villes, et villages ?

17. Quels remèdes sont les plus efficaces pour le traitement du coléra en Russie ?

18. Quels sont les endroits en Russie dans lequel le coléra régné actuellement, ou régnoit, lors de la manifestation récente de la maladie dans cette capitale ?

19. A-t-on remarqué quelques différences météorologiques à St. Petersbourg cette année, ou quelque disposition épidémique à des maladies gastriques ?

20. Les animaux ont-ils été attaqués des épizooties, immédiatement avant, ou durant les épidémies du coléra morbus en Russie ?

21. Y a-t-il des époques fixes pour l'arrivée de barques venant de l'intérieur à St. Petersbourg ? Y avoit-il des morts, ou des malades à bord pendant leur trajet ?

22. Quelques-unes de ces barques se sont-elles arrivées des endroits atteints par le coléra, ou avoient-elles passées par tels endroits, avant le commencement de l'épidémie actuelle, et depuis quand sont les dernières barques arrivées de l'intérieur à St. Petersbourg ?

Extract of a Letter from Dr. Barry.

St. Petersburg, Oct. 8, 1831.

Since my last we have lost one of our best friends here, Dr. Rehmann, whom we have so often mentioned;—he died of cholera, making the eighteenth medical victim to that disease. Adieu to all expectation of replies to our queries.

(Report of Drs. Russell and Barry, continued from Letter of the 20th of September.)

Cronstadt, August 29.

The first case on board the inner guardship, which still lies just within the entrance of the Merchant's Mole, occurred on the 23d of June, O.S. The Governor-General had attached twenty-five sailors to this ship at the commencement of the epidemic, for the sole purpose of conducting (in boats which they towed) such cases as might occur afloat, at first to the western extremity of the island, but soon after to the great cholera temporary hospital in the town. These men were dressed in tarred canvass, and lived in a shed on the S.W. bastion, near the guardship. All the naval sanitary arrangements were under the immediate orders of Admiral Count Heyden. The Captain of the guardship, who was taken ill early in the epidemic, states, that eleven of the twenty-five sailors were seized with cholera during their service. The Captain who replaced that officer during his illness, and the physician attached to the ship, think that four only of these men had the true cholera. They all agree, however, that three of them died of that disease.

A Russian priest, who lived near the cholera burying-ground, two miles from the fortress, had read the service over thirty dead in the morning, returned indisposed to his own house, fell into a state resembling apoplexy, combined with symptoms of cholera, as far as can be collected from his son, and died on the third day. No other individual residing on shore outside the walls of Cronstadt was known to have been affected with any disease at all like cholera, during the epidemic, except the following.

Colonel Soulon of the Imperial Engineers, who was in Cronstadt during the time, informed us, after our return from thence, that many of the labourers employed under his direction in the citadel, a strongly fortified small island close to the town, were attacked in the temporary wooden barracks in which they lived, several hundred yards outside the ramparts of the town. Upon writing to our most intelligent and observant friend Mr. Booker,

to inquire into the particulars of this circumstance, we received the very important letter and rough plan of the island* (F. 1 and 2). By these documents it appears that of three hundred and fifty labourers from the interior, employed as above, and lodged on a tongue of land S.W. of the Mole, sixty were taken ill and five died: whilst the house 1 (only one hundred and eighty paces from the ramparts)—the suburbs $\cdot\cdot\cdot\cdot\cdot$, and the village 3 and 4 in the plan, remained in the most perfect health.

AMERICAN SHIPPING AT CRONSTADT.

From the American Consul.

September 4.

There were twelve ships during the epidemic, having about one hundred and fifty persons on board. Of these, nine were attacked, and six died. Captain Gurrell of the *Heroine* (cargo logwood) was seized at three, and died at ten A.M. on the 24th June, O.S. This vessel lay close inside the entrance of the Mole, and was hauled out into quarantine the same day. During the next two days, four men were attacked on board this ship, and sent to the Russian hospital†. Two recovered, and stated that they had been well treated under Dr. Lange.

The cook of the *Nye*‡ and the Captain of the *Champion* were both attacked, and died on shore. In three of the four ships attacked, there was only one case.

Lighters and boats from St. Petersburg, up to the 20th June, were merely examined, to ascertain if there were any sick on board; and, if healthy, they passed into the Mole, to go alongside their respective ships. From the 20th to the 26th, all craft from the eastward were placed in observation. After the latter date, all quarantine restrictions ceased§; no doubt in consequence of the riots which had taken place in the capital. There were four boats placed in the basin of Cronslot||, on board of each of which there had been one case, previously to the 26th, O.S. The crews were sent to the western point of the island, and continued healthy until released.

By the Meteorological Journal of the Rev. Mr. Blackmore, British Chaplain in Cronstadt, it appears, that for seventy-two

* See Appendix F, p. 139.

† All Cholera cases occurring afloat, were removed by the authorities as soon as discovered, to the General Cholera Hospital; and the respective ships, if in the Mole, hauled out into the Roads. These measures, though highly salutary, caused some discontent amongst foreign shipping, and were productive of much concealment and dissimulation of disease.

‡ The cooking of all vessels in the Mole in Cronstadt is done on shore.

§ See Count Heyden's Note (App. E, p. 139), and Mr. Booker's Paper, (App. C, p. 135.)

|| An insulated battery, about a quarter of a mile to the south of the Mole.

days, viz., from the 1st June to the 11th August, O.S., the wind blew as follows, viz.:—

	In 1830.	In 1831.
East	4 days	1 day
Easterly	19* „	26 „
	—	—
	23	27
West	15 „	0 „
Westerly	21 „	20 „
	—	—
	36	20
Variable	3 „	9 „

Of the population of Cronstadt, amounting, before the epidemic, to 22,000 †, the attacks were one in ten; the deaths one in twenty of the whole; and the working classes, soldiers and sailors, suffered almost exclusively.

On the $\frac{1}{13}$ September, we received the following communication from Mr. Blackmore. ‘The only new fact which has come to my knowledge respecting the object of your inquiries here is, that the fleet commanded by Admiral Billingshousen, which left Cronstadt before the cholera appeared, and returned when that disease was reported to have disappeared, manned with between 5000 and 6000 sailors, had not a single case of cholera during the whole cruise. This, the Admiral himself told me, he imputed to his not having had communication with infected places.’

The island of Cronstadt lies very low, but is not so regularly flat as the ground on which St. Petersburg and its environs stand. The soil also is evidently of much older formation than that of the latter place. The town, which is built on the easternmost end, is completely sunk within its ramparts, on the land side; but, standing upon a considerable area, it contains spacious streets, squares, and open grounds, which are well ventilated from the sea, and the Man-of-wars’ Mole. Admiral Crown, who has known this island for more than thirty years, informs us, that the water around it has been lower this summer and autumn than for many preceding years. Others have noticed that swallows and the larger species of musquito have been fewer in number than usual.

Rojestivensky Quarter of St. Petersburg—fifth and sixth sections or quartals.

August 23.

The left side of the river, along which these sections are built, is the place where all the barks from the interior halt, and are

* Easterly winds, from their being usually dry and cool, are said, by some observant persons, to be the most salutary in the latitude of St. Petersburg, in ordinary years; South-west winds the least salutary.

† See Appendix C, p. 135.

stationed on their arrival. We visited this part of the town, accompanied by Mr. Shwabé of the Royal Marine Engineers. The number of barks stationed here, during the summer and autumn, is truly immense. They are packed as close as they can lie in the water, several tiers deep, along the whole of the line just described. Many are covered with temporary roofs, and converted into shops, where their stores are retailed to the inhabitants of St. Petersburg, particularly flour, which the barks exclusively supply.

From the office registers, drawn up by the officer commanding the two government guard stations at the village of Archerevesky, to be mentioned hereafter, it appears, that from the 15th April to the 18th September, O.S., 3163 barks passed down the river to the capital, carrying 31,630 men. The paper marked (H*) shows the nature of the cargoes, the towns of the interior from which the barks sailed, with the dates of the arrivals of the respective caravans in 1831. It will be noticed, that the great caravan from Ribinsk (where cholera prevailed at the time) reached St. Petersburg about 5th June, O.S., viz., eight days before the epidemic was declared. The houses of the quartals (5 and 6) are ranged along the margin of the Neva, looking due east, and having the barks in front, distant about sixty or eighty yards. In this division of the town, the disease appeared first, and reached its height about the 20th June, O.S., as stated to us on the spot, by the police officer of the fifth section, before, in fact, it had begun in some of the other districts. In the portion of the line of dwellings under charge of this officer, there are but nine houses, divided by gardens and courts. Two of these houses only escaped the disease, and these two are next the Great Okta Ferry, and have no barks in their front.

A rich timber merchant, fifty years of age and of temperate habits, who resided about the middle of this line, erected a boarded fence, seven feet high, around his premises, at the very commencement of the epidemic, and shut himself and his people in from all contact with, or near approach to those outside. He spoke to persons on business from the windows of his first floor (Russian second floor), which, as stated before, looked down directly on the barks. This man, notwithstanding all his precautions, was not only seized with the disease and died within his seclusion, but was the only individual of his family attacked. A portion of the fence still remains. The fact itself was witnessed by all his neighbours.

Of twelve watchmen (boothersniks) belonging to the fifth quartal, three died. In that portion of the line of houses, twenty-five in number, next the river, belonging to the sixth section, sixty individuals were attacked, scarcely a single house escaping. Eleven persons died in six of them. Of seventy-two attacked in the whole section, fifty-two died, according to the official register of the

* See Appendix H, page 141.

police officer of that quartal. It was observed by all, that the houses of these two sections, situated nearest to the water suffered most.

More than one thousand persons (*mujiques*) from the interior were living on board the barks at the breaking out of the epidemic. The mortality from cholera amongst these people is stated to have been very considerable, but as many of them were seized on shore, and most of them died in the different cholera hospitals, the exact proportion cannot now be ascertained; besides, regular reports or returns were not made out before the 20th June, O.S., and were again suspended during the riots of the 23d, and two or three succeeding days. There was also another circumstance which contributed to diminish the apparent number of cholera cases and deaths very much. There is a numerous sect of the old Russian religion, called *Starubratski*, who inhabit this part of the city, and are such pure fatalists, that they never seek for aid of any kind for their sick, nor admit of medical assistance under any circumstances. No knowledge, therefore, could be obtained, as to the nature of their diseases, and their dead were generally buried unnoticed.

The decked passage-boat (*Soyma*) on board of which the first case of cholera occurred, in the person of her Captain and owner, named *Dernoff*, (the bourgeois of *Witagra*,) still lies close to the bank, and opposite to the middle of the line of houses so often mentioned. She is of about one thousand poods burthen, (sixty-three poods to the ton,) and arrived with fifty passengers from *Witagra* on the 28th May. Several of these passengers had come from *Yaroslav* overland, to embark at *Witagra*, (as stated to us by *Dernoff* himself,) from whence they reached *St. Petersburg* in four days. According to *Dernoff's* account, none of his passengers were sick during the voyage, and all dispersed themselves over the city on their arrival. With regard to *Dernoff*, he resided on shore after his recovery; but a man who remained in charge of his vessel was attacked with cholera, and died about a fortnight after the seizure of his master. This information we have from the police officer of the quarter. *Dr. Borkum*, who treated *Dernoff* in the district temporary hospital of that *arrondissement*, and is kind enough to interpret between him and us, in presence of the directors and inspectors of that hospital, states, that *Dernoff's* case was one of genuine cholera.

It will, perhaps, be proper to notice that the corn, hemp seed, and flax seed barks come chiefly from *Ribinsk*, where many of them winter, and where all rendezvous for the summer voyage. All barks are uniform in their size and shape. They are from sixteen to seventeen fathoms long, by three to four broad, perfectly flat-bottomed, straight-sided, and draw but a few inches of water. Their cargoes, packed in sacks of mat, are stowed in two parallel ranges, above the level of the gunwale, dividing the interior of the

vessel into three passages; one on either side, the other in the centre. The ranges of sacks are again covered with loose matting. The great bulk of the grain and seed shipped from St. Petersburg is loaded directly from these barks into ships of light burthen, or into Cronstadt boats and lighters at the bark station already mentioned.

It is not a little remarkable, that all on the right bank of the Neva, from the Great Okta village to the German colony, Nova Saratova, fourteen versts up the stream, should have continued, to the date of our departure from the capital, perfectly exempt from cholera*, except in the following instance.

At the village of Archerevesky, on the right bank, about three miles and a half above Okta, there are two guard stations, close together, (called the Nevesky station in the paper G †) one belonging to the custom-house, the other to the police. Thirty-eight persons, including officers, were employed in both. There is a jetty projecting considerably into the river at this place, on which a sentinel is placed; and here all barks are obliged to bring to, for the purpose of having their passports, and other papers, and freight examined. This is the only spot at which the barks ever touch on the right bank, on their way to the capital; and here four of the thirty-eight already mentioned were fatally attacked with cholera. The first died on the 20th June (see paper G). Three of these men died in the hospital; one in his own house in the village. His family consisted of one daughter, who continued in health. None of the villagers were seized, as we have ascertained from Mr. Hall, junior, who superintends his father's leather manufactory at this place. The military cases were acknowledged with reluctance, by some of the persons at the guard stations; the motives of which will be perceived in the paper G. The respectable veteran soldier who commands here was particularly civil, and as candid as, under his circumstances, could be expected.

September 8.

Went to 'Change, for the purpose of inquiring from the owners of sugar refineries, of which there are twenty-one in this city, as to the health of their workmen during the epidemic. We had already visited two of the principal, viz.—those of Mr. Muller and Mr. Baird, both of which had been equally exempt from the disease, though, in the latter, no sanitary precautions whatever had been adopted. We have now authentic information as to every one of these establishments, obtained from their owners or brokers, and, extraordinary to say, that though in each of them there were from eighteen to one hundred workmen employed, not one man was

* See General Wilson's letter.

† See Appendix G, p. 140.

attacked with cholera in any of them. Mr. Pivavaroff, the proprietor of one of these refineries, and four others of his family, died early in the epidemic, in his house adjoining the manufactory; but the only other person attacked, was the man who attended him in his last illness. The owner of another sugar manufactory died of cholera, and the clerk of a third was attacked. There was one death of a workman in Mr. Heimbürger's refinery, but he had been long a very weakly, ailing man. We have already stated, that the temperature in the coolest part of Mr. Müller's boiling-room, when we saw the men at work, was at 25° of Reaumur. Mr. Müller informed us of a tradition still existing, that in the year 1610, when Hamburg was afflicted with the *mort noir*, sugar-refiners were exempt from the disease.

September 10.

The *Rojestivensky Hospital*, which is now a spacious building, and in the most creditable state of cleanliness, comfort, and ventilation, was, at the beginning of the epidemic, and for a considerable time afterwards, an old small house, with narrow ill-ventilated rooms. There the mortality and spread of the disease were terrible. Dr. Borkum pointed out one room, fifteen feet square, in which there were ten sick at one time; another having a window only on one side. It was remarked, that the patients who happened to be placed in the shut end of this last room, all died. Seven hospital attendants (invalid soldiers) were all seized with cholera in the course of one day, *viz.*, June 21, O. S. Five physicians were attacked in this hospital. Amongst others, Dr. Mudroff, who had come from Moscow, and was appointed Inspector, died during his service in this hospital. When the rapidly increasing number of sick, in this quarter, rendered further accommodation necessary, another small inconvenient house, in front, was hired. A woman-cook died here, and another who succeeded her caught the disease and died also. In short, not one individual connected with the service of the sick, in either of these houses, escaped death or infection. The first of these buildings had been destined for the reception of cholera sick, for nearly a year, and is situated about the middle of the district. There had been houses destined for similar purposes, prepared in each of the thirteen quarters of St. Petersburg. These preparations, when the calamity did arrive, were found to be utterly inadequate. During the first few days, the sudden invasion of the disease caused some want of accommodation, but never was public and private charity more promptly, more liberally, nor more efficiently applied to alleviate public suffering. Palaces were opened in every quarter of the city for the reception of the sick. Hospitals appeared as if by magic, furnished and endowed with a munifi-

cence, quickness, and well-judged order, which reflected the very highest honour on the authorities and wealthier inhabitants of St. Petersburg.

Maison de Charité, Rojestensky quarter, close to the Neva, (six or eight paces.)—Two hundred and seventy-nine men, seven hundred and fifty-nine women, lame, blind, old, decrepit. One hundred and sixty cases, eighty deaths. First case, a woman in a room on the ground-floor, looking N. E. to the river. Second case, a man in a room on an upper-floor, same exposure.

Dr. De Rhul, whose indefatigable benevolence as a man, and high acquirements as a physician, justly pointed him out to the late Empress-Mother as the kindest and most efficient superintendent of her almost countless charities, was good enough to show us this and many other establishments. He informed us whilst here, that in one community of three hundred persons, of all ages, under his own superintendence, where as rigid a seclusion was maintained as circumstances would admit, not a single case of cholera had occurred. The situation is near the market, with north and south exposures.

Lying-in Hospital for Married Females, on the Fontanka Canal, forty-six persons.—Precautions moderate—no case of cholera.

Pablofskey Institution for Military Orphans.—Three sides of a square, open to the south. Two hundred and ten individuals, of all ages and sexes; shut to the world during the epidemic. Doctors went in and out: servants went to fetch provisions. No case.

Institution for Civil Orphans of the Lowest Class, on the Crookava Canal.—One hundred and thirty-six persons; four sick. First case, 26th of June.

September 14.

School of Pages.—One hundred and thirty-three young gentlemen of the highest classes, from ten to twenty years of age: from five to six hundred persons within the bounds. Bazaar in front, another very close on south side. Precautions adopted by the Governor of this splendid establishment, Major-General Kaveline, who had seen the plague, the same as against that disease. Perfect seclusion of the young gentlemen; fermenting liquors, quass, raw vegetables, and fruit, forbidden. Ordinary drink, toast and water. Warm bath once a week. Great tendency to bowel complaints: upwards of fifty cases of diarrhoea during the epidemic, but no cholera. The garden and play-grounds sheltered from the E. and

N. E. winds, by the new Theatre, which is built on a part of these grounds, but not finished. Sleeping rooms to the west.

School of Cadets, called the Paulofsky School, near the Aboucoff Bridge, on the Fontanka Canal. Pupils six hundred and fifty, from six to twenty years of age; all others, women, children, invalid soldiers, &c. about six hundred;—twelve hundred and fifty. The strictest precautions as to intercourse. Very spacious gardens to the south. No case amongst the cadets. Precautions as to regimen similar to those observed in the School of Pages. Diarrhœa stated to have been less common this year than usual amongst the boys. Russian bath once a week as usual. Thirteen cases amongst the employés, servants, invalids, and their wives; all residing in detached buildings, but within the bounds of the establishment. First case, 25th June, O. S., a schoolmaster who was in the habit of coming in and out; two other cases next day—invalids who were not shut up. The residence of these persons was to the N.E.; the dormitories of the cadets, around a hollow square, facing inwards. It is impossible to imagine anything superior to this establishment in the way of cleanliness, ventilation, and abundance of comforts and accommodation. The furniture, bedding, floors, walls, class-rooms, and even the school desks, appeared as if they had but just received the last polish from the workman; yet every spot was peopled with chubby, rosy-cheeked boys, and slender youths, in the highest health. Their food was abundant, well-dressed, and served with the most inviting neatness.

All the employés and servants taken ill were sent to the public hospitals. Of the thirteen attacked, nine died.

First Corps of Cadets, Wasilyostroff, four hundred cadets, during the epidemic*, (about two thousand persons in all within the enclosure,) which is of enormous extent, three or four versts round. The house is old, low, and inconvenient; not built for a public institution, but for a nobleman's palace, in the time of Peter the Great. Dormitories, low, close, and badly ventilated. Hospital still worse: exposed to N. E. only. First case on the 19th June, the wife of an invalid (servant). This was before the communication was closed. Second case, a soldier invalid, in a different part of the building.

A fatal case yesterday—a schoolmaster. He had diarrhœa for twelve hours: was attacked at two, and died at midnight.

First case amongst the cadets, 24th of June; last case, 30th of June, O. S. The subject of the first was a sickly boy, inclined to phthisis, and had but just quitted the hospital.

The cadets suffered much from diarrhœa, of which there were at least one hundred cases, all bilious. There were five or six

* Four hundred were encamped at Oranyanboom.

cases of dysentery about the end of the epidemic,—bloody stools, fever, tenesmus. Hygiène stated to have been as in the other establishments. Russian bath once a-week as usual, a quarter of an hour at a time.

The subjects of the two first cases had free exit and entrance. The Doctor did not go out from 17th June to 4th July.

Sept. 15th.—Establishment for the Deaf and Dumb.

ABOUT one hundred persons in all, of whom sixty-eight are pupils from ten to twenty years of age; no cholera; no diarrhœa; sick not more numerous than usual; one woman attacked, sixty-five years old; six days ill; died about the beginning of the epidemic; precautions *were* observed as to intercourse; hygiène as in the other schools.

Consumption frequent and fatal amongst these pupils; perfect inactivity of the lungs remarked by Dr. De Rhul as one of the probable causes why these organs are so apt to suffer in such persons*.

Sept. 22d.—Reappearance of Cholera in the Foundling Hospital.

Restrictions as to intercourse ceased to be observed in this establishment on the 1st Sept. O.S., and on the 8th, an invalid soldier, a porter at one of the south-west gates, was attacked at two A.M., and died in sixteen hours, with true cholera; no vomiting. A woman had been attacked on the 7th, wife of a serjeant of invalids belonging to the house. She had free egress and regress.

Of twenty-three nurses, severe cases of cholera, who recovered in the Foundling during the epidemic, two only preserved some milk in their breasts during the whole of their illness, and only two were capable of resuming their nursing. Milk ceased permanently to be secreted with the others.

Of twelve nurses less severely attacked, but yet cases of genuine cholera, the whole continued to furnish some milk from their breasts during the entire course of their malady. These facts Dr. Doepp had an opportunity of observing accurately. Nurses were becoming every day less in number, in proportion to the infants, and on that account he had ordered the milk of those who were sick to be drawn off artificially, at short intervals, for the purpose of preserving the women's suck.

* Celsus recommends reading aloud, '*lectio clara*,' to persons with weak lungs.

Sept. 23d.—Alexandrofsky.

Visited this splendid establishment a second time, and satisfied ourselves on the following points, through the kindness of General Wilson, in addition to those already noticed.

There are five hundred and six boys and two hundred and two girls, foundlings*, of whom fifty are above twenty-one and under thirty years of age. Their diet is most ample, varied, well selected, well prepared, and served up with the utmost neatness and comfort. Their drink at dinner, since the cholera appeared in the town, has been toast-water, with a slight infusion of mint. No quass; beef soup, buckwheat-pudding, vegetables, milk for supper, constitute the chief articles of food. Their clothing is neat, plain, and warm. All sit down to their meals in the same hall, and all chaunt a grace or thanksgiving before they commence eating. The play-ground for the boys in summer is a large square, protected on all sides by ranges of buildings. There are besides immensely spacious rooms for recreation when the weather is unfavourable. The girls have a garden and similar recreation rooms. Not one of these foundlings was allowed to go outside the establishment during the epidemic, and not a single case of cholera occurred amongst them. Yet they had such intercourse with the hired work-people of the manufactory as circumstances required, and amongst the latter description of persons many were attacked, and some died†.

The beds and bedding of the foundlings are of the very best description; their bed-rooms spacious, clean, and sweet; the exposure of the windows north and south; the water-closets perfectly inodorous; ventilation abundant and well regulated; in short, it is scarcely possible to imagine an establishment for so many young persons more judiciously arranged, more admirably calculated to preserve health. The Russian bath is taken every Saturday; cold bathing every summer, except this.

Very considerable quantities of linen cloth and yarn are manufactured here. About sixty thousands poods of flax are hackled and converted into yarn annually. The flax is brought in *unbracketed*, directly from the barks. It comes chiefly from Yaroslav and Novogorod. More flax than usual this year from Yaroslav. Five hundred and forty persons, chiefly hired, are employed about flax and tow in their different stages. Saw myself one hundred persons of all ages, from twelve upwards, hackling in one vast arched room, about fourteen feet high in the centre, sloping off at the sides. Amongst the whole of the flax-dressers there was but one died, and he was of a consumptive habit.

* See General Wilson's Letter, p. 55.

† Ibid.

Sept. 27th.—Foundling Hospital.

Seven cases of cholera since the re-opening of the establishment on the 1st September. One died yesterday, a young woman, a teacher in the Lancastrian school. The serjeant and his wife already mentioned belonged to the same section as this girl. Four persons belonging to this section taken ill since the attack of the serjeant's wife.

Fourteen foundlings, from twelve to fifteen years of age, and six other persons, including two nurses, were taken ill of cholera, from the 14th to the 18th September. Of these, two foundlings died in the cold stage, and two of the others, one in seven hours from the attack. All the fourteen foundlings, with the exception of one, had been in the country during the epidemic, and returned on the 26th August, three weeks before the serjeant, the husband of the first case, returned to the service of that section of the house, where these foundlings live.

Sept. 28th.—Cordon at Zarcozelo, and Road to that Place.

Saw Sir James Leighton at St. Petersburg, who had just arrived from Zarcozelo, the cordon having been just removed. He stated to Dr. Russell and myself that no case of cholera had occurred either at Peterhoff or Zarcozelo, from the very beginning of the epidemic up to this date; that there had been one death at Zarco before the empress retired there to lie in, but that it was ascertained to have occurred from intemperance; that no case had occurred in the German colony, on the road to Zarco, but that at Yshora, about eight versts from thence, they had suffered much.

Road to Zarcozelo, the Moscow High-road before the Epidemic.

German colony, Sredneia Regeska, nine versts from St. Petersburg: four hundred souls; five cases of cholera, two Russians; 1st, a baker, who came every morning from St. Petersburg; 2d, a painter of St. Petersburg. Both were sent to town immediately, and both died about the beginning of July. Two women and one man, colonists, also attacked. Free intercourse with town, but very little traffick on this road, since its having been shut up by the cordon. Three men, two Mujeques and one invalid, were found dead in different parts of the road during the epidemic, one in the middle of the village. The doctor who examined them declared that they had died of cholera.

Were informed that in two villages outside the cordon, on the old Moscow road, about twenty persons had died in three days.

Sept. 30th.—Zarcozelo, New Palace.

Sir William Crichton, to whose kindness and candour we are indebted for much valuable information, stated formally, repeated the statement, and authorised us to note it, that not a single case of cholera had occurred within the cordon since its establishment. One woman had died, who laboured under disease of the liver for several months. She had committed some intemperance in diet. Dr. Arendt saw her, and found that her disease was not cholera. The cordon at Peterhoff was established on the 15th June.

About the 3d of July, before the court came from Peterhoff to Zarcozelo, two men and one woman died at the village of Pulkwa, about three versts from the New Palace, and just within the cordon, on the St. Petersburg side. The occurrence of these deaths had nearly determined the court to remain at Peterhoff, but the physician of the Zarco district having certified that the disease of which they died was not cholera, the court removed to the latter place.

The disease has been in all the villages around the cordon, viz., at Slavenka and Serchari, Yshora, to the bridge of which town the cordon extended; at Gatchina, at the German colony, but not a single case within the line. There were about ten houses of Yshora within the cordon, all the rest of the town without it. The population within the cordon, in the towns of Zarco, Paulofsky, and the village of Pulkwa, with the court and troops, amounted to about nine thousand persons.

Sept. 28th.—Packrofsky's cotton manufactory on the right bank of the Neva, three versts above Archerevesky, seven from town, superintended by Colonel Rennenkampft: three hundred persons said to be employed; no case of cholera this year.

Six hundred persons are employed at a brick manufactory close by; no case. At a bronze manufactory, a little higher up, forty persons; at a silk manufactory, still higher up, one hundred and fifty persons employed; no case. In short, from Little Okta, up the stream on the right bank, to the German colony of Saratova, containing along the line a population of three thousand souls, not a single case,

The barks from the interior never touch at any part of this line. There was, however, no restriction as to communication with all around.

In 1830, there was a destructive epidemic of fever on this bank of the river. From forty to fifty persons were attacked in Packrofsky's manufactory, of whom three died within the fifth day of the disease. From fifteen to twenty trades-persons were employed on the premises at the time, of whom more than half

caught the disease. The survivors of the men who had been thus attacked, escaped the cholera this year, though living in town; those, on the contrary, who had not been attacked by the fever in 1830, were seized this year by the cholera. In M. Benard's silk fabric, close by, forty persons are said to have died of the fever, of one hundred and fifty employed. This epidemic began at the end of autumn, and lasted until March of the ensuing year. During this time there was no disease of any kind at Alexandrofsky, nor on the opposite bank of the river at Mr. Clark's manufactory.

This fever began with chills, shiverings, head-ache, lassitude, diarrhœa, no vomiting, insensibility, delirium in its course. The Colonel considered it contagious, from his friend Mr. Strickter having declared, that he felt he had caught the disease at the moment that he stooped close to the mouth of a sick man to hear what he was saying. The whole neighbourhood was affected. From what I saw of the sleeping-rooms of some of these establishments, I am not surprised at typhus, or jail-fever, having been generated. Benard's manufactory was stated to have been particularly close and narrow.

Dr. Leffler, who treated the sick of Mr. Benard's manufactory, confirms all that Colonel Rennenkampf has said; but calls the disease a nervous fever, a typhus, enduring from fifteen to thirty days.

October 1st.—Guttooyoff Island, purchased by Mr. Baird from government, lies to the west of his establishment, and is about one verst in extent every way. This little island was, perhaps, the lowest and most swampy spot of all St. Petersburg, on which nothing but ducks and frogs would live, until raised, within the last three or four years by Mr. Baird, in some places to the height of seven feet above the level of the water. All the mud of the canals and the rubbish of the town is deposited here.

During the epidemic there were three hundred and fifteen men employed through the whole summer up to this date, in bringing the mud dredged from the different canals, in mud-boats, and depositing it on this island by means of box wheelbarrows, half-liquid and stinking as it is. These men all slept every night on the island, in huts constructed by themselves of a few spars of rubbish wood, covered with old matting, which last material was retained in its place by wet mud. The floors of the huts were one or two feet below the level of the surrounding mud. All these huts were swept away by the last inundation at the end of August. The men, however, still sleep on the island, in the same sort of huts. We are now standing by one of these huts, in

which three men sleep. The floor is two feet below the level of the surrounding half-dry mud; the roof four feet and a half above it; the area five feet by seven. The roofing resists light rain, but lets in heavy showers. There are other huts larger, but all are of the same materials, and all crowded as thickly as the floor will admit.

Not one of these men was ill of any complaint, much less of cholera, during the epidemic. They were all fully persuaded that the disease was the effect of poisoning, and therefore avoided all intercourse with strangers, and kept close to their mud-boats and their swampy island, where they dressed their own food, in which they made no change from what they had been accustomed to in other years. When those who took back the empty mud-boats went to town, they seldom landed, and when they did, it was only to procure their supply of food.

This information we had from the person who has the contract with government to remove the mud to this place, and who hired the men for that purpose; from Mr. Baird's clerk, who pays these men a trifle for distributing the mud on the island, and from Mr. F. Baird, all on the spot at the same time. Young Mr. Baird speaks Russ most fluently.

If ever there was a situation more likely than another to give ague to those who habitually slept and worked upon it, it is the island of Guttooyoff. The men are chiefly from the governments of Orloffsky and Tula. They leave their families behind them, and come annually to the capital to seek employment: they are mostly, if not all, in the prime of life. They work barefooted, and have no women with them.

A blacksmith, in Mr. Baird's employment, who worked and lived on this island, on the east side, was attacked severely with cholera about the middle of July. His wife had been absent for a day or two at Ockta, returned when she heard of her husband's illness, and was attacked herself next day. They both recovered without medical assistance. They drank milk and oil, and used frictions.

Of seventy-five deaths from cholera in the Foundling Hospital, during the whole epidemic, thirty-eight took place in the consecutive stages.

October 7th.—Culinary Salt in Cholera.

The first physician of the army commanded by Marshal Paskevitch, named Kalodowitsh, having been ordered to try this remedy, administered it in one hundred and sixty-two cases, from the 1st to the 16th of August, O. S., and reported officially as follows:—‘Of the above number, thirteen were cured, twenty-nine died; and one hundred and two give hopes of recovery. Of

the whole number, sixty-one were slight cases, sixty-two severe, and seventeen desperate.' Dr. Kalodowitsh further adds, that 'The effects of salt on the system are, vomiting—at first watery, next bilious. Diarrhœa or purging, sometimes so violent as to render the use of Dover's powder necessary. Bleeding favours the salutary action of the salt.'

October 8th.—In two of three well-marked recent cases of cholera, seen this day in the great Vibourg Hospital, with Mr. Coloquet, we found, by means of the stethoscope, that the beat of the heart was *single*, and synchronous with the pulse; in the third case, distinctly double, as in health.

October 10th.—Visited Mr. Buttepage's calico printing manufactory outside Peterhoff gate, to the left, about two hundred yards from the Advodné canal, to the south of the Narva quarter. There are four hundred persons employed, of all ages and sexes—no case of cholera. The strictest quarantine observed during the whole of the epidemic. All communication interdicted, as far as practicable. The buildings of this manufactory are within a perfect enclosure of considerable extent, sheltered to the north and east by clumps of trees and ranges of buildings.

The moment the epidemic was declared, Mr. Buttepage closed his doors, and scattered his people over the drying houses, and other well ventilated parts of his premises, to sleep. Quass and raw vegetables, of which the lower orders of Russians are very fond, were interdicted; toast-water for ordinary drink. A dram of vadky, or Russian brandy, to each, every morning. There were no Russian baths on the premises, consequently none were used. A great many complained of slight indisposition, but there was no cholera. One old woman of seventy-five died of another disease.

October 10th.—Embarked on board a small steamer at St. Petersburg, at two o'clock, P.M., to join the great steam-ship *Nicolas* the first at Cronstadt, and proceeded in her thence to Lubeck, on our way to England.

15th.—Arrived at Travemunde, all well, at half-past ten o'clock, P.M., and found that the disease had already broken out at Hamburg, and that all communication between that city and the territory of Lubeck had been suspended since the 9th instant.

Recapitulation of Facts collected in St. Petersburg, during the late Epidemic, illustrative of the Period of Incubation of Cholera, that is, of the Time which the Disease takes to manifest itself in an individual, after he may be supposed to have received its germs into his system.

1. *City Prison*.—The first case (a woman) proved fatal in a few hours. The three women who rubbed her, all died of the same disease within three days after her death*.

2. A man who quitted St. Petersburg on the 21st of June, O. S., was seized with cholera on the 27th, at Colpina, which town had been hitherto perfectly healthy. The man who had been his companion since his arrival was attacked on the 28th, and the nurse who attended the latter, on the same day†.

3. *Foundling Hospital*.—The first case in this institution (a foundling girl seventeen years of age) occurred on the 19th of June, O. S. Of four *gardes malades* who rubbed this first girl, two were attacked on the third day after‡.

4. The first case of this disease which Dr. Doepp, chief physician to the institution, had seen, was the girl attacked on the 19th. The Doctor himself was seized, on the 22d§.

5. *Cronstadt*.—A Russian merchant, named Chaoosoff, had been to the barks at the Nevesky, on the 15th of June,—arrived at Cronstadt on the same day, and was attacked on the night of the 17th. This was the first case in that town||.

6. A Custom-house guard, who had assisted to carry his brother guard (the third case) to the grave, on the 19th, felt ill himself on the 20th, and died in ten hours¶.

7. *Navarino Corvette*.—On the 20th June, an order was given to examine all the craft coming from the eastward. On the 26th two men were attacked, (the first and second cases of this ship). These men belonged to the boat employed in examining the St. Petersburg lighters, on board of many of which they had been in the course of that duty.

8. *Venus Frigate*.—This ship had been perfectly healthy up to the 27th June, when two of her men, who had been to Cronstadt the day before, were attacked with cholera**.

* See page 44; as also Appendix, Paper I. page 142, for similar cases.

† See page 47. ‡ See the Papers K. (p. 143) and L. (p. 144) in the Appendix.

§ See page 48.

|| See page 50.

¶ See page 51.

** See page 53.

9. *The Brig Phœnix* had been stationed, since June, four miles S. E. of Cronstadt, and continued in perfect health. On the 15th July she took her station about half a mile to leeward of the town, and had two men attacked on the 17th *.

10. *Second appearance of the disease at Colpina.*—Extract of a letter from Dr. Baumann to the British Medical Commission at St. Petersburg, dated Colpina, 25th September, 1831.—(No. 1.) ‘A Fin carrier, thirty-eight years old, coming from Wibourg, arrived here in perfect health on the 12th instant at eight o’clock in the evening, was taken ill of cholera three hours after, and died in the hospital on the 14th. He had passed the night of the 12th in his cart, under a shed.’ (No. 2.) ‘A man forty-eight years old, who had attended the sick in our hospital for more than eighteen years, and had nursed the Fin, rubbed him, held his head when he vomited, &c., was taken ill on the 17th, and died on the morning of the 19th.’ General Wilson had already informed the Commission, by letter dated the 20th Sept., ‘That the cholera had again appeared at Colpina.’ The General also describes the arrival, attack, and death of the Fin.

11. A blacksmith was attacked on the island of Guttooyoff, about the middle of July. His wife, hearing of his illness, returned from a temporary absence, and fell ill herself next day.

Facts collected in St. Petersburg, during the late Epidemic, illustrative of the spread of Cholera amongst persons employed about the Sick of that Disease in Hospitals.

July 12th. Merchants' Hospital.—Superbly fitted up, some of the rooms small, and not freely ventilated.

Attacked—one purveyor, two feltchers or barber-surgeons, four servants—one dead.

13th. Hospital of the Semenoffsky Regiment.—Attacked by the disease—three feltchers, seven servants—two dead.

This hospital took in civil as well as military sick, towards the middle of the epidemic. The whole number admitted, three hundred and fifty-two.

21st. Aboucoff Summer Hospital, converted into a temporary cholera hospital.—Servants attacked, eight—died, three.

24th. Cholera Hospital at the School for the Sons of the Clergy.—Of eight servants employed, two attacked.

* See page 54.

August 9th. Hemp Merchants' Hospital.—Of twelve servants employed, three attacked—two dead.

12th. General Military Hospital, Vibourg quarter.—Physicians, three attacked—one died. Servants, twelve attacked—four died. Of twelve medical students employed *pro tempore*, all had diarrhœa and other slight symptoms.

This hospital, at first purely military, and in the most perfect state of cleanliness and discipline, (as indeed all the Russian military hospitals are,) had few or none of its attendants taken ill. It was only after it had begun to admit civil cholera sick, and had become somewhat crowded, that the above casualties took place.

14th. Naval Cholera Hospital.—Dr. Seidlitz, chief physician, states, that of forty-two attendants (two physicians), none were attacked. This hospital is composed of two detached buildings, standing in the middle of a field of about two hundred yards square, perfectly ventilated, and unembarrassed by other buildings on any side.

15th.—Cholera Hospital of the Foundling Hospital.—Of forty-two attendants, fifteen were attacked, four feltchers included, of whom three were seized.

Hospital for the Imperial Stables at St. Petersburg.—Sick admitted, seventy-seven: of seven servants employed, three were attacked.

Sept. 10th.—Rogistevensky Hospital, established in two inconvenient houses.—Physicians, five, and all the attendants of every description attacked. (See page 79.)

Of two hundred and sixty-four physicians, the whole number in St. Petersburg during the epidemic, above forty were attacked by cholera, of whom nineteen died.

Conclusions as to the Origin, Spread, and Period of Incubation of Spasmodic Cholera.

‘ After having meditated on the above facts and documents from the moment they came to our knowledge—after having weighed them with all the attention of which our minds are capable—and after having compared the opinions which each of us separately, and without discussion, had grounded upon them, we find our impressions as to the mode of origin and spread of the late epidemic at St. Petersburg and its neighbourhood, so perfectly identical in all important particulars, that we now agree to and sign the following propositions, containing the heads of our unanimous opinions on this part of the business of our mission :—

‘ 1. That the germs of the disease were brought to St. Petersburg by the boats and barks which arrived from the interior this year, previously to the 14th (26th) of June.

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

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

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

‘ 5. That neither the near approach nor the immediate contact of an infected individual was indispensable to the infection of a healthy individual susceptible of the disease at the moment.

‘ 6. That the epidemic of St. Petersburg did not possess those absolute and indiscriminating communicable qualities attached to the plague and small-pox, and that the risk of infection incurred by the healthy who approached the sick, was in direct proportion to the want of cleanliness, ventilation, and space around the latter.

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

‘ 8. That under favourable circumstances of body and mind, personal seclusion did afford protection against the disease, more particularly if that seclusion had been accompanied by shelter from currents of air passing through sources of infection.

‘ 9. That those continued exempt from the disease who retired from, and avoided communication with infected places; and those who resided to windward of, and those who were protected from the currents of air passing through such places; that the next in point of immunity were those who, though living in the midst of general infection, avoided large accumulations of sick placed in confined atmospheres, the young, the vigorous, those who could afford to live well, yet lived temperately. In short, those who

were placed under circumstances the most favourable to health, cheerfulness, and comfort of every kind.

‘ 10. That in the above cases, in all of which the time intervening between an only exposure to infection, and the subsequent development of the disease, was most accurately marked, the period of incubation ranged between one and five days.

Calais, 6th November, 1831.

Facts Illustrating the Modes of Treatment of Spasmodic Cholera, adopted at St. Petersburg during the late Epidemic in that Capital.

June $\frac{14}{8}$.—Second Case.

PAUL D'MITRIEFF, ætat. forty-three, a journeyman painter in porcelain; an habitual drinker, attacked at one o'clock in the morning.

Treatment.—Bled to ten ounces; twenty leeches to the epigastrium; frictions; saline draughts; hot bath; calomel and opium; bled again to four ounces at twelve (*noon*); cold affusion; heated bed; sinapisms; vapour bath; calomel.—Died at seven P.M. *

June $\frac{17}{9}$.—Second Military Case.

A Feltcher boy, attacked at eight o'clock yesterday morning. Vomiting, purging, spasms of limbs and abdomen. Had tinct. opii., æther., sulph. aromatic., ol. ricini.—This day, nitrous acid liniment applied to the abdomen and spine. No excoriation produced, but the skin is dyed a deep brown.

June 30th.—Much better. No return of spasms, vomiting, nor purging. This boy died of the consecutive typhus.

Third Military Case.

A soldier of the Guards, about twenty-six years of age, seized at two o'clock this day with head-ach, vertigo, and efforts to vomit, but expelled nothing. Had four thin, watery stools in quick succession, very offensive.

Ten o'clock P.M.—Pulse one hundred and twelve; skin not cold; sweats profusely after a warm bath. Face red, as if its natural colour; spasms and purging had ceased; had made a little urine; face not shrivelled. Died in the night.

* For a more detailed account of the symptoms and treatment of this case, see p. 31.

June 30th.

Saw four new cases of cholera this evening, with Sir James Wylie; all soldiers; all attacked this morning. Saw no vomiting, and one only had stools. All were said to have vomited when first seized, and to have been violently purged. The evacuations of all those men were said to have been intolerably fetid. One laboured under spasms, as if in tetanus; another had his belly drawn in towards his back and diaphragm; another lay straight, pinched up and shrunk like a squalid corpse; another had a slow, soft, full pulse, was shrunk, but was not blue like the other three, and made fruitless efforts to vomit.

Treatment and result.—One man had subnitrat. bismuthi, gra. iv. * every three hours, and was alive at ten P.M., but not likely to recover.

One, who had opium and calomel, died in the night.

One had stimulants, liniments, frictions, cordials, &c., and died in an hour after we left him.

One, he with the full pulse, was bled to eight ounces; took the bismuthi subnitrat. as No. 1, and is likely to recover. This was the mildest case of all.

Each had a warm bath on coming into the hospital.

July 2d.

A fine grenadier of the guards, a most aggravated case, without pulse.—Boiling water, applied to the pit of the stomach, made the poor fellow cry out. The pulse returned for a moment, to the wrist, but did not tarry.—One grain acetate of morphia applied to the blistered surface. Died in the night. No vomiting in this case.

The zeal and humanity shown by Sir James Wylie are most laudable. The greatest part of the military medical men are with the army in Poland.

July 3d.

A shoemaker, had been to a thronged, dirty market yesterday, where he remained all day, to sell his shoes. Supped, and went to bed in perfect health. Awoke after midnight with diarrhœa, vomiting, and cramps.

At present, half-past twelve o'clock P.M., the horrid, leaden, corpse-like livor is on his face, arms, thighs, and legs. Eyes turned up and sunk; quick, oppressed breathing; seems to suffer dreadful agony; no vomiting nor purging, no pulse; clammy,

* This medicine, as prescribed by Dr. Leo of Warsaw, was recommended by His Imperial Majesty to be tried in the cholera hospitals of St. Petersburg.—D. B.

death-like feel ; aphonia ; tongue cold, but moist ; reasoning faculties perfect ; belly not drawn in.

Treatment.

Sulphat. cupri, gra. x.

Solve in aquæ puræ ℥j. et detur statim.

Infusio anthemidis nobilis sæpe sæpius propinanda, ut excitetur vomitus.

Frictions with stimulating liniments, and hot flannels.

Open temporal artery ; not a drop of blood obtained.

Brandy, ammonia, opium had been given, and leeches applied to the epigastrium, which drew little or no blood. Sinapisms to the legs. Open two veins, which seem a little prominent at the insteps. A few drops of blood flowed, black, and thick as tar.

Death, after a fruitless effort or two to vomit.

July 2d.

Another man in same hospital. Belly most violently drawn in towards the spine and diaphragm ; skin and integuments of the whole abdomen in high irregular folds. The abdominal muscles must be most powerfully contracted, and there can be but little or no gas in the hollow viscera.

Proposal to inflate the belly with atmospheric air, not adopted. Moxas imperfectly applied in three places to the spine. Æther, ammonia, and tinct. opii given in this case, produced no effect.

Death, same evening.

July 6th.

Visited another hospital last night, and saw more than thirty patients, all taking bismuth.—Saw in the General Military Hospital ten cholera patients taking bismuth ; ten taking one-quarter grain of nux vomica every hour ; ten treated by eight or ten drops of tinct. opii every hour.

Some in each class getting better ; but, apparently, fewer dying in the bismuth class than in the others.

The outrages committed and threatened about this time towards the physicians and the hospitals, by the populace of St. Petersburg, have left a hiatus of some days in the medical history of the disease.

July 12th.

Visited the Fursladsky temporary hospital, and saw eight patients who had recovered under the use of the bismuth.

July 16th.

Finland Hospital ; Wasily Ostroff. Professor Lichtenstadt, Chief Physician.

July 20th.—Admitted since the opening of this hospital, on the 26th of June O. S. (7th July).

	Men.	Women.	Total.
Admitted	279	194	473
Died	113	100	213

Or one in two $\frac{473}{213}$

Treatment.

Bismuth after the manner of Dr. Leo, and when the collapse is very decided, a solution of phosphorus, in the proportion of one or two grains in 3j of æther. sulphur. with 3j of ol. fœniculi æthereum. Dose from ℥ v to ℥ xv during the collapse only.

As an external application, one grain of phosphorus in one oz. of ol. lini, or ol. olivarum.

A sinapism to cover the whole scrobiculus cordis, and belly.

Drink—plain water ad libitum, but to be taken in small quantities at a time, and at the temperature of the atmosphere.

In the stage of re-action, ice to the head, leeches, iced water.

July 18th.

Followed Dr. Bloom, Chief Physician to the Merchants' Cholera Hospital, at his forenoon visit this morning. Highly pleased with his acute observation, and kind care of the sick under his direction. We have frequently attended Dr. Bloom's Cholera *Clinique*, and always with much satisfaction.

His principal remedial means are bismuth, bleeding occasionally, oil frictions, nitrous acid drinks, sinapisms, calomel sometimes, castor oil, rhubarb, and magnesia. He is now giving the decoction of bouchu leaves in a few cases.

Saw two women, who had perfectly recovered from the blue, cold stage, vomiting, spasms, &c., without any consecutive fever. Such occurrences are very rare indeed.

Hiccough coming on in the cold stage, the best symptom next to the return of the secretion of urine.

Saw a case in which saline effervescing draughts failed to arrest the vomiting which was completely checked by two doses of the magisterium bismuthi, three grains each.

Shown another case, the subject of which had a return of the oppression at the heart and diaphragm, for each of five successive evenings.

Saw the same cases again in the evening with Dr. Bloom, all better, with the exception of one typhus case.

Dr. B. informed us, that he had just been at a numerous meeting of hospital physicians, at which there was a great diver-

sity of opinion as to the best method of treating cholera, but that the magisterium bismuthi had by far the greater number of suffrages. Some had found cold douche-baths to the spine useful; some the sulphate of quinine, in five grain doses, often repeated; all condemned opium in the first stage; the greatest number had found warm, and vapour baths rather hurtful than otherwise; some asserted that bleeding, and an emetic within the first six hours, almost invariably saved the patient. All condemned spirituous liniments, from the cold they produce, and irritating applications, from the injury they cause to the integuments.

July 20th.

In a small hospital, established near Alexandrofsky,—in which calomel was given in large, and frequently repeated, doses,—of thirty-seven admitted, twenty-seven died. In another small hospital, under the same physician, only three had died of fifteen admitted.

August 9th.

Hemp Merchants' Hospital. Russian bath attached to the establishment.

Dr. Minkowsky, chief physician, was kind enough, at our request, to have the bath-room heated, and filled with vapour, as if for the reception of a cholera patient. Two of the hospital servants were sent in with a thermometer to ascertain the degree of heat. In the space of three minutes the mercury rose, at the highest level of the room, to 46° Reaumur, and at the seventh minute, on the bench where the sick are usually placed, stood at $38\frac{1}{2}^{\circ}$, equal to 137° and 118° of Fahrenheit. Dr. Minkowsky, as soon as a patient is brought in in the cold stage, immediately puts him into this bath, lays him on the bench alluded to, has him rubbed with tinctura capsici annui, and leaves him to breathe the vapours of water and vinegar, in the heat already mentioned, until his pulse returns, or until he ceases to afford hope of recovery. This is the doctor's own statement. Of forty patients, treated in this way, six only had died, and only six remained. The first four we found had recovered without the bath, which was not then fitted up.

A very desperate case was left three hours in the heated vapour, and ultimately recovered.

The following is a description of the Russian bath from personal experience:—

(From the Journal of a Medical Traveller.)

Had a Russian bath as follows:

1. Stripped naked, and conducted, in a loose flannel dressing-gown and slippers, to the anteroom of the bath.

2. Flannel and slippers taken off, handed into the heated chamber.

3. Sensation of excessive heat, not disagreeable, in the chest. Felt the tightness and dryness of a severe cold much relieved. The voice, from being scarcely audible, became almost natural in about five minutes.

4. Laid at full length on the lowest bench, about two feet higher than the floor, a bucket of cold water having been first dashed along the board.

5. After about five minutes, seated on a low stool, close to, but on one side of, the vapour oven. Felt less heat.

6. Door of oven opened, and a bucket of cold water thrown in with great force, by a strong man, who immediately drew himself close up at the side of the door, rather crouched.

6. A loud and tremendous discharge of dense steam, projected forward, with the force and volume of a little volcano.

7. Heat much increased ; replaced on the lowest bench.

8. Removed to second or middle bench, about eighteen inches higher than the former. Cold water had been dashed over it as before. Felt myself, as I lay, in danger of slipping from the wet board on the least movement. Heat extreme. A French gentleman on an opposite bench.

9. Taken into the middle of the room, and placed under the cupola of the conical ceiling, where a most copious shower-bath of ice-cold water was let go on my head. The sensation very extraordinary, but not disagreeable ; not to be long borne.

9. Replaced on second bench. The attendant now approached with a small bundle of green birch twigs, which he used at first as a fan. This operation, instead of cooling, produced an extraordinary, and disagreeable increase of the sensation of heat. I lay belly under. He then commenced flogging me gently, beginning at the neck and ending at the heels. The sensation was very cooling and agreeable.

10. Lathered all over with a profusion of soft soap, unscented.

11. The operations above mentioned repeated on the fore-part of the body. Suds got into my eyes, and produced great uneasiness for a moment. Could not communicate my sufferings to the attendant, as we spoke no language in common.

12. Led off to the shower-bath, which soon washed my eyes and whole body. Sensations this time approaching to delightful.

13. Placed on the upper bench, prepared as before. Feeling of heat almost insufferable. Stretched up my hand towards the ceiling as I lay, and thought my fingers were in boiling water. Whenever that hand was applied to the face or other part, felt as if a heated brick had touched me.

14. Descended from bench to bench, remaining a few moments on each.

15. Concluded by being led to the chamber where I undressed, when I was rolled in several blankets, in which I sweated in the most extraordinary abundance for about thirty minutes. The whole operation lasted about fifty minutes.

REFLECTIONS, (PHYSIOLOGICAL.)

When I entered the bath, I had not made water for four hours, and felt a strong desire to empty the bladder. The time was about two o'clock. Had concluded that the profuse perspiration which I was about to undergo would have the usual effect of diminishing the urinary secretion.

Liquid streamed off my person all the time I was in the bath ; part at least must have been sweat ; yet the desire to make water increased, instead of diminishing.

The absorption of water by the air-cells of the lungs must have been enormous, for after all the sweating was over, I made more urine than I had done after retention of the same duration for months before ; yet I felt that all the blood-vessels were fuller of fluid, than before I had entered the bath.

The attendant told me that the heat of the bath was 45° Reaumur, at the top bench. He remains in the bath-room many hours every day, and yet is in high condition.

Whilst in the bath, felt no sensation of thirst, and very little even after the blanket sweating.

After remaining about an hour on a sofa, returned to my hotel, cool, comfortable, and much relieved in my chest. Expectoration free, and soft.

Bath-room about ten feet high in the centre, about twenty-five feet broad, fitted up on either side with benches, and the vapour-generating oven at the further end from the door.

Treatment by Galvanism and Oxygen Gas, at the Military General Hospital.

The first subject was a soldier about thirty years of age ; thin, but well formed. Face livid, pale ; lips blue ; countenance patient, but despairing ; respiration difficult ; skin marble cold, although the thermometer stood in the ward at 20° Reaumur. Fingers shrivelled ; feet blue ; scrotum black ; no pulse ; tongue loaded in the middle, but cold and moist ; scrobiculus cordis drawn inwards and upwards. Voice gone ; no evacuations of any kind. Had been admitted on 21st July, with intermittent fever, from which he had recovered rapidly, and for six days had no paroxysm. Seized yesterday morning suddenly, about ten A.M., with diarrhœa and vomiting.

Fifty-five minutes past eleven, a.m. The bulb of a bent thermometer, with the mercury at twenty, was placed under his tongue. After some minutes the metal rose one-fourth of a degree.

2. Under the arm in the arm-pit, the mercury stood exactly at 20°.

3. The negative wire of a galvanic battery was placed in contact with the back of his neck, the positive with the scrobiculus cordis. Some slight twitchings of the diaphragm were produced, with feeble efforts to vomit. No pulse; becomes weaker and more deeply blue. The action of the battery, though composed of seventy-two plates, was very feeble.

The above experiments continued to twenty minutes past twelve, when frictions with turpentine liniment were ordered. The poor man looks precisely like a corpse. Sir James Wyllie remarks, that the present state of the patient resembles exactly the cold fit of the apoplectic tertian, or hemitritæus of Bulgaria, from which the Russian army suffered so much, when in that country, and of which he had seen several hundred cases.

Seems to breathe better since the friction.

Thirty-five minutes past twelve. Throws forward the under jaw, at each expiration. Fatal sign! Death invariably follows closely upon this convulsive, though regular movement in animals, when undergoing experiments. Died at four minutes past one o'clock.

Second Subject.

A soldier, young, athletic, and beautifully formed; small, irregular, intermittent pulse.

Made to respire oxygen gas, from a bladder armed with a mouth-piece. After several inhalations, a slight change was thought to have taken place in the pulse. The man said that the pains in his back were increased by the inhalation. After about fifteen minutes, the experiment was discontinued, and the patient left to ordinary means.

Comparative Methods of Treatment pursued from the 20th of June to the 8th of July, (O. S.) 1831, with their Results, in the Hospital of the Semenowsky Guards, by Dr. Netchiefsky, the distinguished Physician of that Corps.

No. 1.—Warm baths; venesection, from six to eight ounces; tinct. opii crocatæ, m. x. ad xx., liquor anodyn. Hoffm. 3j. ad 3ij., tinct. aromat. 3ij. fiat haustus. Deinde Calomel, gr. x. ad xv., unâ dosi; vel gr. iij., qq. horâ cum magnesiâ albâ, et opii gr. ½. Decoction of mallow-root for common drink. Frictions with tinct. capsici annui, or tinct. lyttæ. Camphor, ammonia liquida, cataplasms, sinapisms, blisters, leeches.

12 patients treated—of whom,

8 dead, 2 cured, 2 convalescent.

No. 2.—The external remedies already mentioned, and the anodyne draught, with camphor, 3j., in olei olivar. lbj. solut. Sumat æger cochleare amplum o. h.

18 treated—

10 dead, 1 cured, 4 convalescent.

No. 3.—Ant. tartarisat. gr. j., to be rubbed down with ol. olivar. 3j. : sumat dimidium o. semihora. Hot baths, frictions, hot cataplasms, sinapisms, mercurial ointment rubbed to the abdomen ; liniments of ammonia and camphor.

36 treated—

20 died, 5 cured, 5 convalescent.

No. 4.—The solution of tartar emetic in oil as above, with the addition of tinct. opii crocatæ. No bleeding.

16 treated—

9 dead, 1 cured, 3 convalescent.

No. 5.—Opii pulv. gr. $\frac{1}{4}$, o. h. vel. gr. $\frac{1}{2}$, secundâ qq. horâ, cum aquâ menth. et infus. menth. tepidâ. Dry frictions, sinapisms, hot baths, mercurial ointment to the abdomen.

21 treated—

13 dead, 1 cured, 4 convalescent.

No. 6.—Subnitrat. bismuthi gr. iij. secundâ qq. horâ sumend. with conserve of fennel ; or, if the tongue happened to be foul, the bowels slow, and abdomen turgid, with pulv. rad. rhei, gr. x. Balm tea to drink ; bleeding, from 3vj. ad 3viij. Cupping, aromatic hot baths ; dry frictions, warm cataplasms, sinapisms, rubbing the abdomen with mercurial ointment, or ammonia and camphor liniments, or turpentine ; sometimes a spoonful of olive oil was given every hour or two.

175 treated—

82 dead, 29 cured, 24 convalescent.

No. 7.—Solution of phosphorus in æther, according to the formula of the ‘ Russian Pharmacopœia Castrensis *,’ in doses of from ten to twenty drops, in mint water ; or with olei menth. gts. x. Friction, cataplasms.

18 treated—

10 dead, 2 cured, 3 convalescent.

* The Pharmacopœia Castrensis, written in the Latin language, is one of the best and most comprehensive books of that class, with which I am acquainted in any language. It is calculated to confer lasting fame upon its author, Sir James Wyllie, and no less permanent benefit upon the medical department in Russia, of which he is the head.—D. B.

No. 8.—Oxidi zinci albi, gr. iv., with conserve of fennel. Aromatic hot baths, dry frictions, cataplasms, sinapisms.

12 treated—

7 dead, 2 convalescent.

Total,—308 treated; 159 dead; 41 cured; 47 convalescent;
61 still under treatment.

*Dr. Zdekauer's Practice in the Hospital of the Imperial Court
Stables, in St. Petersburg.*

Admitted 77

Died 44

Dr. Z., in a very interesting paper, which he was kind enough to communicate to us, makes the following candid and important remarks on his own treatment of Cholera:—

‘In the acmé of the epidemic, no plan of cure was attended with much success. Warm baths I found generally of little benefit. Great perspiration, artificially produced, was of no good, but rather pernicious. Bleeding often salutary; opium without the least benefit, rather hurtful. Calomel in large doses had not the desired effect; but in the stage of re-action, some grains, with rhubarb, did extremely well.

‘On the 23d June, (O.S.) I began to use the magisterium bismuth.; but I am sorry to say, that it has not answered the expectations raised by Dr. Leo of Warsaw as to its efficacy. Emetics have done a great deal of good. I used them for the first time early in July (O.S.) when the epidemic had begun to decline. They generally produced bilious vomiting, relaxation of the spasms, and a fine equable perspiration. In the consecutive fever, cold applications of vinegar and water to the head; rubefacients to the extremities, and muriatic acid, in the proportion of ʒss. to six oz. of decoct. salep. One table-spoonful every hour.’

In another temporary cholera hospital, opened for the reception of patients on the 20th of June (O.S.), 158 were admitted up to the 10th July. Of these, 38 recovered, 26 were transferred, and 94 died. Every one of these patients was bled upon entering the hospital; leeches and cupping were afterwards applied, as circumstances seemed to require.

This information we had from the lips of the physician who ordered, and personally superintended, this mode of practice.*

* Dr. Southee, of Cronstadt, whose practice is alluded to at page 52, informed us, that he was in the habit of giving *one grain* of argent. nitrat. in pill in cholera cases, repeated *every hour*, sometimes as often as twenty or thirty times, with marked success. We had not an opportunity of seeing the details of any of the cases said to have been thus treated.

POST MORTEM APPEARANCES.

Constitutional diseases of rapid career hardly ever leave visceral obstruction in cases of recovery; nor are the traces of these diseases after death distinguished by organic lesions so uniformly peculiar, as to establish precise anatomical characters for each. Thus, in yellow fever, as well as in spasmodic cholera, morbid sequelæ are seldom or never met with amongst those who recover from either; and there is much that is common to both in what we find upon dissection of their respective victims. There is not time, in fact, for specific disorganization. Distended gall-bladder; fawn-coloured, or mottled liver; livid, or bright red echimosed patches on the lining of the stomach and duodenum; empty and contracted urinary bladder; are some of the most constant appearances after death in yellow fever; so are they all, or nearly all, in spasmodic cholera. The external marks of the body, and the contents of the hollow viscera, afford much more characteristic sources of distinction between the two diseases.

The following dissections of cholera subjects, which we had an opportunity of witnessing in St. Petersburg, will illustrate these remarks:—

Dissection Report of the first Military Case of Spasmodic Cholera that occurred in St. Petersburg. From the Original, drawn up in the Latin Language, by Doctors Kanelsky, Talkwist, and Orloff; authenticated by the signature of Sir James Wylie, to whom, as Head of the Medical Department of the Russian Army, the Report was addressed.

$\frac{18}{30}$ th June, 1831.

External Appearance.—General emaciation; blueness of the upper extremities; the skin of the hands corrugated; nails of a leaden hue. Great rigidity of the lower extremities, which preserved their natural colour. Back and shoulders livid; eyes much sunk; penis of a leaden black colour.

Cavity of the Cranium.—Dura mater natural; blood-vessels of both hemispheres very turgid; arachnoid membrane opaque in some places; a small quantity of reddish serum in the lateral ventricles, and at the base of the brain. The plexus choroides paler than usual; the arteries of the circle of Willis, the basilar artery, and the internal carotid, turgid with black blood. The substance of the brain softer than usual, with dark reddish puncta here and there.

Cavity of the chest.—Lung on either side adhering to the ribs. Adhesions less firm on the left than on the right side. Both

lungs collapsed. About one drachm of serous liquid in the pericardium. The heart itself flaccid. The great vessels much distended with blood. In each ventricle a whitish fibrous mass firmly adhering to the columnæ carneæ. Both cavities distended with black blood.

Cavity of the Abdomen.—The situation of the viscera natural, except that the arch of the colon seemed to hang downwards. The stomach very large, and much distended with air, containing two pounds of turbid, whitish fluid. The mucous lining easily separated by the handle of the scalpel, and largely spotted with ramifications of vessels near the pylorus. The intestines of natural colour, except the ileum, on which there was a slight blush of red. The colon, at its sigmoid flexure, contracted to the size of a finger for several inches. The inner surface of the large intestines of an ash colour. The mucous lining turgid, and easily separable. In the small intestines, the villous coat was also tumid, and here and there of a rose colour. The contents of the larger intestines was a greenish yellow mucus; of the smaller intestines, a pultaceous white matter. Liver natural. Gall bladder much distended with dark green bile. The pancreas and solar plexus natural. Kidnies turgid with black blood, otherwise natural. Urinary bladder contracted to the size of a walnut. Spinal marrow somewhat softer than usual, with its vessels full of black blood.

August 12th.

No. 1.—A man, twenty-four hours dead, thirty-five years of age, beautifully formed. Shoulders, arms, legs, and face purple. Large excoriated spots on the scrobiculus cordis, chest, and arms, from various irritating applications. Considerable quantity of fat, particularly over the belly. Spinal marrow vascular, but not softened. Lungs sound; heart flaccid; ventricles containing fibrinous concretions. Stomach containing a whey-coloured liquid, mucous lining marked with livid red spots, and arborizations. Liver rather large, marbled with a light fawn colour, not unlike some of the yellow fever livers in Gibraltar in 1828; when cut into, very little blood flowed; did not grease the knife. Gall bladder enormously distended with black bile, and certainly larger than the urinary bladder, which was contracted to the size and shape of a dried fig, with merely a drop or two of urine. Slight pink blush on the peritoneal surface of the intestines and stomach.

No. 2.—A man about the same age as No. 1, but not so muscular. Stomach half filled with wheyish liquid. This man had taken sulphat. cupri gr. x. as an emetic, shortly before his death,

but did not vomit. A green spot, black in the centre, and somewhat hardened, was observed on the mucous lining of the great curvature; livid red spots and arborizations, as in the stomach of No. 1. Liver enlarged, very dark coloured, and gorged with blood. Gall, and urinary bladders exactly as in No. 1; vivid red blush on small intestines; nothing else remarkable.

Both the above men died on the same day, both in the cold stage, and after a few hours illness.

July $\frac{17}{29}$, 1831.

A woman, about thirty, had been ill of cholera in the hospital, four days. Died yesterday. Large blotches of livid red on the inside of the stomach, which was very vascular, and contained a greenish liquid. Thin, feculent, brownish matter in the small intestines, the peritoneal surface of which was red and vascular. Liver rather larger than natural. Gall bladder nearly as big as the urinary bladder, which last was found contracted round one ounce of urine. Spinal marrow softened to a pulp for about an inch and a half at the lower dorsal vertebræ. Heart natural. Aorta and venæ cavæ contained black blood, coagulated. Kidneys natural.

This woman had diarrhœa with vomiting, at first watery, afterwards bilious, for two days. She then became soporose, and died in that state. She made but little urine, and by drops at a time.

An attempt was made in St. Petersburg to establish a specific morbid appearance, which was pretended to consist in certain *rides transversales*, said to be perceptible on the *neurilema* of the nerves of those who had died of cholera. But neither Dr. Russell nor myself, after the most careful examination, could observe any thing unusual in the nerves of the very subject, upon the dissection of which the assertion was founded; nor could Sir James Wylie, nor the Russian physicians, nor the Russian professors and demonstrators of anatomy who were present.

The following autopsy, which must be considered an *experimentum crucis* on this subject, produced an universal conviction, that the transverse rugæ, if they really did exist, could not be looked upon as constituting a specific anatomical character of spasmodic cholera.

Great Vibourg General Military Hospital,

16th August, 1831.

A soldier, forty-six years of age, well formed, twenty-four hours dead: face, back, shoulders, thighs, and legs, of a livid hue; penis and scrotum nearly black. A portion of the brachial nerve was cut out and passed round. This nerve was said to present

transverse rugæ, or furrows on the neurilema. A portion of the sciatic nerve was also cut out and passed round, as presenting the same appearance of neurilema. But neither Dr. Russell nor I could see the rugæ, and several others were equally dull.

It is worthy of remark, as showing how much anatomical appearances may be altered by the manner of conducting the dissection, that this subject was placed face downwards, for the purpose of examining the spinal marrow, before any of the great cavities had been opened. The head, and a portion of the chest and shoulders, were allowed to hang over the end of the table. As there was some difficulty in getting at the vertebræ between the shoulder-blades, the centre of support was often about the scrobiculus cordis, and sometimes below it. Black blood flowed in great quantities from the opening in the back of the neck, and a greenish dark liquid from the nostrils, which last, Dr. Russell remarked, looked like bile. I ventured to predict, that there would be no congestion found about the liver, or great thoracic vessels, and that, probably, the gall-bladder and heart would be found empty. When the thorax and abdomen came to be opened, this prediction was most fully verified; the gall-bladder was very capacious. The spinal cord was much injected, but not softened. The fasciculi were more separated than usual by distended blood-vessels. Inflammatory, milky effusion under the arachnoid. Lateral ventricles full of water. The plexus choroides of a dark red colour, and macerated appearance.

Dr. Siedlitz brought a work, by Rosenthall, to the dissection, and showed, that he had frequently noticed the transverse rugæ on the neurilema. With a view to determine this question, as regards cholera subjects, three bodies were placed on the dissecting table at once, by order of Sir James Wylie, who personally superintended their examination. Two of these had died of cholera, the third of phthisis. Portions of nerves from various parts of all these subjects were examined and compared. M. Cloquet himself confessed, that the nerves of the cholera subjects showed no furrows, and that there were some furrows, or *rides transversales*, on the neurilema of the nerves of the phthisical subject. Present,—Sir James Wylie, M. Cloquet, Professor Rhubey, the Prosector of the Academy, who made the dissection, Dr. Cushkofsky, Dr. Kianofsky, and ourselves.

By the Meteorological Register, kept at the Academy of Sciences in St. Petersburg, it appears, that from the 1st of June to the 31st of August (O. S.) of the years 1830 and 1831, the wind blew as follows:—viz.

	In 1830.	In 1831.
East	4 days	9 days
Easterly . .	24	42
	—	—
	28	51
West	6	5
Westerly . .	42	27
	—	—
	48	32
Variable. .	16	9

Although it may have been merely a fortuitous coincidence, it is, perhaps, worthy of remark, that on the day on which the epidemic at St. Petersburg attained the acmé of its virulence (June 27th, O. S.) the barometric column also reached the highest point of elevation (28".44) noted at the Academy of Sciences, during the prevalence of the disease. Reaumur's thermometer on that day marked 16° in the shade at noon; and on the 25th and 29th it marked 20° at the same hour on both these days.

EXTRACT OF A LETTER FROM DR. BARRY.

St. Petersburg, July 30th, 1831.

‘The disease is certainly somewhat mitigated, both as to the number and the fatality of attacks, though the weather has continued unchanged. Thermometer in our apartment steadily above 70° of Fahrenheit; very little wind, and what there is constantly from the east, with the exception of about twenty-four hours last week.

‘Names for diseases or medicines, so contrived as to constitute little definitions, are bad things. I came here with an impression strongly fixed upon my mind, that the essential and dangerous features of cholera morbus were immoderate and ungovernable vomiting and purging of a serous fluid, violent spasms, and the exhaustion and collapse necessarily attendant on such a state; consequently, that the first indication would be, to restrain these depressing evacuations. The fact is, however, that vomiting and purging are amongst the least important symptoms of the present epidemic, though the appearance of the fluid evacuated is highly characteristic. Rice-water strained and allowed to settle down is, when shaken up, the best type. The evacuations, both upwards and downwards, either soon cease, or are easily repressed; while in many cases, and these the very worst, there are either none, or they are very trifling. It is the sudden paralysis and rapidly diminishing action of the heart, of the arteries, and of the

organs of respiration, with the stasis and thickening of the blood, the loss of the power to generate heat, that constitute the real danger of the first—the most fatal stage of this disease. Blue, black, flat lines, mark the course of the larger veins; a deadly livor colours the skin; even the tongue is icy cold; the respiration is short, quick, and imperfect; the scrobiculus cordis and diaphragm drawn violently upwards and inwards: the pulse and voice extinct; the limbs and belly torn with spasms; the hands and feet shrivelled, corrugated, and much diminished in volume; the reason unimpaired. It would seem as if all the colourless cells and vessels upon which the turgor or plumpness of the integuments so much depends, were squeezed to emptiness, and nothing left but the thickened colouring matter of the blood. If this state cannot be overcome in a very few hours, the sufferer must die. *Mordechi*, or *mort de chien*, or *mort noir*, would, either of them, be a much more appropriate name for this inexplicable malady, than that by which it is at present designated. I am now quite convinced that neither Celsus nor Sydenham ever saw this disease, else they surely would not have omitted *all the symptoms* that I have just enumerated.

‘ It is in the above state, particularly if there be violent spasm, that the magisterium bismuthi has been found so serviceable, assisted by cordials, sinapisms covering the whole belly, and frictions. Neither warm baths nor vapour baths will do. The body is warmed by them, as a dead animal would be, but the faculty of generating heat not being restored, the patient cools down rapidly again, and with increased debility. Opium appears really to be contra-indicated, unless to allay vomiting and spasm, which the bismuth effects much better; and calomel they have not ventured to give in large doses.

‘ Two physicians (Germans), Ysenbeck and Brailow, stated publicly and firmly yesterday, in my presence, at the Medical Council, that during the preceding eleven days they had treated, at the Customhouse Hospital, thirty cholera patients, *of whom they had not lost one*. They give two table spoonfuls of common table salt in six ounces of hot water, at once; and one table spoonful of a similar mixture, cold, every hour afterwards. They always begin by bleeding.

‘ But in the ordinary way of treating the disease: suppose the first stage safely past; very rarely indeed—not five times in the hundred—does the patient return to health without passing through a dangerous fever, which not unfrequently assumes a typhoid character, with reddish brown dry tongue, stupor, suffused eyes, constipated and tender belly; dark sordes about the lips and teeth. The pulse, however, is generally quicker, and the skin hotter, than in primitive typhus. In this state many die from the fourth to the seventh day, and even later. In other cases the

fever is benignant, and goes off within the fourth day by copious perspiration.

'My object in entering into this detail is to warn you that many and fatal cases of the present epidemic, may occur with little or no vomiting or purging. The shrivelling of the fingers and toes, the colour of the skin, the shrinking of the features, the coldness of the tongue, the feebleness or extinction of the pulse and voice, the rice-water evacuations, where there are any, are the true marks of the disease, not to be mistaken.'

Council Office, Whitehall, 14th Nov. 1831.

SIR,

THE Central Board of Health having maturely weighed all the information which has been transmitted to them relative to the progress of the Asiatic Spasmodic Cholera in various parts of Europe, but more particularly guided by the conclusions on this head to which Drs. Russell and Barry have arrived after a five months' careful and laborious observation of the character of that disease in those parts of Russia which they have visited, beg leave to suggest, for your consideration, the following sanitary hints:

I.—AS TO PRECAUTIONARY MEASURES.

In order to ensure the adoption and realize the benefit of any system of sanitary arrangements in a large community, the first essential point is to divide that community into subordinate sections, and to form District Boards of Health, each to consist, if possible, of a resident Clergyman and a number of substantial Householders, and of one Medical Man at least.

These Boards should be charged with the following duties in their respective districts, viz.—

- 1st, To appoint Inspectors; each Inspector to visit daily, and to inquire carefully after the health, means of subsistence, cleanliness, and comforts of the inmates of, say, (100 houses more or less,) according to local circumstances.
- 2dly, To receive and examine the reports of these Inspectors, which should be made up to a given hour on each day.
- 3dly, To endeavour to remedy, by every means which individual and public charitable exertion can supply, such deficiency as may be found to exist in their respective districts in the following primary elements of public health, viz. the food of the poor, clothing, bedding, ventilation, space, cleanliness, outlets for domestic filth, habits of temperance, prevention of panic.
- 4thly, To report to their principal Boards respectively on the above heads, as well as on the actual state of health of their districts.

The subordinate divisions of each district ought to be numbered of

lettered, and each district named ; the names of the Members of each Board, of the Medical Men attached to each, and of the Visiting Inspectors employed, should be placarded in conspicuous places.

Principal Boards of Cities, Towns, or Parishes to report directly to the Central Board in London :

- 1st, On the actual state of health of their whole population ;
- 2dly, On the precautionary measures already carried into effect ;
- 3dly, On the measures contemplated ;
- 4thly, On suspected sources, if any there be, from whence this particular disease might possibly spring.

With regard to precautions as to intercourse with suspected, or really infected persons or places, the Board are confident that good sense and good feeling will not only point out, but morally establish, as far as may be practicable, the necessity of avoiding such communication as may endanger the lives of thousands.

But they strongly deprecate all measures of coercion for this purpose, which, when tried upon the continent, have been invariably productive of evil. The best inducements to a prompt acknowledgment of the disease having entered a family, as well as to an early and voluntary separation of the sick from the healthy, will always be found in the readiness and efficiency with which public Charitable Institutions attend to the objects noticed in S. 3.

It is with much satisfaction that the Board feel themselves authorized to declare, and it will no doubt be highly consolatory to the public to learn, that, under proper observances of cleanliness and ventilation, this disease seldom spreads in families, and rarely passes to those about the sick, under such favourable circumstances, unless they happen to be particularly predisposed.

It will not therefore be necessary, where there is space, and where due attention is paid to cleanliness and purity of air, to separate members of families actually affected by the disease, nor to insulate individual houses, unless in cases of crowded, filthy, badly ventilated habitations, and other contingencies, which involve the health and safety of all.

It having been proved by ample experience, in more than one city in Europe, that the fitting up and furnishing of hospitals for the reception of the poorer classes supposed likely to be attacked by the disease, at a period too long before its actual breaking out, has been productive of great waste of means, by the spoiling of various articles, and the consequent want of wholesome accommodation when most required, the Central Board would recommend that proper and sufficient house-room only be secured and prepared in the first instance, and that the charitable be called upon only to *pledge* themselves to furnish at a given notice such articles of bedding, furniture, &c., or the value of them, as they would have at once contributed.

By this means the deterioration of perishable articles will be avoided, and should the district entirely escape, the contribution will be saved.

The situation which the Board would recommend for temporary Cholera hospitals would be, those most detached, insulated, and thoroughly exposed to free and open air ; the description of house, such

as would admit of the most perfect ventilation and cleanliness and the largest space around the sick.

The Board would recommend, when a family is reported to be in an unhealthy state by the Sub-Inspector, and the disease confirmed to be Cholera by a Medical Member of the District Board, that the head of such family, if unable to afford proper accommodation at home, be advised to send the sick person forthwith to the temporary hospital, and that the other members of the family be supplied with such additional means and comforts as their state may require to enable them to resist the influence of the infected atmosphere in which they live.

II.—MEDICAL AND DIETETIC PRECAUTIONS.

These will be found of considerable importance, from their contributing to prevent or diminish the susceptibility to infection which individuals may possess at the moment the disease breaks out.

No sudden nor extensive alterations should be made in the usual modes of living. All changes of food, to be useful, indeed not to be absolutely prejudicial, should tend to render it drier, more nutritive and concentrated; moderately costive bowels, the almost invariable consequence of a dry, invigorating diet, will be found more conducive to exemption from Cholera than an opposite habit.

Whenever aperients may become indispensable, those of a warm, aromatic kind in moderate doses, or domestic means, should alone be resorted to.

What is generally understood by salts, viz. Glauber's salts and Epsom salts, as well as other cold purgatives, should not be taken *in any quantities*, nor on any account without the express prescription of a Medical Man.

The Medical Members of the Board beg to state, in the most decided manner, that no specific preventive against Cholera is known to exist, and that the drugs hitherto offered with this pretension, in countries where the greatest ravages have been caused by that disease, not only did not possess the negative virtue of doing no harm, but were found to be absolutely injurious.

The true preventives are a healthy body, and a cheerful, unruffled mind. Looseness of bowels should be immediately checked, and any thing like periodical chills or cold perspirations should be met by quinine in suitable doses; but habitual drugging, at all times *improper*, is to be deprecated in the strongest terms when epidemic disease is apprehended.

The Board have been anxious to lay before the public, as early as possible, the above precautionary outlines, which they trust will tend, together with the suggestions emanating from the wisdom and observation of your and other Local Boards, if not to exempt the whole population of these realms from the scourge of Spasmodic Cholera, at least to enable them to meet it, in the event of its appearing amongst them, with physical and moral constitutions the least likely to suffer from its virulence.

The Central Board will avail themselves of the earliest opportunity to transmit to you any further sanitary suggestions which may occur to them on the subject of precautionary measures, as well as an outline

of instructions, now in preparation, for communities supposed to be actually attacked.

I have the honour to be,

SIR,

Your most obedient Servant,

E. STEWART, Chairman.

To the Chairman of the Board of Health.

*Central Board of Health,
Council-office, Whitehall, 13th Dec. 1831.*

SIR,

Agreeably to the intimation given by this Board in the concluding paragraph of their circular, dated 14th ult., I have the honour to transmit the subjoined 'Sanitary Instructions for communities supposed to be actually attacked by Spasmodic Cholera,' with some observations on the nature and treatment of the disease, drawn up by Drs. Russell and Barry.

Every individual being deeply interested in the preservation of the public health, it is the bounden duty of all to endeavour to arrest the spread of disease at its very commencement. In order to attain this important object—

1st. The most efficient arrangements should be made by the local Boards of Health, and other authorities, to obtain the earliest and most correct intelligence of every suspicious case which may occur within their jurisdiction.

2nd. All unnecessary communication should be prevented, as far as possible, between the infected and the healthy.

3rd. As space, cleanliness, and pure air are of the most vital consequence, both to the recovery of the sick person and to the safety of those about him, the patient labouring under spasmodic cholera should either be placed in a separate well-ventilated apartment of his own house, if it afford such accommodation, and be attended by as few persons as the circumstances of his case will admit, or be induced to submit to an immediate removal to such building as may have been provided for the reception of persons whose circumstances will not afford the advantages at home of space, air, and separation from the healthy.

4th. When an individual shall have been attacked with this disease, and placed under the most favourable conditions, as already pointed out, both for the recovery of his own, and the safety of the public health, the room or apartment where he may have been attacked, and from which he may have been removed, should be purified by scrubbing, lime-washing, free ventilation and fumigation by heated sulphuric acid and common salt, with black oxide of manganese, or the same acid with nitre; or, when these materials cannot be obtained, by strong vinegar thrown upon heated bricks. The bed, bedding, and clothes should be immersed in water, washed with soap, and afterwards fumigated as above.

5th. To correct all offensive smells, chloride of lime may be applied; but great caution is recommended in the use of this material, its fumes,

continued for any length of time, having been found highly prejudicial to health, more particularly in delicate persons.

6th. A number of steady men, proportionate to the district in which they are to act, should be appointed to lime-wash and purify, as ordered above, under the direction of medical authority, such apartments as may be pointed out by the inspectors of the local board.

7th. Those who die of this disease should be buried as soon as possible, wrapped in cotton or linen cloth saturated with pitch or coal tar, and be carried to the grave by the fewest possible number of persons. The funeral service to be performed in the open air.

8th. It is of the utmost importance to the public health that an improved diet, and flannel clothing, at least flannel belts and woollen stockings, should be given to the poor. No person should ever allow himself to sit down and get cool with wet feet: indeed the most particular attention should be paid to keeping the feet dry and warm. Repletion and indigestion should be guarded against; all raw vegetables, acescent, unwholesome food and drink avoided; temperance should be most rigidly observed in every thing. In short, no means should be neglected which may tend to preserve individual health. The neglect of any or all of these cautions would not of themselves produce the specific disease called spasmodic cholera; but such neglect would most assuredly dispose the individual living in an infected atmosphere to be attacked by this disease, when most probably he might otherwise have escaped.

The most effectual means by which this disease may be prevented from extending, is to enable the poor, who are generally the first attacked, to oppose to its influence, as far as practicable, those ameliorations in diet, clothing, and lodging which public and private charity will, it is hoped, not fail to produce.

*Observations on the Nature and Treatment of the Disease, drawn up by
Drs. Russell and Barry.*

Of the two great classes of functions performed by the organs of which man is composed, one only is attacked in this disease. The operations of the senses and of the intelligence are either left untouched, or are affected but in a secondary manner.

Those functions, on the contrary, by which existence as a living being is preserved; those complicated powers, by means of which we are for ever appropriating and converting into a part of ourselves portions of the matter around us; are all and at once deranged by the attack of this terrible malady. Nutrition is annihilated; respiration becomes difficult, irregular, and inefficient; the involuntary muscles no longer perform their task; the voluntary are drawn into contractions by other powers than the will; the blood ceases to circulate; its physical properties are altered; its serous portion is suddenly thrown out upon the intestinal mucous surface of the body; the secretions are all arrested, and animal heat is no longer produced.

Under such rapidly destructive and almost universal derangement

of function, the most energetic efforts should be directed to reproduce what the disease has rendered nature unable to keep up, viz.—

1st. Fluidity, heat, and motion in the blood.

2nd. Regulated action in the voluntary and involuntary muscles.

Lastly, but above every other consideration, renewed energy in the nervous centre, the source of all vitality and function.

No remedy at all approaching to the nature of a specific has been as yet discovered for this disease. In fact, no one mode of cure can be usefully employed under all the circumstances of any disease. The grades of intensity and the grouping of the symptoms with which spasmodic cholera makes its attacks, vary with the conditions of the subject; its treatment therefore must vary with these grades and conditions.

The leading preliminary symptoms generally are, either diarrhœa, spasms, apoplectic vertigo with nausea, imperfect vomiting, or various combinations of these symptoms.

When the diarrhœa affords time for distinct treatment, it ought to be arrested at once by the most prompt and efficient measures; by opium in moderate doses, astringents, local bleeding by leeches, if the subject be plethoric, by cordials and sulphate of quinine if there be cold sweats; by confining the patient strictly to bed, and keeping up heat, by diet, by emetics.

Should spasms be the first and leading symptom, subnitrate of bismuth, cupping along the course of the spine, cordial, and antispasmodic medicines, opium, frictions, and dry warmth are indicated.

But when the patient is suddenly seized with vertigo, nausea, coldness, loss of pulse, blueness of the skin, shrinking of the features and extremities, with more or less watery discharges and cramps, constituting an aggravated case of the worst type; whether this state shall have come on without warning, or shall have supervened upon either or both of the preliminary sets of symptoms already mentioned, time must not be wasted on inert measures. Such a patient will inevitably perish, and within a very few hours, if the paralysed vital functions be not quickly restored.

Let him then be immediately placed between warm blankets, and should no medical person be at hand, let two table-spoonfulls of common kitchen salt, dissolved in six ounces of warm water, be given immediately, and at once, if he be an adult. Let dry and steady heat be applied along the course of the spine, and to the pit of the stomach, (if no other means be at hand,) by a succession of heated plates or platters. Let the upper and lower extremities be surrounded with bags of heated bran, corn, ashes, or sand, and assiduously rubbed with a warm hand, and a little oil or grease to protect the skin. Energetic, complete vomiting will probably be produced by the salt, and perhaps bilious purging, with tenesmus.

Should a medical man be on the spot, a moderate bleeding, if it can be obtained, would be desirable, previously to, or immediately after, the administration of the salt, or of any other emetic which may be preferred.

The extensively deranged action of those organs, whose nerves are chiefly derived from, or connected with, the spinal marrow; the ana-

tomical characters found about that great source of vitality, after death, in many cases of this disease; together with the success stated by Dr. Lange, chief physician at Cronstadt, to have attended the practice mentioned below, founded upon these views, in twelve out of fourteen aggravated cases, fully justify the following recommendation.

In cases such as those just described, let the actual cautery be freely applied to one or two, or more places on either side of the spine, as if for the purpose of forming good-sized issues. Should the heated iron have produced any excitement of the nervous power, and the salt-emetic have caused any portion of the bile to flow through its proper duct, a great step will have been accomplished towards recovery from the stage of collapse. Cordials and opiates judiciously administered; sinapisms and other external stimulants; mercurials, with mild aromatic aperients, which the intelligence and activity of British medical practitioners will not fail to adapt to the actual circumstances of each case, will conduct the patient safely to the stage of re-action.

The organs, during the collapse of this disease, probably owing to deficient vitality, often give no indication of having been acted upon by repeated doses of certain powerful medicines, which, under other circumstances, would have produced the most pronounced effects. It is therefore suggested, that this temporary insensibility of the system should not inculcate the administration of such repeated quantities as could, by accumulation, when the organs begin to recover their vitality, give rise to unfavourable results.

Thirst being a most distressing symptom of this disease, the quality and the temperature of the drink should perhaps be left to the choice of the patient; but the quantity taken at a time should not exceed four ounces, and should be acidulated with nitrous acid, if the patient will bear it.

Should the disease prove extensively and rapidly epidemic in a large community, it would be prudent to establish stations at convenient distances from each other, where medical assistance and medicines might be procured without the risk of disappointment or delay. The details of these arrangements are left to the wisdom of local boards of health.

As the symptoms of the consecutive stage of feverish re-action in cholera differ but little, if at all, from those of ordinary typhus, except, perhaps, in the greater rapidity with which they but too often run to a fatal termination; and as this kind of fever is treated in no part of the world with more success than in England, the entire management of this stage of the disease is left to the zeal and science of the profession at large.

Attentive nursing, and assiduous, well-directed rubbing, are of the utmost importance; a strictly horizontal position, however, must be maintained until the heart shall have, partly at least, recovered its action. An erect, or even semi-erect position, during the collapse, has been often observed to produce instant death. Warm baths, therefore, for this and other reasons, are worse than useless; evaporating fluids, and indeed all moisture applied to the skin, seem to be contra-indicated for obvious reasons. Hot air baths, so contrived as to be applicable in a recumbent posture, and admitting access to the patient for the purpose of friction, may be of use.'

CONCLUSION.

Having now concluded the details of our journal, we trust that their Lordships will permit us to place on record the expression of our warmest gratitude to all those with whom the business of our mission brought us into communication in Russia.

The readiness with which every source of information was thrown open to us ; the candour and good feeling with which all our inquiries were attended to ; the kind treatment which we met with, both as British subjects and as individuals, in every rank, from the most exalted, to the humblest in the state, have left us under obligations, which it would be most ungrateful in us to conceal.

In no part of the world have we found more highly cultivated, nor more zealous men in our own profession, than in St. Petersburg ; and we are proud to confess that, to their liberal and scientific communications, oral as well as written, we owe, perhaps, all that is of value in the observations, which from time to time we have had the honour of transmitting to you.

The kindness and hospitality of Lord Heytesbury, and of all our own countrymen resident in St. Petersburg, afforded us ample opportunities of meeting those persons of other nations, the most likely to assist us with authentic information on the object of our inquiries. In short, we have returned to England debtors in gratitude to so many in Russia, that we shall not venture to particularise the names of any, when all and each are so largely entitled to our best acknowledgments.

We have the honour to be,

Sir,

Your most obedient, humble Servants,

WILLIAM RUSSELL, M.D.

D. BARRY, M.D.

*To the Clerk of the Council
in waiting.*

London, 12th Jan. 1832.

APPENDIX.

B.

Referred to in page 47. See also General Wilson's Letter, page 55.

*A short Account of the Sick taken ill with the Epidemical Cholera Morbus, since the 27th of June till the 27th of July, 1831 *, addressed to General Wilson by Dr. Baumann.*

YOUR EXCELLENCY,

As your Excellency has honoured me, to demand an account of the treatment of the epidemical cholera morbus in Colpina, I take the liberty to inclose a short extract from a journal that I kept, of all the cases that occurred to my observation. There is no doubt but your Excellency will find it very incomplete, and far from answering your expectations; but, considering that I was all the time, since the disorder made its appearance in Colpina, without proper assistance, and that I had not the least opportunity to consult with other professional men, your Excellency, I hope, will excuse these deficiencies, and be assured, that I did my best to attend the unfortunate people labouring under this dreadful complaint.

I propose to give your Excellency nothing but facts. If I should use some professional expressions in the following pages, I hope your Excellency will excuse it.

I have the honour to be,

Your Excellency's

Humble obedient servant,

DR. EDWARD BAUMANN.

Colpina, 30th July, 1831.

To prevent tiresome repetitions in the following list, it will be required to give, first, a general account of the symptoms that most frequently occurred, and mark those cases that were of a more dangerous nature, with I., and others, of a slighter degree, with II. The former consist of a sudden giddiness in the head, lead-colour about the nose and under the eyes, pale lips, coldness of the whole surface of the body, particularly the hands, feet, and tip of the nose, a singular expression of anxiety in the features, and great faintness; no pulsation of the arteria radialis, though sometimes the carotides and the femoral artery are felt beating; however, always irregular, and slower than usual,—sometimes no more than 50, and in one case only 45 in a minute. Suppression of urine, as well as of the perspiration †; an intolerable pressure in the scrobiculum cordis, violent evacuations from below and above of a matter frequently resembling soap-water. The tongue and the inside of the mouth look blue, and feel cold; the tongue is seldom covered with mucus. Spasmodical pains in the limbs, particularly in the legs; when death is near, singultus, opisthotonos, and the breath of the patient gets cold. The voice is extremely weak and hoarse; no secretion from the glandula lacrymalis.

The symptoms under II. are of the same nature, but of a less violent degree; but the principal criterion is, that the pulse at the wrist of the hand can be felt distinctly, and no spasms have taken place.

* There were four sick after the above date, who all recovered.

† I may say, of all secretions.

Should any particular symptoms have been observed in some cases, they will be mentioned in the list.

The most of the patients have been bled, and those that were not, the reason for it will be given in the particulars. Warm baths, sometimes with salt, at other times with ashes; hepar sulphuris, aromatic herbs, chloruratum calcis, or mineral acids, have been employed in *all* cases; *likewise* a large sinapismus ad scrobiculum cordis: no less have *all* the patients been rubbed with spirits of camphor, or ammonia, but the most of them with warm oil of turpentine, and were kept warm by means of bottles filled with hot water, or warm bricks. The bath was generally made 34° or 36° Reaumur. The thermometer put into the mouth of the sick frequently showed no more than 22° Reaumur, and in case No. 4, only 18°.

The following internal medicines have been made use of:—

Powders.—Lit. A.

- R. Subnitratis bismuthi gr. iii. ad gr. v.
pulv. rad. rhei tost. gr. iii.
Amyli albi gr. xv.—Misce f. pulv. D. pro una dosi.

Lit. B.

- R. Subnitratis bismuthi gr. iii.
Camphoræ gr. iii. ad gr. v.
Amyli albi gr. xv.—Misce f. pulv. D. pro una dosi.

Lit. C.

- R. Zinci oxydati albi
Castorei optimi aa gr. v.
pulv. rad. valerianæ miu. gr. xv.—Misce f. n D. pro una dosi.

Lit. D.

- R. Sub. carbonatis sodæ ði.
Sacchari albi ðii. M. f. To be taken in peppermint-water
and, immediately after, a spoonful of lemon-juice or vinegar.

Mixture.—Lit. E.

- R. Aquæ menthæ pip. ℥iv
Gummi arabici ℥s.
Liquoris cornu cervi
Liq. anodin. min. Hoff. aa ℥ii.
Tinct. opii simpl, ℥i. M. D.

Lit. F.

- R. Olei olivarum ℥ii
Liquor. cornu cervi ℥iii.
Gummi arabici ℥vi.
Aquæ menthæ pip. ℥iv.
Misce fiat lege artis emulsio, cui adde
Tinct. opii crocatæ ℥i. M. D.

Lit. G.

- R. Florum arnicæ mont. ℥iii.
rad. valerianæ min. ℥vj.
infunde c. suff. quant. aq. fervid.
Colaturæ ℥vi. adde
Gummi arabici ℥vi.
Laudani liquidi ℥i.
Ol. menthæ pip. ði. M. D.

Drops.—Lit. H.

- R. Liquor. cornu cervi ℥s
Ætheris Sulphurici,
Laudani liquidi Sydenh. aa ℥ii.
Ol. merthæ pip. ℥i. M. D. S. 30 to 40 drops for a dose.

For external application were used,—Sem. Sinapis cont., Empl. Cantharid.
Ol. terebinthinæ, Liniment. volatile, Empl. aromatic., and others.

No. of Case, Name and Age.	Date of Attack.	Recovered.	Died.	Symptoms.	Treatment.	How long been ill.
1. Philip Tscheikin, aged 38.	June 27.		June 29.	I. A thin and pale looking man, had been ill some time before he came to the hospital; was drunk on the 25th. Vomiting and looseness attacked him a few hours before his death. When he died, the body was bent very much backwards (opisothonus.) Died at five o'clock in the morning.	Venæ sectio, no blood came from the veins, leeches would not take; clyster of 4oz. of warm vinegar and $\frac{3}{4}$ iii. oil. Powders Lit. A.; blister on his back.	Was in the hospital 65 hours.
2. Peter Belajeff, aged 48.	June 28.		July 2.	I. Had been drinking hard, and had been, on the 25th, with No. 1. Ructus gave him great relief. Vomiting and looseness from the beginning till he died.	V. S. lb i. sinap. ad scrobic. cordis ol. terebinth. tepid. pro frictione. Drops Lit. H.	5 days and 2 hours.
3. Irena Danilowa, widow, aged 42.	"		June 30. 5 A.M.	Had been nursing No. 2 on the 27th, and was taken with all the symptoms described under I. She refused absolutely to take medicines, and it was with difficulty that she was persuaded to allow external applications.	No blood could be got from the veins; leeches would not suck. Warm bath, rubbing.	43 hours.
4. Wassily Andreoff, aged 53.	"		June 30. 7 A.M.	I. This man was brought in a miserable condition to the hospital. For a whole week he had lived almost entirely upon quass; which partly accounts for the great collapse virium, and for which reason he was not bled.	Warm bath, with aromatic herbs; rubbing; drops Lit. H. For drink, milk and beef-soup.	32 hours.
5. Peter Fedoroff, aged 9.	"	July 2.		I. Was taken ill on the 27th, at twelve o'clock midnight. Besides other symptoms, it was observed, that he could not bend his legs again when he had stretched them out; but he easily could stretch them when they were bent in the knee, and drawn up to the belly.	42 leeches on the breast; warm bath, with salt, sinapism. On the 28th, in the morning, $\frac{3}{4}$ ii tinct. rhei vinosa; afterwards mixture, Lit. E.	4 days and 12 hours.
6. Nikonor Iwanoff, aged 28.	"		June 28.	I. This man was brought to the hospital at six o'clock in the morning, and died before half-past seven. I never could find out how long he had been ill before.	Was bled, and had a bath. For the shortness of time no other remedies could be used.	In the hospital 1 hour and 30 minutes.
7. Alexei Rodionoff, aged 39.	June 29.	July 6.		I. A strong healthy man, was taken ill on the road; he was brought in a cart to the hospital, for he could not walk. He was very uneasy, and vomited in astonishing quantities a matter resembling soap-	He was bled twice; cold applications to the head; powders Lit. A. every two hours, and mixture Lit. E., a spoonful in the intervals; 3	

No. of Case, Name and Age.	Date of Attack.	Recovered.	Died.	Symptoms.	Treatment.	How long been ill.
				water; the stools were nearly of the same quality. The quantity of liquid that he brought up at three different times was nearly six pounds by measure, although he had not drank more than four pounds. The stools may have been almost the same quantity. The patient complained very much that every thing appeared so large to him; the flies, for instance, which he saw on the bed-cover, he took for mice, and found them very troublesome, else he was not delirious. No spasms.	baths a day. These medicines were continued till the 1st of July in the morning, when all the symptoms abated. From the 4th till the 6th he got every day some brandy and water.	Was ill 36 hours; the rest of the time re-convalescent.
8. Sidor Ivanoff, aged 38.	June 29.	July 6.		I. This man came to the hospital immediately when he was taken ill, and was bled freely from the arm. The vomiting was very violent, but evacuations from below he had almost none, although a tenesmus forced him to go continually to the stool. At ten o'clock the same day (29th) he got a cramp in the lungs, of which I thought the man would die, for it lasted, in ten different attacks, not above an hour, so that very short intervals were observed, and some of the fits lasted 4—5 minutes.	Besides the other internal applications, the nitric gas was employed, which had very little effect upon the patient during the cramp in the lungs. Two ounces of olive oil, with 20 drops of laudanum, were given. On the 2d of July, mixture Lit. E. On the 3d, no medicine required.	Was ill 3 days; the rest of the time re-convalescent.
9. Ilia Prokudin, aged 37.	"		July 7.	I. He was a sickly man, and had formerly been frequently in the hospital for different complaints. He slept a great deal, and had a discharge of blood from the anus, arising from large piles (hæmorrhoides), to which he was subject. He died under convulsions.	The patient was not bled, took mixture Lit. E., but without opium. Ice on the head, and afterwards a blister; a sinapismus on the calf of his legs.	Was ill 7 days and 10 hours.
10. Grigorji Proskofief, aged 30.	"	July 7.		I. A man of a strong constitution. He was attacked with cramp in his legs on the 2d of July, with vomiting and looseness; had not made his water for four days.	He was bled three times; blister on the os sacrum; oil of turpentine; mixture, Lit. E. A catheter found the bladder empty.	Was ill 7 days and 4 hours.
11. Trofim Moisejef, aged 20.	"		July 1.	I. This man was of a delicate frame, and of a habitus phthisicus. A kind of delirium was observed: he was continually alarmed by an appre-	With difficulty he was persuaded to take a warm bath; got a good deal of laudanum in his	Was ill 36 hours.

No. of Case, Name and Age.	Date of Attack.	Recovered.	Died.	Symptoms.	Treatment.	How long been ill.
				hension of some approaching danger. He lived with No. 6 and No. 10. Refused obstinately to take medicine.	drink, without his knowledge.	
12. Ivan Kosloff, aged 46.	June 29.	July 22.		I. On the 1st of July this man got a cramp in his left arm, soon after he could not swallow, and then he could not speak; the efforts to utter a word threw him into spasmodical fits; the same was when he tried to swallow, like in hydrophobia. After he recovered the first time, he had a relapse on the tenth day, but got better a second time.	A large blister along the columna vertebralis was kept open. Powder Lit. A.; vapour of nitrous acid; was bled 3 times; bath with chlororutum calcis; rubbed with hot oil of turpentine.	Was kept in the hospital, where he is still, on account of weakness; else he is well.
13. Eudotia Jelaïva, aged 29.	"		July 1.	I. She was taken ill in the night, and as a warm bath could not be made in her house, she was only rubbed with warm oil of turpentine. Died, under violent vomiting, suddenly.	It was tried to bleed her, but no blood could be drawn; refused to take internal medicines, but took plenty of milk and oil.	Was ill 1 day and 21 hours.
14. Diana Ivavona, aged 59.	"		June 30.	I. Was taken ill in the night. Although not a young woman, she was very vigorous: was used to take a dram.	Was bled lb. i. took powders, Lit. A. and mixture Lit. E., besides external applications.	Was ill 19 hours.
15. Ivan Philippoff, aged 30.	June 30.	July 8.		I. He came immediately when he was taken ill to the hospital, and begged to be bled; but he fainted away, and no blood could be drawn from the veins. After a warm bath and rubbing, about six oz. of blood ran. His breath was cool, his tongue blue, and he had spasms in his fingers.	Blister on the ossa sacrum; drops, Lit. H.; port wine, warm water and nutmeg for drink; he was better on the 4th of July, and was sent to the works on the 8th.	Was ill with the Cholera 4 days.
16. Stepan Mussatoff, aged 32.	"	7.		I. He was taken with cardialgia and spasms in his legs. Vomiting, but no stools.	Clyisma emolliens; mixture, Lit. E.	3 days.
17. Jacob Leonoff, aged 62.	"	July 3.		I. Lived in the same house with No. 6, No. 10, and No. 11. Had an attack of the cholera on the 29th, but recovered; on the 30th he again was taken ill, and came to the hospital.	Mixture, Lit. E.; nitrous vapours.	Was 2 days ill; 4 in the hospital.
18. Gabrilla Mironoff, aged 7.	"	"		II. Pulse was very weak, and only 75 in a minute, which for his age is very slow.	Russian bath; mixture, Lit. E.; 20 leeches.	3 days.

No. of Case, Name and Age.	Date of Attack.	Recovered.	Died.	Symptoms.	Treatment.	How long been ill.
19. Ivan Gegeroff, aged 28.	June 30.	July 3.		II. He came himself to the hospital, and was immediately bled twenty oz. He looked very blue in his face, and was as cold as marble: a cramp in his left leg. Pulse 64.	A tumbler-full of warm wine, with spices; Russian bath: rubbing with oil of turpentine; drops, Lit. H.	3 days.
20. Anissia Simenova aged 50.	"		July 2.	I. She had taken a great deal of oil and milk before assistance was called. Was delirious.	No blood came from the vein; mixture E.; powders, A.; Russian bath; blisters; rubbing with oil of turpentine; ice on the head.	1 day and 21 hours.
21. Helena Bachareff aged 45.	"		June 30.	I. This woman was very much addicted to drunkenness. She got over the cholera, but fell into a typhus fever, which carried her off. She had been ill for six or seven days, but did not choose to take anything, till, on the day of her death, her neighbours gave notice.	Mixture, Lit. G., but she did not take any, and died 3 hours after medical assistance was called.	Is not exactly known.
22. Akulina Plusnina, aged 28.	July 1.	July 7.		II. Sent immediately for the doctor. Had never been ill before.	Venæ sectio; Russian bath; sinapis-mus; oil of turpentine to be rubbed with; Mixture Lit. E.	6 days.
23. Timofei Ivanoff, aged 58.	"	July 3.	July 6.	I. This man lived in the same house with Nos. 10, 11, and 17. He refused to take medicines, and recovered so far, by means of the Russian bath and external applications, that he got up on the 3d of July, and went to his work; on the 6th, he begged for God's sake to save his life, and to take him to the hospital. He accordingly was taken to the hospital; but it was too late; he died the same day. This is the reason why this man is twice on the list; viz. Recovered the 3d, in his lodging; taken ill again on the 6th, and died the 6th in the hospital. Vide No. 39.	Refused to be bled, and to take any medicine; warm bath and rubbing with oil of turpentine, was all that could be done.	Was ill the first time 2 days 11 hours; the second time only 13 hours.
24. Ossip Miconnoff aged 11.	"	July 3.		II. He is the brother of No. 18, and was taken ill the same day that the other one got better.	Mixture, Lit. E.	3 days.

No. of Case, Name and Age.	Date of Attack.	Recovered.	Died.	Symptoms.	Treatment.	How long been ill.
25. Alexandra Matvejevna aged 17.	July 1.	July 3.		II. She is a sister-in-law of No. 19, and had been the 29th and the 30th in his house to assist her sister. The girl is of a delicate constitution; born deaf and dumb.	Was bled instantly lb i. and got a glass of hot Madeira with spices; Russian bath and rubbing.	3 days.
26. Anna Ivanova, aged 34.	"	July 19.		I. She begged immediately for medical assistance, and was else a strong young woman. Recovered slowly.	Mixture Lit. E.; nitric vapours, afterwards sulphas chinini.	18 days.
27. Gavrilla Gurjeff, aged 36.	"	July 5.		I. Was taken ill in the works, and sent immediately to the hospital.	Mixture Lit. E.; nitrous vapours; was bled twice.	5 days.
28. Wassily Kirilloff, aged 47.	"	July 20.		I. Had been frequently in the hospital with different complaints. The belly was painful when touched. Vomiting of a soapwater-like matter.	Bleeding; leeches on the abdomen; calomel and opium; sinapismus; bath with ashes; clysters, with laudanum; afterwards mixt. Lit. E.	19 days in the hospital.
29. Tefim Danilooff, aged 32.	July 2.	July 5.		I. Was taken ill in the works, and sent immediately to the hospital. Pulse of the femoral artery (the art. radialis could not be felt) only 45 a minute. Spasms were not violent.	He got powders, Lit. B. and mixt. Lit. E.; was bled twice.	3 days.
30. Savva Pishkin, aged 36.	"	July 2.		I. This man is of a very weak constitution, and although the attack of cholera was not of a very violent degree, he nevertheless was in great danger. He got better; but after he had gone to his work for a week, he came back to the hospital with febris lenta.	He was not bled; took powders Lit. B. afterwards bark and some port wine.	Was ill 7 days.
31. Boris Kusmin, aged 26.	"	July 5.		I. He was sent to the hospital as soon as he was taken ill. He had a cramp in the legs, which were drawn up to the belly; was very cold, pulse very weak and slow; no vomiting, but had diarrhoea.	Got pulv. ipecacuanhæ ʒi; clysters, with tinct. assafoetidæ; afterwards mixture Lit. E.	3 days.
32. Matvei Tedoroff, aged 22.	"	July 6.		I. He was suddenly taken ill, but came immediately to the hospital. He expressed a great anxiety, and rolled himself about on the floor when the pain increased. The nitrous vapours relieved him from that singular anxiety, which torments the patients more than the pain.	Drops, Lit. H.; nitrous vapours.	4 days.

No. of Case, Name and Age.	Date of Attack.	Recovered.	Died.	Symptoms.	Treatment.	How long been ill.
33. Toka Butilkin, aged 48.	July 2.		July 6.	I. A weak man, who very often had been in the hospital before. He was attacked with vomiting and looseness from the beginning, which lasted till he expired. Spasms in his legs and back took place four hours before his death.	Powders, Lit. B.; mixture E. He was not bled, for the day before he was taken ill he bled from the nose for nearly an hour.	3 days and 10 hours.
34. Paraskowa Vavilova, aged 20.	"	July 6.		I. A stout young woman: was bled immediately, and had a Russian bath.	Mixture, Lit. E.; clysters of infus. valerianæ, with oil.	4 days.
35. Vassilissa Popovia, aged 32.	"	July 9.		I. Her menses had stopped. Violent vomiting and diarrhœa; but no spasms in her limbs; pain in the womb. After she got better, a profuse fluor albus gave great relief.	Mixture, Lit. E.; clysters, with assa-fœtida and laudanum.	7 days.
36. Catharine Gregorjeva, aged 34.	"	July 4.		II. She is a healthy woman; pulse was 62 and weak, but no spasms. Recovered very soon.	Mixture, Lit. E., was for above six hours in a Russian steam-bath.	2 days.
37. Terentiy Teremijeff, aged 50.	July 3.		July 3.	I. He was taken ill in the night with the most violent symptoms of the cholera; had been quite well the day before, and went to bed in perfect good health. Several hours before his death he was delirious. The pupilla was very much dilated, which had not been observed with other patients. He did not let his water since he was in the hospital.	Powders, Lit. B.	9 hours.
38. Prokofie Tunin, aged 77.	July 4.		July 5.	I. This old man had certainly been ill some days before he desired help. He had got himself bled of his own accord, but very little blood could be drawn. He died without great struggle. Used to read prayers by the side of the corpses of those that died of the cholera.	Drops, Lit. H. He took them only once, and then prepared himself for the next world.	1 day and 16 hours.
39. Timofei Ivanoff, aged 58.	July 6.		July 6.	I. Vide No. 23. N.B.—Here seems to be a mistake; but he was written in as patient in the hospital on the 4th, and changed his mind, till he came on the 6th.		

No. of Case, Name and Age.	Date of Attack.	Recovered.	Died.	Symptoms.	Treatment.	How long been ill.
40. Stepan Koroboff, aged 40.	July 4.	July 16.		I. This patient came to the hospital on the 20th of June, with a rheumatic fever, of which he got better about the 29th. Then he got a looseness, of which he got rid on the 2d or 3d. On the 4th, in the afternoon, he all at once turned blue and cold, had violent spasms in his legs, and began to bring up a great quantity of offensive smelling matter. He had, in the course of a few hours, ten stools. Great faintness, and very low spirited.	As he was in the hospital, and I present, I could give him immediate assistance. He was accordingly bled, warm bath, with salt, &c.; powders, Lit. B.; clyster with oil and assafoetida; afterwards, decoction of bark, and a glass of port wine.	12 days.
41. Ivan Lavrentieff, aged 18.	"	July 6.		II. This man was attacked in the night with a violent colic, and vomiting, diarrhoea, &c. Pulse very slow. He felt cold, but had no spasms in the limbs. He did not come to the hospital, and refused to take medicines. He had taken oil and milk.	He was bled lb. $1\frac{1}{2}$; Russian bath; rubbing with oil of turpentine, and sinapismus on the scrobiculum cordis.	Was only 2 days ill.
42. Eudotia Jefremiba aged 76.	"		July 6.	I. This old woman was taken ill at 10 o'clock in the forenoon suddenly, and, from the very beginning, with the most violent spasms of the diaphragma. Had washed the bodies of those that died of the cholera.	She took only oil and milk; refused medicine; Russian bath.	2 days.
43. Matvei Batandin, aged 60.	"	July 7.		I. This man had been bled before he called a physician; but, after all, he did not take any medicine, but went into the Russian bath, and took a large tumbler full of brandy and pepper.	Rubbing with oil of turpentine; oil and milk.	3 days.
44. Saveliy Maximoff aged 26.	"	July 6.		II. This man had certainly a slight attack of the cholera, but he was not able to come himself to the hospital (he was so drunk), where he immediately met with proper assistance*.	Was bled lb. i.; mixture, Lit. E.; rubbing; bath, sinapismus, &c.	1 day.
45. Ivan Andreeff, aged 35.	"		July 6.	I. This man was next-door neighbour to Nos. 6, 10, 11, 17, and 23, and had been there the day before to read prayers; his house is likewise not far situated from the Cholera Hospital.	No blood could be drawn; leeches did not suck; powders, Lit. B.; mixture, Lit. E.; clysters, &c.	1 day 20 hours.

No. of Case, Name and Age.	Date of Attack.	Recovered.	Died.	Symptoms.	Treatment.	How long been ill.
46. Samuel Alexejoff, aged 21.	July 5.		July 7.	I. The patient refused all internal medicines, and only accepted of some oil of turpentine; took plenty of olive oil and milk.	Blood would not come from the vein: no medicines.	1 day and 18 hours.
47. Anna Stepannova aged 30.	"	July 10.	"	I. A woman of a strong constitution; was bled freely.	Mixture, Lit. E.; infusion of peppermint and ginger for drink.	5 days.
48. Anna Petrova, aged 35.	"	July 8.		I. A strong healthy woman; sent, as soon she felt ill, for the physician, and, although she had a very violent attack, she recovered very soon.	Bleeding; sinapis-mus, &c.; mixture, Lit. E.; two doses of powders, Lit. A.; Russian bath.	3 days.
49. Marfa Rebinina, aged 56.	"	July 13.		I. Was attended immediately when taken ill.	Mixture, Lit. E. and powders, Lit. B.	8 days.
50. Wassilissa Fedorova, aged 32.	"	July 10.		I. Had violent spasms, but a hysterical disposition, and a fright she had had made the symptoms appear more dangerous than they perhaps would have been.	Powders, Lit. C.; clysters, with tinct. assafoetid.	5 days.
51. Matronna Katshujeva aged 45.	"	July 14.		I. Her menses had stopped as soon as she was taken ill.	Mixture, Lit. E.; Russian bath, &c.	9 days.
52. Palagea Krupkina, aged 34.	"	July 17.		I. The pulse of the arteria radialis was very slow and weak, and the spasms very alarming; vomiting and diarrhoea moderate. Daughter of No. 42; was taken ill when her mother died.	Mixture, Lit. E.; powders, Lit. C.; afterwards sulphas chinini and valeriana.	12 days.
53. Matvei Takovleff. aged 24.	"	July 9.		II. This man had been attending and nursing the sick in the Cholera Hospital. He was in perfect good health in the morning about eight o'clock, but suddenly, half an hour after, attacked with such a giddiness, that he could not walk by himself; he had himself led to me immediately, but before he reached my house, he vomited three or four times, and got violent pains in the pit of the stomach. He was bled a pound and a half the moment he arrived. Looked shocking blue, or rather lead-colour in his face, but had no spasms. Pulse 56.	Warm bath; rubbing with oil of turpentine; a whole tumbler full of hot port wine, with spices; powders, Lit. A.; mixture, Lit. E.; was ordered to walk about as long as he could.	3 days.

No. of Case, Name and Age.	Date of Attack.	Recovered.	Died.	Symptoms.	Treatment.	How long been ill.
54. Ivan Ivanoff, aged 28.	July 6.	July 10.		I. He is not a very strong man, and was attacked almost with the same symptoms as No. 53; but he had a cramp in his legs, and it was observed that he could easier stretch his legs than he could bend them, as was the case with No. 5.	Mixture, Lit. E.	4 days.
55. John Hase, aged 24.	"	"		II. A tall, strong man, was suddenly taken ill in the works; but he ran as fast as he could to the hospital. Was bled 1lb½ on the spot; fainted away for near twenty minutes. This man had several relapses, from eating vegetables and fruit, that did not agree with him. These relapses, however, never came to that degree as the first attack.	Mixture, Lit. E.; now and then warm wine, with spices; Russian bath: sinapismus, &c.	4 days.
56. Matronna Seliverstova, aged 39.	"		July 9.	I. She had had a looseness several days before; felt a pain as if in labour.	Mixture, Lit. E.; powders, Lit. B.	2 days 2 hours.
57. Marfa Kusmina, aged 20.	"	July 12.		I. A healthy woman; was suckling a child, and was ordered to continue as long as she could; she had less milk than usual, but still always something. The child is well, and remains so.	Mixture, Lit. E.	6 days.
58. Maria Ulashina, aged 42.	"	July 9.		II. Had at the same time a bad cough; her menses were regular. Great suppression of urine, without pain in the regio pubis.	Mixture, Lit. E.; rubbing with hot ol. terebinth; blisters.	3 days.
59. Marfa Michallova, aged 36.	"	July 18.		I. Except the symptoms of the cholera, nothing particular was observed. After she got better, she still felt, at times, a sudden headach and vertigo.	Mixture, Lit. E.; cold fomentations on the head; blister in the neck.	12 days.
60. Helena Zacharova, aged 30.	"	July 12.		I. Although she recovered from the cholera in six days, she is very weak, and must be very careful not to eat anything that can give the belly ache. Twice she had afterwards a colic.	Mixture, Lit. E.	6 days.
61. Semen Antonoff, aged 31.	July 7.		July 8.	I. Spasmi tonici in the legs and back from the very beginning. The nitric vapours he did not like.	Mixture, Lit. E.; ʒii. of ol. olivar. with 20 drops of laudanum; clysters, &c.	13 hours.

No. of Case, Name and Age.	Date of Attack.	Recovered.	Died.	Symptoms.	Treatment.	How long been ill.
62. Maria Semenova aged 36.	July 7.	July 11.		II. She had for some days before a looseness; but when she began to vomit, and pains, she begged immediately for medical assistance.	Drops, Lit. H.; bleeding, bath, &c.	4 days.
63. Ivan Filjeff, aged 49.	July 8.	July 22.		I. A man, with a habitus phthisicus. He got better on the 13th, when he, in the night of the same day, had a relapse. In the second attack he was a little delirious, and singultus, which lasted three days without interruption.	Powders, Lit. A; mixture, Lit. E.; afterwards mixture Lit. G.; fomentatio frigida ad caput, sinaspiasmus ad suros, &c.	A fortnight.
64. Fedor Petroff, aged 23.	July 9.		July 10.	I. Spasms from the beginning.	Mixture, Lit. E.; powders, Lit. B.; nitrous vapours.	18 hours.
65. Gegor Savelijoff, aged 34.	"		July 11.	I. The nitrous vapours gave him some relief, and he died without a great struggle.	Mixture, Lit. F. Powders, Lit. B.	1 day 20 hours.
66. Palagia Nikitina. aged 6.	"	July 10.		I. This child was very poorly, but recovered astonishingly soon.	Soda powders, Lit. D.; afterwards tinct. rhei vinosa in small doses, and now and then half a dose of powders, Lit. C.	4 days.
67. Feodossia Iakevleva aged 24.	July 10.		July 18.	I. This woman had in the beginning not such a violent attack of the cholera, but it soon turned into a typhus fever with stupor, that carried her off.	Mixture, Lit. E.; powders, Lit. A.; afterwards mixture, Lit. G., but instead of the laudanum, were taken 3s camphoræ, ice, blisters, &c.	8 days.
68. Trofim Barkoff, aged 22.	July 11.	July 20.		I. A young man of a strong constitution: for more than twenty-four hours he had not made water, before he was taken ill. This man is a comrade to No. 1; it is not proved, however, that they had any connexion.	Mixture, Lit. E.; powders, Lit. B.; oil of turpentine; blisters ad os sacrum.	9 days.
69. Andrei Ickifanoff, aged 6.	July 12.		July 12.	I. This little boy was taken ill in the night with such violent spasms, that his body was as stiff as a board (tetanus); pupilla very much dilated.	Could not take any medicine; external applications.	1 5 rs.
70. Irena Shadrina, aged 36.	"		July 14.	I. This woman had been ill a day or two before she gave notice. Violent spasms in her back. She had several bloody stools. No blood came after venesection.	Mixture, Lit. E.; powders, Lit. C. and external remedies.	12 day 19 hours.

No. of Case, Name and Age.	Date of Attack.	Recovered.	Died.	Symptoms.	Treatment.	How long been ill.
71. Nikolai Alexejeff, aged 30.	July 13.	July 16.		I. He soon recovered from the attack of cholera: on the 3d day he was a little feverish, after which he perspired. This fever and the following perspiration seemed to be critical; for all the symptoms of the cholera left him instantly. This is the only case in which I observed that a following fever decided the disorder favourably.	Two doses of castor oil; mixture, Lit. E.; 3 doses of powders, Lit. A., afterwards bark; during the fever, no medicine, but warm drink.	7 days.
72. Grigorje Koptieff, aged 46.	"		July 15.	I. A man of a weak constitution, although he seldom had been ill.	Mixture, Lit. E.; powders, Lit. B.; externals.	2 days.
73. Fedore Krapifkin aged 8.	July 14.	July 19.		I. A great many worms came from him before he took any medicine. Had taken oil and milk.	Mixture, Lit. E., without laudanum; externals as usual.	5 days.
74. Gregorje Komin, aged 42.	July 15.		July 16.	I. This man was in the hospital for above a year; he was scorbutic, had always swelled legs, asthma, and, in short, such a complication of various disorders, that he was given up as incurable. In the night on the 15th, he had a shivering fit for above an hour, during which he turned blue in his face, and his limbs got stiff; the pulse gradually sunk till it was imperceptible. Vomiting and diarrhoea took place, and he died with his body bent backwards. This was the only case where I opened the body. I only examined the heart, to see whether coagulations resembling polypi would be found. In the ventriculus vorticus was found a coagulated matter, of a yellow colour, of the consistence of a hard boiled albumen ovi; but it did not adhere to the muscoli pectinati, and did not answer exactly the description given by Dr. Jaenichen.	Mixture, Lit. E.; powders, Lit. B.; bath, with acid. muriaticum, &c.	18 hours.
75. Ivan Strelzoff, aged 54.	July 16.	July 22.		I. He is a weak man, but seldom was taken ill before.	Mixture, Lit. E.; powders, Lit. A.	6 days.

No. of Case, Name and Age.	Date of Attack.	Recovered.	Died.	Symptoms.	Treatment.	How long been ill
76. Gegor Sirskia, aged 28.	July 16.	July 22.		I. This man was in the hospital on account of a swelling of the knee; he is very scorbutic. Got a violent attack of the cholera, and is still in the hospital for his old complaints.	Mixture, Lit. E.; powders, Lit. B.; he now takes again mineral acids, as he did before.	6 days.
77. Palagea Arechova, aged 40.	July 18.	July 29.		I. No particular symptoms, except that she complained of everything appearing so large.	Mixture, Lit. E.; powders, Lit. A.; afterwards bark.	11 days.
78. Dmitry Gelagin, aged 42.	July 19.		July 20.	I. He attended and nursed the cholera sick; was at ten o'clock at night on the 19th quite well.	Mixture, Lit. E.; bleeding, &c.	12 hours.
79. Ivan Dupnoi, aged 36.	July 21.		July 26.	I. The nitrous vapours gave great relief, and the sick himself begged to continue them.	Powders, Lit. B.; mixture, Lit. G.	2 days.
80. Michael Fedoroff, aged 43.	July 24.		July 28.	I.	Mixture, Lit. E.	4 days.
81. Gerassim Kononoff, aged 23.	"	July 26.		I. This man lay in the hospital with a pleuritis, and had hardly recovered a little, when he got the cholera; however, he got over it, and is now in the hospital for weakness.	Mixture, Lit. E.; powders, Lit. B.; afterwards calomel, with extractum hyosciami.	

* No. 44.—Savdiy Maximoff. His pulses beat uncommonly slow and weak, which certainly could not be the effect of the immoderate use of strong liquors; but as he recovered so soon, it was thought proper to send him out from the hospital, where he perhaps might have got the complaint again. This is the reason why this man was excluded from the official list of the cholera-sick, and why, in the present register, are mentioned 81 numbers, instead of 80. In a following short review of this list, this man is not counted.

B.—continued.

A short Review of the Sick taken ill with the Epidemical Cholera Morbus at Colpina, since the 27th of June till the 27th of July, in the year 1831, according to their different Ages and Sex, which, at the same time, shows how many Sick have been treated in the hospital, and how many in their own lodgings.

Age of the Patients.	Where taken ill.				Recovered.				Died.			
	Male.		Female.		Male.		Female.		Male.		Female.	
	In the hospital.		In their houses.		In the hospital.		In their houses.		In the hospital.		In their houses.	
	In the hospital.	In their houses.	In the hospital.	In their houses.	In the hospital.	In their houses.	In the hospital.	In their houses.	In the hospital.	In their houses.	In the hospital.	In their houses.
From 5 to 10 years old .	1	3	.	1	1	2	.	1	.	1	.	.
— 10 — 15 — .	.	1	.	.	.	1	.	.	.	.	.	.
— 15 — 20 — .	1	1	.	1	1	1	.	1	.	.	.	.
— 20 — 25 — .	6	2	.	3	4	1	.	2	2	1	.	1
— 25 — 30 — .	4	1	.	2	3	1	.	1	1	.	.	.
— 30 — 35 — .	7	.	.	7	5	.	.	7	2	.	.	.
— 35 — 40 — .	7	1	.	5	4	.	.	3	3	1	.	2
— 40 — 45 — .	3	1	1	2	1	.	.	2	2	1	1	.
— 45 — 50 — .	6	.	.	2	3	.	.	1	3	.	.	1
— 50 — 55 — .	3	.	.	1	1	.	.	.	2	.	.	1
— 55 — 60 — .	.	2	.	2	.	1	.	1	.	1	.	1
— 60 — 65 — .	.	1	.	.	.	1	.	.	.	.	.	.
— 75 — 80 — .	.	1	.	1	.	.	.	.	.	1	.	1
	38	14	1	27	23	8	0	19	15	6	1	8
	52		28		31		19		21		9	
	80				50				30			

B.—continued.

A List of the Sick taken ill with the Epidemical Cholera at Colpina, according to the date and sex, from the 27th of June till the 27th of July.

	Were taken ill.		Recovered.		Died.	
	Male.	Female.	Male.	Female.	Male.	Female.
June 27	1	.	.	.	.	.
28	4	1	.	.	2	.
29	6	2	.	.	1	1
30	5	2	.	.	.	2
July 1	4	3	1	.	.	1
2	5	3	3	.	2	1
3	1	.	4	1	.	.
4	6	1	.	1	1	.
5	2	6	6	.	1	.
6	2	5	2	1	3	1
7	1	1	2	1	2	.
8	1	.	1	1	1	.
9	2	1	2	2	.	1
10	.	1	1	3	1	.
11	1	.	.	1	1	.
12	1	1	.	2	1	.
13	2	.	.	1	.	.
14	1	.	.	1	.	1
15	1	.	.	.	1	.
16	2	.	.	.	1	.
17	.	.	.	1	.	.
18	.	1	2	1	.	1
19	1	.	3	1	.	.
20	.	.	.	.	1	.
21	1	.	4	.	.	.
22	.	.	.	.	.	.
23	.	.	.	.	.	.
24	2	.	.	.	.	.
25	.	.	.	.	.	.
26	.	.	.	.	1	.
27	.	.	.	.	.	.
28	.	.	.	.	1	.
29	.	.	.	1	.	.
	52	28	31	19	21	9
	80		50		30	

B.—continued.

The number of inhabitants in Colpina are,

Men	2035
Women	1172
Children under and above ten years (male)	576
" " (female)	573
	4356

From these different lists the following conclusions may be drawn:—

Men are more disposed to get the cholera than women; and children are still less apt to be taken ill with this complaint, and when they get it they soon recover.

It appears, that out of 39 men, 1 was taken ill,

44 women, 1

„ 191 children, 1 „

On an average, the fifty-fifth person was seized with the complaint.

47 men were taken ill, of whom died 20 . 27 recovered.

27 men	27	18	9
27 women	"	"	9

27 women	"	"	5	10	"
6 children	"	"	1	5	"

80

30 . 50

This shows that men suffered more from the cholera than women, and children still less.

Seventy patients were taken ill with symptoms of degree I.; ten with symptoms under description II.; but it must be owned that a great many people more (about 40 or 50) had still slighter attacks of the same complaint, although these are not mentioned in the official reports. On the other side, Nos. 3, 6, 11, 13, 21, 23, 38, refused all assistance; every one of them died, which proves, in some measure, the efficacy of the administered remedies.

Thirty-nine have been treated in the hospital, of whom died 16.

Forty-one patients were treated in their houses, of whom died 14.

The reason why the proportion is in favour of the latter is, that eight of these patients were taken ill with symptoms II. and two only with symptoms of the same degree were treated in the hospital.

The greatest number of sick was from the 28th of June till the 7th of July.

The temperature of the atmosphere was in the day-time very high, sometimes exceeding 34° and 35° Reaumur, in the sun; but the nights were very cold, and one morning, before sunrise, it was frosty. The weather was excessively dry; there was no rain all the time, and for several weeks there even was no dew in the morning. The barometer likewise was astonishingly high; sometimes more than 29 inches. Regular observations on the weather have not been made. Sixty-two of the patients had spasms, or at least spasmodical pains in their legs and back.

Of 39 that were treated in the hospital, and could, therefore, be observed more carefully, 27 had suppression of urine; 12 opisthotonos; 5 singultus; 3 a kind of typhus fever after they recovered from the cholera.

The blood drawn from the veins showed very little serum, in several cases none at all; but a crust of inflammation was never observed. The leeches that had sucked died a short time after.

The ischiadic nerve was oftener affected than the crural nerve; for most of the patients could easier stretch their legs than they could bend them.

Frictions of warm oil of turpentine seemed to be of great use; it seemed to operate at the same time as diurethic. Blisters on the os sacrum, or along the whole columna vertebralis, did likewise good, where suppression of urine and spasms in the legs were observed.

The vapours of nitric acid gave those patients great relief that laboured

under great anxiety. Half an ounce of saltpetre, with as much water, was put in a cup under the bedstead of the patient, and oil of vitriol was poured on it, as much as was required. This was repeated three or four times a day for five to fifteen minutes. When the patient coughs it does him good.

Tenesmus plagued the patients frequently after the diarrhœa, but never before or at the same time.

The pupilla was in some cases very much dilated, in others more contracted.

Delirium was only twice observed, except in those three cases of typhus after the cholera.

When the patients make water in great quantity, it may be considered as a good sign; however, the patients are not yet out of danger; but where the urine makes a sediment, the sick are likely to recover.

Large doses of the prescribed medicines were always required to produce any visible effect. This may partly prove the truth of Hippocrates' Aphorism, sect. i. n. 6.

Ad extremos morbos extrema remedia exquiesce optima.

ADDENDA.

No. 28. The only case where calomel was used.

No. 74. The only case where I examined the dead body.

No. 71. The only case where a succeeding fever seemed to be critical.

No. 10. The catheter was, in the course of six hours, applied four times, but no water was found in the bladder. The 1st of July the patient made water in great quantity; and, on the 2nd, a brickstone-coloured water was observed. He got well on the 7th of July.

N.B. A great many patients more laboured under a suppression of urine; but as the regio pubis was not painful, I did not trouble them with the application of the catheter.

In some cases, where violent singultus was observed, I had recourse to the following prescription:—

R. Cupri ammoniati gr. v.

Mica panis albi

Succi liquiritiæ aa ʒi.

℞. f. massa ex que ferment. pil.

No. xx. I. S. Two of these pills to be taken every hour, till the hiccough subsides.

These pills never failed to answer the desired effect; but I cannot say that they have saved any of the patients.

ERRATA.—In a former list were mentioned 51 men and 29 women taken ill. This is a mistake; for I took the name of Feodossia for Fedor (see No. 67). This list is correct.

C.

Referred to at p. 74.

For the following four Papers we are indebted to the kindness of Mr. Vice-Consul Booker, whose zealous and accurate observation of the progress of the Epidemic has furnished us with our most valuable facts.

C 1.

Questions addressed to Mr. Booker, with his Answers.

QUESTIONS.

Had the merchant who was first attacked and died here been to the barks at the Neffsky, shortly before his return to this place?

A copy of the list of cases and deaths on board of British ships here, during the late epidemic.

What proportion of the population of this place was attacked? What proportion died?

What proportion of British subjects, ditto, ditto?

ANSWERS.

He had been at Neffsky to pay for deals he had purchased the very day, or the day before his return. At the time, these two cases were hardly supposed to be Cholera, as the bargeman had drank two bottles of ice-cold beer, while in a violent perspiration; and the merchant, after his return, had drank tea, walked immediately to the water-side and bathed, past nine at night: however, the complaint was then but theoretically known.

Herewith a copy of a list of English who were taken ill on board of British ships, and were transported to the Cholera Hospital. A report of those in private Lazarettos I have not been able to get with any exactness.

The number of British seamen here at the time, I reckon about 1200.

Fallen ill in the Cholera Ward .	33
Died	21
Cured	12

Which is about 1-36th of the number here taken ill; the number dead is 1-57th.

I reckon the population here about 20,000 or 22,000 inhabitants, and the reports are—

Taken ill	2262
Died	1139
Cured	1123

Which is about 1-10th of the population taken ill; the number dead is 1-20th.

The first attacks were decidedly on those who had arrived from Petersburg in boats or craft; it next fell on the Custom-House Officers, and those attached to the Mole Head; from thence to men employed on

QUESTIONS.

ANSWERS.

board of Ships, and then it burst into the Town. If I am not mistaken, two or three days passed before it attacked the Barracks, but that Dr. Lange can decide.

A true statement of cases when the virulence of the complaint gave over cannot be known, as the people cured themselves without medical aid, and without reporting to the police.

Among the 1139 deaths, there were only 24 men of the rank of officers.

In this country every man of the 14th class is reckoned an officer, and many of them are men raised from the ranks, and led, by old habits and poverty, to live like the lower orders of society. Consequently the deaths of people in the more comfortable situations in life are very small compared with those of the common people.

C 2.

STATE OF CHOLERA AT CRONSTADT, 1831.

Date.					Date.				
From the 18th up to the	Daily Cases.	Cured.	Died.		From the 18th up to the	Daily Cases.	Cured.	Died.	
June 25	148	4	59		July 18	18	25	7	
" 26	123	—	40		" 19	24	31	14	
" 27	121	6	46		" 20	19	18	7	
" 28	95	1	59		" 21	9	15	4	
" 29	172	3	47		" 22	19	18	6	
" 30	290	27	115		" 23	8	25	8	
July 1	228	5	115		" 24	8	24	5	
" 2	170	25	83		" 25	13	15	11	
" 3	165	19	86		" 26	10	15	2	
" 4	112	26	72		" 27	5	18	5	
" 5	73	34	59		" 28	3	12	2	
" 6	54	35	50		" 29	5	23	2	
" 7	51	46	32		" 30	3	7	—	
" 8	47	48	34		" 31	2	8	1	
" 9	35	52	22		August 1	1	11	—	
" 10	42	53	31		" 2	—	6	—	
" 11	28	81	24		" 3	—	15	1	
" 12	35	83	24		" 4	—	6	—	
" 13	28	84	22		" 5	—	15	2	
" 14	37	66	15						
" 15	18	53	15		Total	2262	1123	1139	
" 16	27	40	9						
" 17	16	25	10						

C 3.

LIST OF PATIENTS ON BOARD OF RUSSIAN VESSELS.

By whom Loaded.	Arrived from St. Petersburg.	When taken ill.	How many taken ill.	What Craft.	No. of Craft.	With what Goods.	Where loaded in St. Petersburg.
Cattley, Prescott, and Co.	June 17	June 20	One Man.	Lighter.	31	Linseed.	
	17	21	do.	Barge.	38	Hemp.	
F. C. Hanf.	18	21	do.	Lighter.	16	Wheat.	
Anderson, McCausland, } and Co. }	19	21	do.	Barge.	34	do.	
	14	21	do.	Lighter.	137	Iron, Hemp.	
	16	22	do.	Barge.	18	Tongues & Trifles.	
Schultze and Pander.	13	24	Two Men.	Lighter.	120	Wheat.	
John Lidderdale.	12	26	One Man.	do.	67	Oats.	
Thomson, Bonar, and Co.	20	26	do.	do.	117	Yarn.	
Thornton, Cayley, and Co.	14	27	do.	do.	145	Tallow.	Tallow Wharf.
G. Loder and Co.	15	28	do.	do.	442	do.	
Hills and Whishaw.	27	28	do.	do.	20	Hemp.	
Anderson, McCausland, } and Co. }	27	28	do.	do.	258	{ Do. Isinglass and Hides undressed.	
	24	1	do.	do.	230	Bristles, Raven- ducks, & Tongues.	Change.

C 4.

Extracts from Mr. Booker's Correspondence.

21st May.—First precautions remarked of vessels being stopped arriving from the westward, which proved to be vessels from Riga.

25th.—A Surgeon and Officer appointed to examine all the merchantmen daily, and report.

15th June.—The passengers on board of the steamer were examined by a Surgeon.

16th.—A Quarantine of five days was proposed on every passenger and vessel arriving from town.

17th.—The Quarantine was overruled, but the examination carried on with the greatest strictness.

As late as six to eight o'clock this evening, all was well; but during the night the Bargeman and the Merchant were taken ill.

18th.—In the evening the Merchant was declared better. The Bargeman in the Lazaretto, at the bottom of the Island. During the night from the 18th to the 19th, the Merchant died; and the Bargeman about the same time.

20th.—Several cases of Cholera appeared at the Mole Head, among Bargemen and Custom-House Officers, and the working people on the Mole; and from this day, the disease broke out.

A Quarantine of fourteen days against Petersburg established; Peterhoff seven days; Oranianbaun five days.

21st.—Advice that the Cholera was brought down by lighters and barges from Petersburg.

The Town, till this evening, well; one case suspected.

24th.—Have not learnt that the illness has reached the Naval and Military Barracks.

25th.—The complaint broke out in every direction with fury, and by the evening the deaths in all were 85.

26th.—The regular bulletins commenced.

About the Cholera Patients in the British Lazaretto, I cannot say anything.

D.

Referred to in p. 52.

DEAR SIR,

After thanking you for the very high compliment you have paid me regarding the arrangements adopted for the prevention of Cholera, and in requesting information of my precautions and treatment during the time that disease raged here, I subjoin the following hasty account.

In answer to your first question, how many individuals there were Cadets?

From 9 years to 20	150
Officers, their families, and servants, living in the Cadet Corps	} 56
Workmen immediately attached to the Corps	48
Their wives	37
Children from 6 months to 12 years	22
Total	313

Second—What were the precautions adopted?

May 26th.—When I heard that Cholera had appeared on the Russian frontiers, I ordered all the Cadets in this Corps to have their arm-pits rubbed with a towel dipped in vinegar, and to wipe betwixt each finger and toe every morning and evening. I then ordered free ventilation with fumigation, morning and evening, of juniper, the branches and berries; also the chloride of lime, in every part of the building, especially the wash-house; the foul linen to be immersed immediately in water, and washed as soon as possible; in the privies, I ordered quick-lime to be thrown in every second morning, and to be frequently cleaned. I then visited every Officer's house belonging to this Corps—ordered them to be kept particularly clean, properly ventilated while the sun was up, and fumigated as above mentioned.

When the news reached us of the Cholera having appeared in St. Petersburg, I excluded salt meat, and ordered the soup for the Cadets to be made of fresh beef, with onions and potatoes, and those to be well boiled; supper to consist of light food of the farinaceous kind, the quass to be new every second day, and no ice to be allowed to cool it previous to its being brought to table. I prohibited raw vegetables, of which there are great quantities eaten by the lower class in this country, and fruit of every kind, particularly cucumbers.

Third—On the appearance of Cholera in this Island, the 19th June, our gates were shut, and continued so till the 6th of August, during which time I had no decided case of Cholera in the Corps. As soon as the gates were shut, a room nearest the gate was immediately appropriated for fumigating all persons who came in belonging to this department,—say officers and their families, with a few visitors. The workmen and servants of the Corps were prohibited going out, except those sent to purchase food, and these selected from the most steady and decent, each having a stamped ticket from the Officer on guard, to produce at the Barrier, ere the sentinel admitted him out. To mention how many had egress here is impossible, as the tickets were destroyed with the list, after the Quarantine was over.

The prevailing winds during the Cholera were N. E.

I am, my dear Sir,

With the highest respect,

Your most obedient servant,

FRANCIS ARDEN, Staff-Surgeon.

To Dr. Barry.

Cronstadt, Aug. 14th, 1831, O. S.

E.

Referred to at p. 74, Note.

Count Heyden's Quarantine, and first Cases at Cronstadt.

22d August, 1831.

La quarantaine a été établie le 20 Juin et levée le 26.

Cependant il y avoit communication entre Petersbourg et le Port Marchand jusqu'au 23, et ensuite depuis le 26.

Les premiers jours il n'y avoit des malades que dans le Port Marchand, mais ensuite dans la ville aussi.

Le 18 Juin, deux hommes arrivés de Petersbourg malades furent envoyés à l'hôpital hors de la ville.

19 Juin, point de malades.

20 Juin, dans le Port Marchand, cinq hommes devnirent malades sur cinq batimens.

F.

Referred to at p. 74.

Cronstadt, 17th Sept. 1831.

My dear Sir,

In compliance with my promise, I visited Colonel Souler, and got the following accounts from him, which increase my surprise at the wonderful escape of the suburbs and village, as they were surrounded with infection in every possible direction.

To render what I write more plain, I have made a rough sketch of the localities, by which you will see that the barrack in question is situated close to the water's edge, on a tongue of land on the south side of the island, separated from all other houses.

The barrack is a temporary wooden summer residence, to contain the labourers who come down from the interior to work on the citadel now building, and which, if you return by water, you will see.

The barrack contained 320 inhabitants, of whom 60 were taken ill, and five died. Of these five, three died in the government hospital, and two in the barrack. Of the 55 who recovered, only one had medical assistance, and the rest cured themselves with warm milk and oil; and seeing the good produced by the medical men having employed friction with spirits, they proceeded on the same plan, which contributed much to their recovery and to the regaining of their strength.

I am, &c.

To Dr. Barry.

JOHN BOOKER.

G.

Referred to at p. 78.

Cholera Guard-Station on right bank of Neva.

Deaths of Guards, from Captain of the Bark Station.

[Translated by Mr. Hall, from the original Russian.]

Passed the Government-Station, above the Nevsky Monastery, in the year 1831, from the 15th April to the 18th of September, 25 caravans of barks, in number 3163, with different goods, and having on board 31,630 men, with certificates from the quarantine barrier on account of the cholera, in order that no bark should arrive in St. Petersburg with sick persons on board.

At the said Nevsky Government-Station two men have been sick of cholera, each about 35 years of age, who, as soon as the disorder showed itself, were taken to the Marine Hospital. They were taken ill, one on the 27th, and the other on the 30th July, and died on the same days immediately after removal.

At the Hemp-Station, below the said Nevsky Government-Station, were likewise two men sick of the cholera, one 64 and the other 60 years of age. They were sent in the shortest time to the Marine Hospital to be cured of the disorder, but of which they died in a short time, being taken ill the 20th of June, and dying the 21st of the same month.

H.

Referred to at p. 76.

Mr. Cattley presents his compliments to Dr. Barry, and has the pleasure of sending him herewith a note regarding the arrival of the barks at St. Petersburg, concerning which Mr. C. had some conversation with Dr. Barry yesterday.—*English Quay, Sept. 11, 1831.*

INFORMATION REGARDING THE CARAVANS OF BARKS, ARRIVING AT THE PORT OF ST. PETERSBURG.

		Usual Arrival.	Arrival in 1831.
1	The Salpa Barks, chiefly Tallow and Grain . . .	About the middle of April . . .	17th April . . . the first.
2	" Novotorsky (from Torjok), chiefly Grain . . .	About the 1st of May . . .	26th May . . . do.
3	" Gjatsk, Zubzoff, and Iver, with all sorts of Goods . . .	About the end of May . . .	26th May . . . do.
4	" Koliiazinsky, Kashinsky, and Muishkinsky, principally Grain and Seed . . .	ditto . . .	26th May . . . do.
5	" Ribinsk, which bring the Grain, &c., that has wintered at that place . . .	Usually with the Gjatsk, but when there is little water in the reservoirs, the sluices are shut, and this Caravan waits until the Liskofsky is let through . . .	About 5th June . do.
6	" Nijegorodsky (Rizshney Novogorod) { Chiefly with	Generally known here under the name of Nijegorodsky only; it brings Grain, &c., from other Quays on the Volga below Liskov, and the whole of the Goods in these three Caravans are loaded into fresh Craft at Ribinsk, in June. Usually arrives from 15th July to 15th August . . .	In consequence of the very long drought, and consequent want of water, about the 20th August: the first, and continuing now, 11th September. Some may be even too late to get here this year. It is considered about five weeks later than it should have been.
7	" Liskovsky . . .		
8	" Morshansky . . .		
9	" Sursky, chiefly Grain, Seed, and Flour . . .	Should be with the Morshansk. In September and October; but are sometimes too late, and winter on this side of Vishney-Volochok; they usually leave Ribinsk about 1st July.	And is now with them.
10	" Simbirsky, with Grain, Tallow, and Iron . . .		11th September,—not arrived.

St. Petersburg, 11th September, 1831. R. C.

Appendix (I.)

REGISTER of Cholera Patients in the Hospital of the City Prison.
By Dr. Busch, one of the Physicians of the Prison.

No.	Age.	When received in the Prison.	When seized with Cholera.	How soon dead after the first attack by the Cholera.	REMARKS.
1	.	15 June	23 June	after 6 hours	No. 4 had rubbed the cholera patients.
2	.	3 June	24 —	„ 10 hours	
3	.	16 June	24 —	„ 15 hours	
4	.	4 May	25 —	„ 43 hours	No. 5 was the husband of No. 1; had seen his wife on 22d, in the evening.
5	.	24 March	25 —	„ 5 days	
6	60	14 May	25 —	recovered	No. 10 was imprisoned in the same room with No. 7.
7	.	17 June	25 —	after 14 hours	
8	.	13 June	26 —	„ 12 hours	No 12 was the first who fell sick of cholera in the common hospital of the prison.
9	17	13 April	26 —	recovered	
10	.	27 May	26 —	recovered	No. 14 had rubbed the cholera patients.
11	.	20 June	27 —	recovered	
12	.	15 June	27 —	after 14 days	No. 15, the <i>first</i> out of the division of the <i>invalids</i> . The two other <i>invalids</i> attacked by the cholera were not treated in the prison.
13	74	11 June	27 —	„ 46 hours	
14	.	15 June	28 —	„ 12 hours	
15	.	27 June	29 —	recovered	No. 21, the first of the prisoners for violation of property.
16	.	29 May	29 —	recovered	
17	70	18 June	30 —	after 12 hours	No. 26 had rubbed the cholera patients.
18	.	16 April	30 —	„ 9 hours	
19	.	14 April	1 July	recovered	No. 29 had rubbed the cholera patients in the division for men until the 28th June, when, frightened with the death of No. 14, he left off this occupation.
20	.	27 June	1 —	recovered	
21	.	23 May	2 —	recovered	
22	.	9 June	2 —	recovered	
23	73	30 June	4 —	after 3 days	
24	.	30 June	6 —	recovered	
25	.	19 June	7 —	after 4 days	
26	.	8 January	13 —	recovered	
27	.	18 January	14 —	after 2 days	
28	.	11 July	19 —	recovered	
29	.	9 June	28 —	recovered	

ABSTRACT of the Individuals who lived within the walls of the Prison,
during the period of Cholera.

(A) *Officers* employed in the prison, with their families.

(1) Higher officers, &c.	50
(2) Lower officers, &c.	50

Total 100

(B) *Prisoners*.—(1) Debtors

(2) Prisoners of the higher classes	25
(3) For police offences	20
(4) Under age	120
(5) For violation of property	12
(6) For capital crimes	80
(7) Women	12
(8) In the common hospital of the prison	45
	40

Total 354

Besides these there was a *guard* of one officer and ninety soldiers, who were changed daily.

During the epidemic, which lasted from the 23d June to the end of July, O.S., fumigations were used, and there were rooms of observation in the prison. Though these have been abolished now six weeks, not a single individual has been attacked with cholera. All the higher officers of the prison, as well as the divisions (1) of the higher classes, and (2) of the prisoners under age, remained exempt from the cholera. In the division for female prisoners, which is kept in a state of great cleanliness, there was the uncommonly high number of eleven cholera patients. The division of prisoners for police offences, who lived closely and rather uncleanly, had comparatively very few patients.

(Signed) Dr. BÜSCH.

Appendix (K.)

DIVISIONS of the Imperial Foundling Hospital of St. Petersburg, with the Numbers attacked by Spasmodic Cholera in each, from 19th June, 1831. By Dr. Doepe, Chief Physician.

	No. of Inhabitants on the 19th June.	Of that No. were ill		Died.
		With 1st Degree.	With 2d Degree.	
A. Hospital for Female Foundlings { Convalescents	7	—	6	5
contains { Attendants	7	—	3	2
A. a.—People living in the same building, and having frequent intercourse with the hospital	26	3	6	2
B.—Division of the youngest infants { Wet-nurses	208	5	13	8
{ Infants	158	—	—	—
{ Other people	30	1	4	4
C.—Infants' Hospital { Wet-nurses	108	4	8	4
{ Infants	105	—	—	—
{ Other people	24	2	10	4
D.—Division of Male Pupils, Foundlings { Pupils	272	24	14	4
{ Servants	18	4	7	4
E.—Division of Female Pupils, Foundlings { Pupils	219	11	14	3
{ Servants	14	1	5	2
F.—Lodgings of free working-people	29	5	3	3
H.—Division of elder Infants { Infants	159	—	—	—
{ Wet-nurses	159	3	5	1
{ Servants	20	—	2	1
I.—Cholera Hospital { Attendants of both sexes	42	—	7	1
{ Feldtschers	3	—	2	—
M.—Wash-house { Washer-women	43	—	5	3
{ Male servants	10	—	1	1
N.—Apothecaries' Department	36	—	—	—
O.—Lodgings of stone-masons and house-carpenters	120	—	—	—
Z.—In separate lodgings, in different parts of the building	708	20	25	14
X.—Taken into the Cholera Hospital, people taken ill out of the house	0	1	7	3
Totals	2525	84	141	69
Besides the above, received at different times dying persons	—	—	—	5

APPENDIX L.

(Translation.)—*The Result of Observations and Experience in the Foundling Hospital, at St. Petersburg, with a view to the Aetiology of the Cholera.*

THE contagiousness, or contagious nature of the cholera, is indicated by the following experience:—

1st.—The illness did not make its appearance in several sections of the house at once, nor did it attack several individuals simultaneously; but on the 19th one person in A., on the 21st one in B., on the 22d in C., No. 16, and finally, but only on the 24th, and that singly, in several sections.

2d.—In some of the sections it was late in shewing itself; *e. g.* in the fully inhabited one, H. not till the 26th, and only on one person; others have had no sick at all, as N. and O.

3d.—In each division, at least two days of interval elapsed from its first appearance, before more persons were seized.

4th.—In no part of the house did it make its appearance by attacking persons who had been confined to their sections. The persons attacked were always those who went freely about in the house and city, and consequently might receive the infection from out of doors. It was not one of the seven female convalescents in A., (who, it might fairly be presumed, were more susceptible of it, as proved to be the case at a later period,) but the strong, healthy female nurse of No. 1, seventeen years of age, who was first seized. In B. No. 9, one who, two days previous had been let out of the house. In C. not one of the hundred and eight nurses of this section, but the female attendant No. 16. In D. none of the two hundred and seventy-two foundlings, but the male attendant No. 30. In E., No. 24 sickened the first, who had been let out of A. on the 20th, to all appearance in health, and she is therefore classed under A. This is the more striking, or remarkable, it having been generally observed, and several instances can be brought forward here to confirm it, that persons who take much exercise in the open air are less frequently attacked. More opportunities to commit indiscretions in regard to diet may, by possibility, be attributed only to No. 16 in D.; but not to A. B. C. and E.; because those first attacked in these sections had precisely the same food as the others. Indeed, there could no proof be established, of any one having committed any great dietetic indiscretion. It is true that, No. 24 excepted, none of these individuals were aware of having had any previous communication with persons sick of the cholera, but the possibility still existed.

5th.—The illness raged with the greatest violence in the sections from which the sick were not promptly removed; *e. g.* in A., where No. 1, the first person (a female) in the whole house who fell sick, remained three hours; in F., almost entirely inhabited by free men (handicraft), who did not allow themselves to be removed, until they could no longer conceal the complete development of the disease. In F., the family of the coppersmith, Ahl, consisting of five persons, three of whom had the disease very severely; they had, by intreaties, succeeded in obtaining leave for the father not to be sent to the hospital, which was the more readily granted, as the family live quite separate, and only the father had any communication with the other workmen. A fourth of the family, a young girl of seventeen, became ill, but so slightly that she has not been recorded.

I think it proper to remark here, that the female convalescents in A. had suffered from the following complaints:—Nos. 5 and 6, febris catarrhalis; No. 7, tumor lymphat. genu; No. 4, febrés rheumatica; Nos. 10 and 24, peripneumonia: all, No. 7 excepted, were on the point of being let out of the Hospital.

6th.—Not one of the one hundred and twenty people employed during the whole course of the epidemic, in building the new hospital for the house, was taken ill. I need not mention that they used no precautionary measures, but lived quite in their usual way, generally sleeping at night in the open air on the bare ground, or in their very confined wooden huts. I must, however, not omit to add, that they were completely isolated from the rest of the house, and, as usual with these people, lived amongst themselves, having very little intercourse with the city. Further, that the spot where they had to work was contiguous to the cholera hospital yard, and only separated from the same by a boarded fence.

I take the liberty of adducing a similar instance, though it does not belong to this place, because I have it from an authentic source. Of about six hundred masons who were employed at the Isaac's Church, and whose great dread of the illness caused them to live, though in the midst of the city, almost entirely isolated, only two sickened, who were immediately sent to the next hospital. They attributed their good fortune to having a well to themselves, out of which they drank clear, unpoisoned water.

7th.—In opposition to the preceding case, most persons who came in frequent contact with cholera patients sickened of the disease. In the cholera hospital two of the three feldschers were severely attacked; of the other forty-two attendants, it is true that only seven were reported as sick, they only having reached the second stage of the illness. More than half of the number were slightly attacked, and on that account were not reported. The family of the staff-surgeon, Counsellor Kubarkin, was among the number of those living secluded in the hospital yard, and of them one was severely, four were slightly attacked. I myself had a slight attack; such was likewise the case with the police-master of the establishment, the priest, the wife of the clerk, two writers, and several invalids, who carried the sick from the sections A. B. C. D. and H. in sedan chairs: all these were severely ill.

8th.—The disease raged in the fourth story (C.) in the same degree, and according to the same laws, as in the 1st, 2d, and 3d. The position of the windows made no manner of difference, whether to the north, west, south, or east. Those of A., where, of seven individuals, six were seized and five died, were all to the south-west, and open to a fine, large, open spot, planted with shrubs and flowers; the rooms, two in number, are on the second story, very spacious and lofty; great attention is paid to cleanliness and pure air, the same as in all public establishments of St. Petersburg, but most especially in those of the late Empress Maria, with an anxiety bordering on pedantry.

9th.—The epidemic, considered with regard to its intensity, does not progress through its *stadia incrementi, acme, and decline*, but those first seized, who are consequently the most predisposed for, and offer the least resistance to it, are those who the most easily and quickly become its victims. Every where, as with us, those who first fell ill were the most dangerous cases. The later were mostly slighter cases, having occurred to persons who no doubt had previously come into contact with other sick; but, having themselves less predisposition, they the longer withstood the illness, and when finally it reached them, the attack was slighter. There intervened, however, at all times many very severe cases. On the 7th and 8th Sept., there again sickened suddenly two individuals in the house, one a hearty man of about forty years of age, who died in sixteen hours after the first symptoms appeared, and this occurred when we had had no severe case later than the 7th

July. Admitting the contagiousness of the cholera, the occurrence will admit of explanation, by adding that the doors of the house had been closed, and were again opened on the 1st September, and the interdicted thoroughfare, which shortened several roads, was again opened to every body. One of the two new patients was one of the porters at a gate that had previously been closed; and the other a serjeant's wife, living close to another of the doors; both were consequently most particularly exposed to persons passing through, who may have received the contagion. The disease, generally considered, does certainly, at a later stage of it, attack a greater number; namely, when those previously seized come into communication with more persons who are predisposed, in the end fewer people suffer in proportion as the latter become less numerous.

If I add to my experience that of so many others, and consider the history of the epidemic itself, I think I am not wrong in being fully convinced that the cholera is contagious. With regard to the contagious properties of the cholera,

First.—I consider them to be very volatile. Most of the persons attacked had been in close communication with cholera sick; at the distance of several paces the contagiousness was demonstrable. Of the convalescents in A., none had touched No. 1; on the contrary, they had all kept at some distance, though in the same room. The female attendants only, Nos. 3 and 11, had rendered her the necessary assistance.

Second.—I am of opinion the exhalations of the sick are the carriers of the disease, but only so long as they retain their vaporous form. I have given myself great trouble to ascertain if the clothes and linen covered with the perspiration of the sick were capable of transmitting the contagion; but I could not meet with any instance of it. Children taken from the cold, clammy breast of mother, or wet-nurse, and given over to another nurse to suckle, did not infect the latter. This occurred in my presence, in the case of No. 2, and with several nurses of sections B. C. and H. I do, however, believe, that where exhalations from sick persons are confined in a given space, as in clothes buttoned up, in hats, &c., and are immediately carried to persons in health, who are predisposed, they may prove contagious. Assuming this *à priori*, without being able to adduce a certain instance of it, which, indeed, I deem altogether impracticable, I think that most of those, to whom no contagion could be traced, contracted the illness in this manner.

Third.—On account of the properties thus attributed to it, it must be infinitely divisible. Much divided or rarefied, it very probably loses much of its efficacy; in proof, I refer to the case of the six out of one hundred and twenty work-people above-mentioned. All the windows of the cholera hospital were open night and day constantly, and opened to the place where they were at work, but the contagion was not propagated amongst the workmen, from its centre of emanation.

Fourth.—From the above experience, I deem the shortest period that elapses between the infection and the first appearance of its effects, to be twice twenty-four hours. No duly authenticated document has, till now, proved what is the longest interval; it is, therefore, unknown.

From all this, I think I may conclude,

I.—That the disease is not conveyable far by things, and most especially not during very hot, or very cold temperatures.

II.—That in order to render effects or things brought from infected places or persons completely innoxious, it is only necessary to air them well, and particularly to convey through them streams of air. I have had the treatment of three hundred cholera sick, wholly, or in part, and yet I neither conveyed the contagion to my own residence, where eleven people

live, nor to any other; which I can with full certainty maintain, because I paid particular attention to this object. I adopted no fumigation of my clothes, no ablutions, no sprinkling with scented waters. I never changed my clothes when I came from cholera patients. I had accustomed myself, from the commencement of the epidemic, after every visit to a person severely attacked, to walk about for a time, rather more quickly than usual, in the open air, with my clothes unbuttoned. I think I am indebted to the conscientious pursuit of this principle, for the above-mentioned good result.

III.—That when persons come from distant infected places, they do not so much require a rigid quarantine, but rather a long and close inspection, in order that, on the first appearing of symptoms, they may be closely shut out from intercourse.

Predisposition.—My experience goes to prove, that full-blooded, leucophlegmatic persons, with debilitated nerves—those subject to frequent difficulties of digestion, or to other defects of the lower regions of the body, or having a disposition to repletion, are most susceptible of the disease.

The predisposition is evidently lessened by strong exercise, particularly in the open air.

Children at the breast are incapable of being seized; not one of the seven hundred that were in the house, during the three weeks that it lasted in the same, sickened, although many of their nurses were attacked.

(Signed)

PHILIPP DOEPP, Court Doctor,
Director-in-Chief of the Imperial Foundling Hospital,
at St. Petersburg.

I cannot but think that I am with the vast majority of the
 people of this country in the opinion that the Government
 have been very successful in their policy of retrenchment
 and economy. I think it is a great credit to the
 Government that they have been able to do this
 without any serious effect on the public mind.
 I think it is a great credit to the Government
 that they have been able to do this without any
 serious effect on the public mind.

III.—That which has been done for the poor
 is a great credit to the Government. I think it is
 a great credit to the Government that they have
 been able to do this without any serious effect
 on the public mind.

IV.—That which has been done for the poor
 is a great credit to the Government. I think it is
 a great credit to the Government that they have
 been able to do this without any serious effect
 on the public mind.

V.—That which has been done for the poor
 is a great credit to the Government. I think it is
 a great credit to the Government that they have
 been able to do this without any serious effect
 on the public mind.

VI.—That which has been done for the poor
 is a great credit to the Government. I think it is
 a great credit to the Government that they have
 been able to do this without any serious effect
 on the public mind.

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