

Papers relative to the disease called cholera spasmodica in India, now prevailing in the north of Europe. With extracts of letters, reports, and communications received from the Continent.

Contributors

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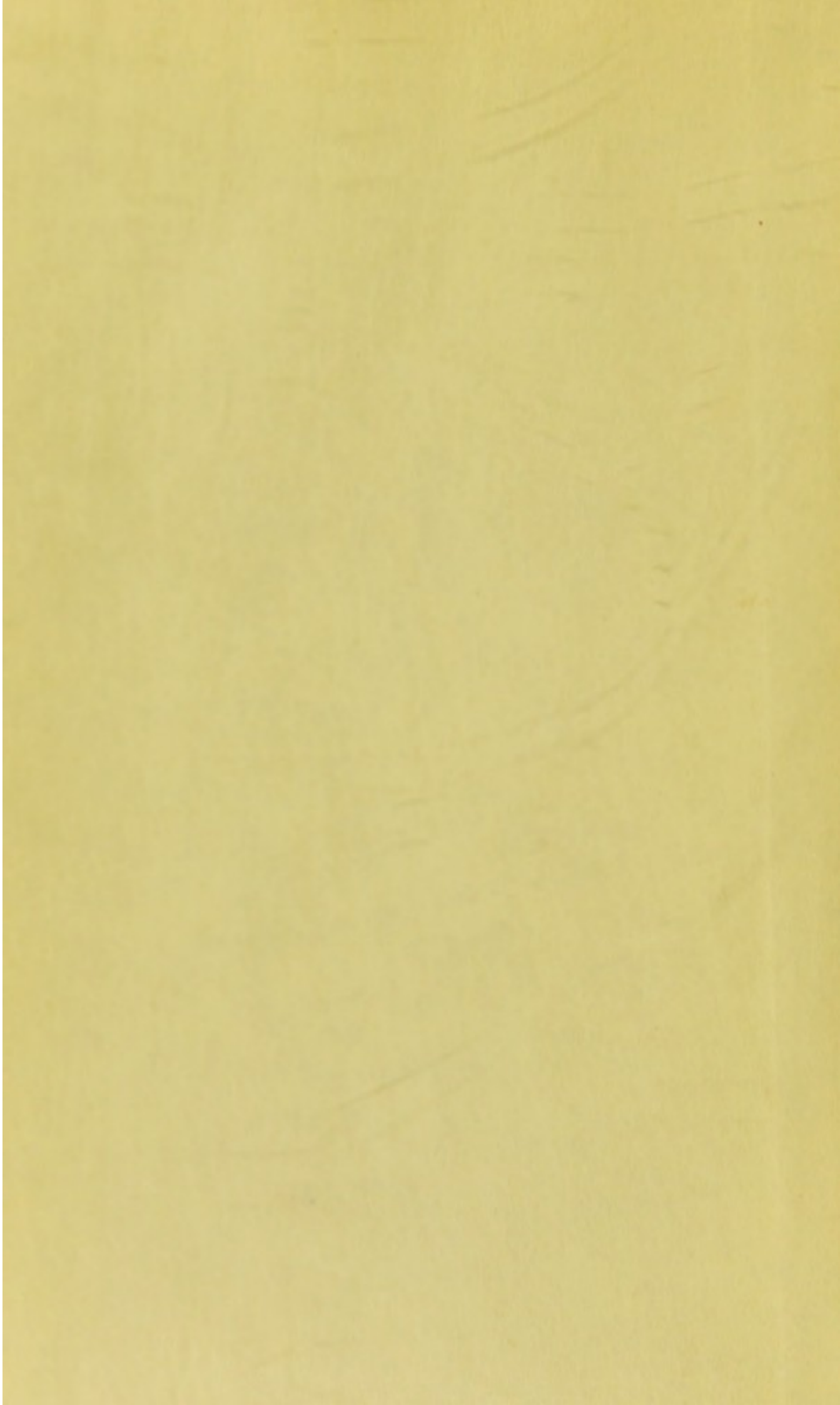


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PAPERS

RELATIVE TO

THE DISEASE CALLED

CHOLERA SPASMODICA

IN INDIA,

NOW PREVAILING IN THE NORTH OF EUROPE.

WITH

EXTRACTS OF LETTERS, REPORTS, AND COMMUNICATIONS
RECEIVED FROM THE CONTINENT.

LONDON:

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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,	Mr. WYBROW,
Dr. ALEXANDER,	Mr. BOYLE,
Dr. ASHBURNER,	Mr. MEICLE,
Dr. BIRCH,	

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 important 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 diarrhoea, 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 diarrhoea.

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-

tine ; 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 necessaries 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 32, 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 slipt 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 riorii*, 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

TARASOFF.

No. 1670, 14th June, 1831.

Translated by me, from a copy in Russian,
furnished to the British Medical Com-
mission 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 cholericæ*’), 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 diarrhœa 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 diarrhoea 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 foundry 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 Yaroslav, 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 diarrhoea, 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 "
			<hr/>
			60
			<hr/>

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, diarrhoea, 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 diarrhœa, 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 spoonfuls 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 spoonfuls 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 spoonfuls of mustard-seed, and one or two table spoonfuls 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 diarrhoea; 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, Brulos, 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 Angloise, 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 médicinaux 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 ?

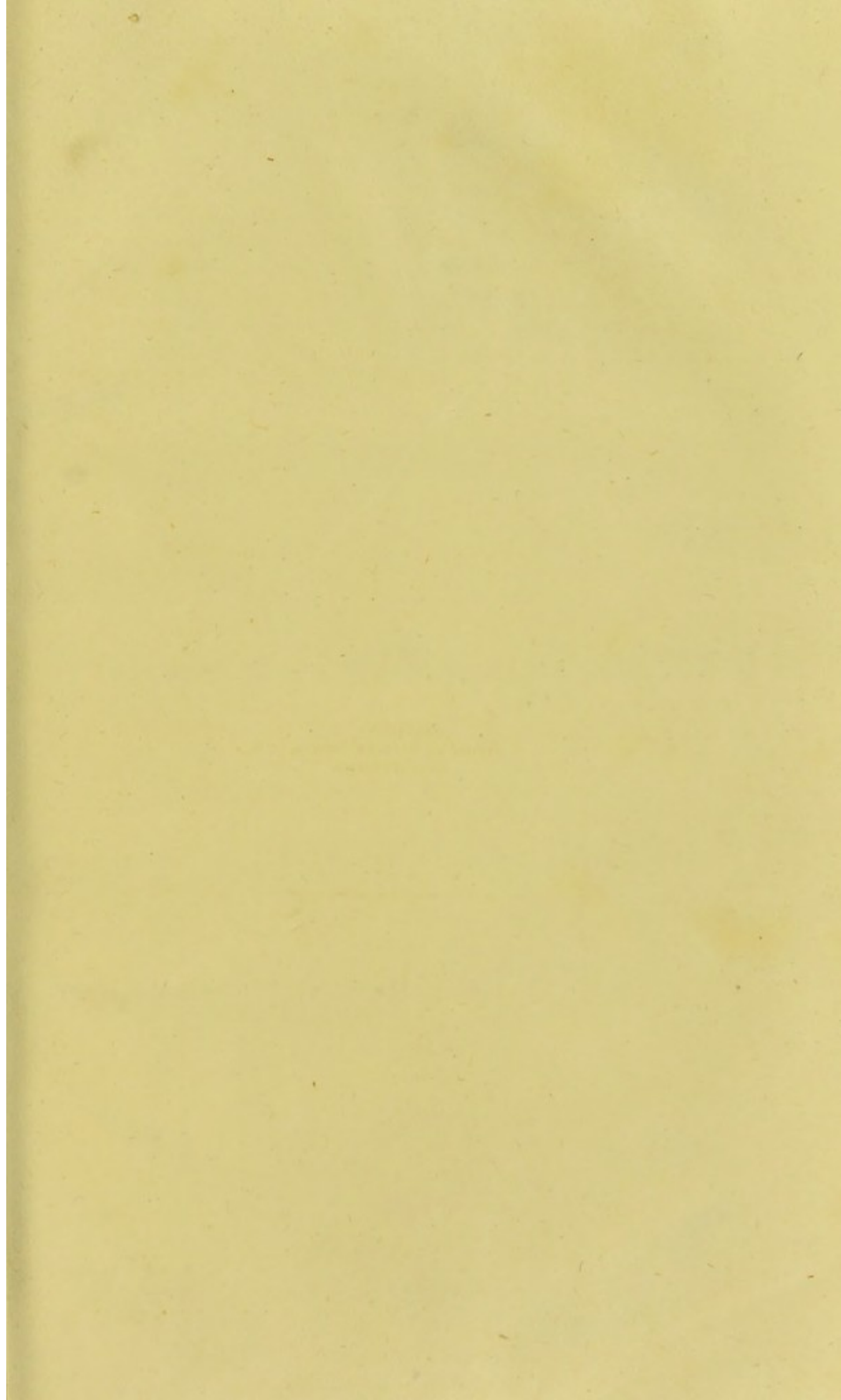
Extract of a Letter from Dr. Barry.

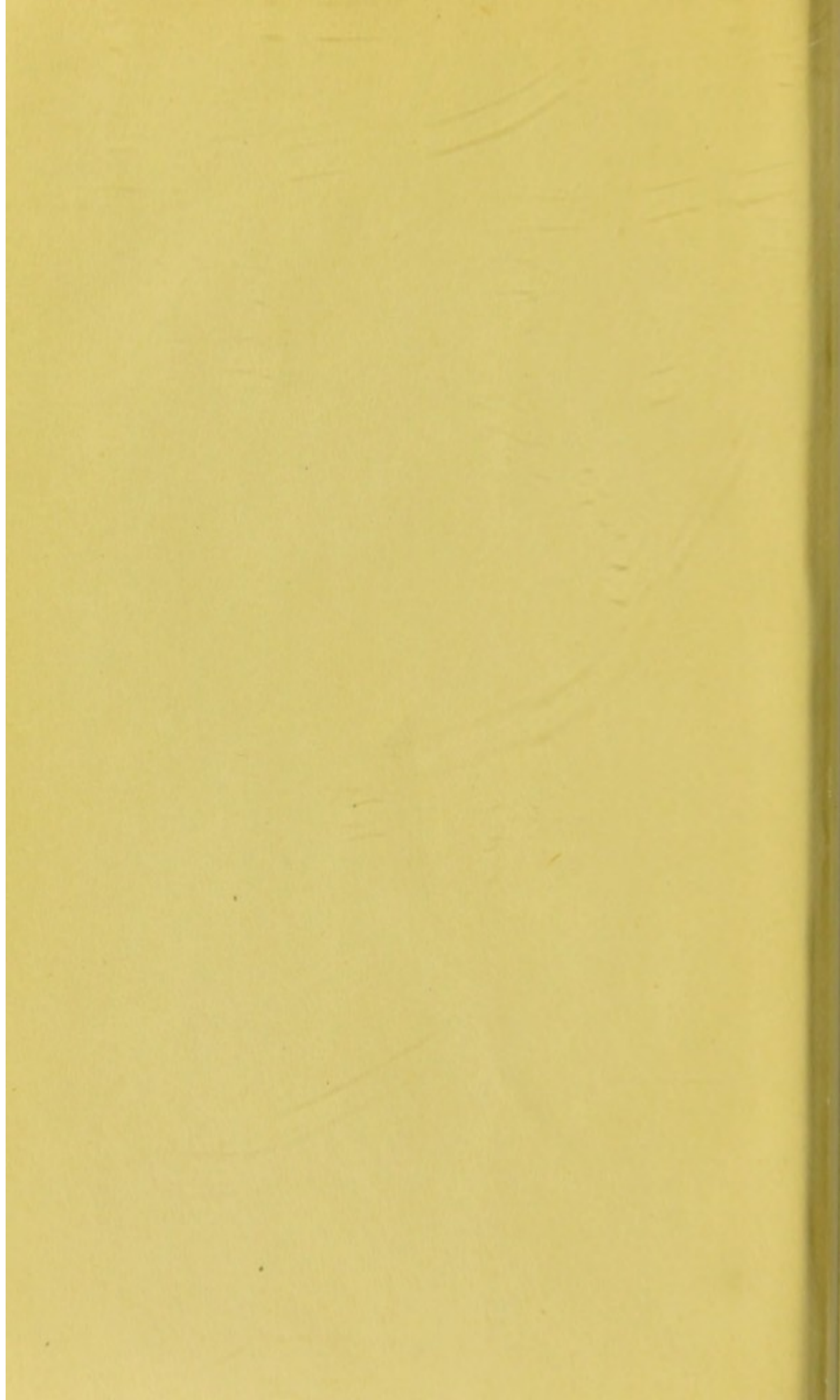
St. Petersburg, Oct. 8, 1831.

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.



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