Yandell (L. P.)

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AN ACCOUNT

OF

SPASMODIC CHOLERA,

AS IT APPEARED IN THE CITY OF LEXINGTON,

In June, 1833.

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BY LUNSFORD P. YANDELL, M. D.

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CHOLERA, as is known to the readers of this Journal, appeared in this city in the early part of last November, and after prevailing very slightly for a few days, suddenly disappeared. The winter which followed was as healthy as usual. Measles were epidemic during the first spring months, and scarlet fever, which had never entirely ceased since its first appearance the winter before, proved exceedingly fatal in a number of families. The entire subsidence of cholera in the fall, after manifesting so little malignity, created a general feeling of security in the citizens. Very little fear of a second and more violent invasion had been felt, when, without premonition, and while the city was enjoying its usual health, it broke out in June with a virulence which but too clearly proves how little the local situation and general good health of a place are to be relied on, as affording an immunity from this epidemic.

The weather which preceded the irruption of the epidemic is worthy of note. The winter was generally mild and open, though once in January, and a second time in March, the thermometer fell to zero. About the 12th of April there

was a frost which threatened the fruit. The mercury was as low as 27° at sun rise, a slight pellicle of ice was seen on a tub of water in my yard, and the water in the calyx of an apple blossom was found frozen in my garden. The fruit, nevertheless, escaped uninjured. In a few days the weather grew warm, and continued uniformly so throughout the month. From the 12th of April to the 13th of May, but a few partial showers of rain fell. Fires were not necessary even in the morning and evening during most of this time. After the rains set in, they were copious and protracted to a degree rarely before witnessed by the oldest inhabitants. For a month, but few days passed without rain, which was generally accompanied by much thunder and lightning. Engaged at the time in a course of lectures on Chemistry, I found it difficult to collect such an amount of electricity as was requisite in performing the common class experiments. During most of the period it was impracticable, by means of the powerful machine belonging to the Chemical Laboratory of the University, to charge a Leyden jar. The range of the thermometer was from 78° to 85° in the hottest part of the day, and the humidity of the atmosphere rendered the heat sultry and oppressive. On one occasion it fell to 67° after a storm, but rose again in a day or two to its former height with the recurrence of the rains.

This weather had continued three weeks when cholera broke out. A few cases, with symptoms to excite suspicions of this disease in the medical attendants, were rumored through the city about the first of the month, and one occurred in a negro, on the 3d of June, which left no doubt of its existence. The night following, a number of persons along Main Street were attacked, and by morning seven were dead or dying. In the course of the day cases were developed in other parts of the city, and on the next day the list of dead had increased to 27. During the next three days it progressed slowly but steadily. The character of the weather was unchanged. Thunder storms occnrred almost every day. Friday, the 7th of June, was a day of continued

storms. The glare of the lightning at night was terrific, and the dismal effect was enhanced by the continual calls at the doors of the physicians and apothecaries, which rendered it but too evident that the pestilence was increasing in violence. In the course of that day and night, I am satisfied that more rain fell, than is ordinarily allotted to a month. After these storms the rains ceased, and the temperature of the atmosphere fell. Sunday morning was clear, cool and beautiful, and with the brightening of the heavens, cheerfulness and hope were restored, in a measure, to the minds of the citizens. They flattered themselves that the epidemic had begun to abate, and that under such genial skies it would soon disappear. A few hours taught them how unfounded was their confidence. About 12 o'clock it became manifest that it was growing more violent, and before night the cases had evidently been multiplied four fold. The fatality along Main and Water Streets was appalling, but by this time no part of the city was entirely exempt. Monday it was evidently still increasing. On Tuesday, the 9th or 10th day after the appearance of the first case, it was believed to have attained its acme, and on this day it is computed that from 50 to 60 persons died, and that 1000, some physicians think 1500, were ill of the disease. There was no great difference in the mortality of Monday, Tuesday, and Wednesday, and there is scarcely a doubt that in those three days Lexington lost from 120 to 150 of her citizens. This mortality is the more striking contrasted with that of former times—when it is considered that the annual mortality of the city for many years, with a population nearly as great as at present, did not exceed 50—its average number of deaths for a year, being thus crowded into a single day!

The weather remained dry and warm until the end of the week, and after Wednesday the epidemic visibly declined. It was evident that there were fewer cases on Thursday than on the day preceding, and from this time it subsided about as rapidly as it arose. A number of families were severely afflicted after this time, and a few fatal cases continued to

occur up to the 10th of July, making more than a month from the commencement of the disease to its final disappearance. At this time (July 18th) not a case is believed to exist in the city, and but little if any more (some physicians think less) disease prevails than in ordinary seasons.

I proceed next to mention a few causes which contributed to the mortality of the disease in this place, not to reflect upon the conduct of any one, but as a warning to other people who may be destined hereafter to feel the epidemic.

So secure had we felt in what were deemed the advantages of our local position, in the former proverbial healthfulness of our city, and in the general comfort of the citizens, that no provision was made for the epidemic. As a consequence, it found our municipal authorities without the means either of ministering to the wants of the indigent sick, or of taking account of the progress of the disease. No Board of Health was organized, and the Health officer being unable to obtain information, no reports were made, and hence we are now left to guess at the mortality. No available hospital was prepared. When the disease had been a week in progress, an attempt was made to open one, but it was then found impossible to procure the necessary attendants, and the project was abandoned. The result of this was, that as the sick were scattered over the whole city, much unnecessary labor was performed by the physicians, and as a necessary consequence, they were soon exhausted. During the first ten days of its prevalence Drs. Boswell, Challen, and Steele died, and nearly every other practitioner in the city experienced an attack of the disease. To add to these misfortunes, Professors Cooke and Short were absent during the first week, and Professor Caldwell, who was in Boston when it broke out, did not reach home until it had subsided. Thus was the city deprived of the services of six physicians, at a time when all would have been inadequate to the demand, to say nothing of the indisposition of many which seriously impaired their efficiency.

The panic excited by the sudden irruption of the epidem-

ic, when all had been deemed so safe, was as great as could easily be conceived. Many of the citizens fled from their homes. Some believed it contagious, and kept aloof from their neighbors. During the gloomiest period of the epidemic, the streets seemed deserted. Even the market house, on market days, presented a picture of desolation, and but for the energy of the City Authorities, and the enterprize of some philanthropic citizens, famine must have been added to the sufferings of many poor families.

In this state of things, when there were in the city probably a thousand sick, dispersed in all directions, and when the greater number of attacks came on at night, many persons were inevitably neglected. At one period, when the disease was most violent, and time, consequently, most precious, it was almost impossible to find a physician after night. Many were therefore obliged to wait until morning, when too often they had reached a hopeless condition. If to those who suffered in this way, we add the ignorant who were little acquainted with the early symptoms or the danger of the disease, and the indigent who could command neither nurses, nor messengers to send for a physician in time, we have a very large class for whom it may be said the resources of the profession *were as nothing*. In looking over the list of the victims of cholera, it is impossible to resist the conclusion that this was one of the chief causes ofits mortality; and I may add, that, with a hospital, where the poor might have received prompt medical aid, and suitable nursing, and if the panic had been less, and citizens had always stood by, and encouraged, and assisted each other, the issue of many cases, perhaps the general issue of the epidemic itself, might have been different from what it was.

Nevertheless, the influence of such causes may be exaggerated. The mortality of the disease probably depends more after all upon its intrinsic virulence, than upon any such adventitious circumstances.

It is common to speak of the epidemic as having, in this city, disregarded character and condition, and invaded all classes of the community indiscriminately. I have examined the list of those who died during the first three weeks with special reference to this subject, and have come to a different conclusion. The number reported by the gentlemen who were at the trouble of visiting all the houses, is 381. Of these, 25 were lunatics, at the Asylum, 168 blacks, and 188 whites. It is unnecessary to speak of the liability of the first class to attacks of cholera. It is not too much to say, that there is every thing in their situation to predispose to it. The habits and condition of the black population in every country are much alike, and well known. Bond and free, they are generally filthy and careless, poor, and ignorant, and in want of many of the comforts of life, and nearly always live in low, damp, or ill ventilated houses. There are few exceptions to this rule. Thus more than half the victims were of the class who have been the great sufferers from cholera in all countries. From their own neglect in the first instance, and the difficulty of affording them the necessary aid afterwards, a large proportion of them when overtaken by the disease inevitably perish. Of the remaining number it may be affirmed, that few were free from some of the causes which strongly predispose to the disease. A great majority were either infirm from other affections, or old age, intemperate in the use of ardent spirits, or guilty of some excess, in eating, exercise, &c. immediately before their attack. The three physicians who fell its victims had labored by night and by day, as well as neglected the early symptoms of their disease. The few robust young persons who died were generally able to trace their attack to some indiscretion. And with all the general abundance of the land, it must be admitted that many of the whites themselves were badly fed, and miserably lodged—in low, crowded houses, surrounded by filth, and supplied with few of the comforts which the sick require. I saw an amount of squalid wretchedness during the prevalence of the epidemic, which I could hardly have

believed to exist in the midst of such general affluence. If we subtract from the above number those who were invalids from other disorders, those who were peculiarly exposed from the nature of their calling, those who were intemperate, or grossly imprudent in diet, as well as the aged, the excessively indigent, and the subjects of inordinate fear, but a small number will remain. That *any* should be left out of all these classes, is evidence of the malignant character assumed by the disease in this place.

Few children died. The list referred to includes but 10 or 11. Of the sexes nearly an equal number suffered. The small excess of males may be attributed, in part, to the hands engaged in the various rope and bagging factories. It cannot be said that the drunkards were principal sufferers, although some of them were among the early victims of the pestilence. It will not, however, be denied that they suffered in a much greater proportion than the opposite class of society. They were, perhaps, on a par with those whose systems were enfeebled by any other cause.

The symptoms of cholera have been so often described, that no one can be at a loss in recognizing it. It is not however, uniform in the manner of its access. In some cases, perhaps a majority, patients felt indisposed for a day or so before the disease was fully developed. The head was often confused, and a feeling of giddiness was experienced. In some, there were unpleasant sensations in the lower extremities, as of a tendency to cramps, &c. The stomach and bowels were flatulent, and many complained of a burning sensation in them, and of pains darting through the abdomen. But in most instances these slight symptoms disappeared in a few days without being followed by any thing more serious; and in very many instances persons in the enjoyment of their usual health were seized with profuse diarrhœa without the occurrence of any previous disorder. Whenever diarrhœa came on, there was generally but little doubt as to the character of the malady. It was not, as in many other places, a *premonitory* symptom, continuing a day

or two before the access of more formidable symptoms, but the *disease itself*, in its first stage. It is true, that in a few instances, it ran on for one or two days without the supervention of spasms, coldness and collapse. But this was not the usual course of things. In nearly every bad case, after a few copious discharges of water tinged with fæces, the characteristic rice water passages appeared, which were soon followed by spasms, more or less general, pulseless wrists, cold, shrivelled skin, attenuated voice, and finally, death. Such was the order in which the symptoms appeared when the case had been trusted to nature—too often, in spite of all the resources of art. Seized, as many were, at night, when medical aid could not be procured, it was not uncommon to find them in the extremity of the disease when visited by the physician for the first time. It was hazardous to allow the diarrhœa to run on for a single hour. Very often, in that time, indeed, the patient was sinking, and hence the only safety consisted in treating every case of diarrhœa, as one of cholera. If this truth could have been impressed early upon the minds of all the people, there can be no doubt that numbers, who perished through neglect of the disease, might have been saved. In confirmation of this, it has been remarked, that few negroes, comparatively, died at the factories, because masters and overseers were on the alert to detect and meet the first indications of the disorder. And yet it is known, that about such establishments there are all the circumstances to excite the disease in its most malignant form.

Vomiting was only an occasional symptom, occurring, in my practice, about once in twenty times. In many of the worst cases the stomach was not at all disturbed. The tongue at first was generally natural, or covered with a white slime. The pulse was most generally either small and frequent, or slow and laboring, but in many cases it was but slightly affected until the vital powers began to decline. In no instance did I find it tense or hard, at the commencement of the disease. The temperature of the skin was generally

below the healthy standard; the countenance pale and anxious. But one of the most striking phenomena in the disease, was the natural appearance of the patient, and the unaltered state of many of the principal functions, there being often no complaint made of acute pain, except of cramps, and little indication of disease, except in the disturbance of the bowels. Where the suffering was most acute there was often least danger; and those were the most alarming cases where the patient complained only of oppression about the præcordia, frequent watery discharges without pain, and rapidly declining strength. In negroes it was not uncommon, after a continuance of such discharges for five or six hours, without acute pain in any part, and without any previous indisposition, for spasms to come on suddenly, followed by cold sweats, shrivelled hands, and all the symptoms of collapse. It was less common among white persons. They generally made more complaint, and were oftener affected with nausea. In a word, whatever the cause may be, their sufferings in the disease seemed to be more acute.

It was a mistake often fatal to patients, that, while their evacuations retained their fæcal character, however watery, they did not labor under cholera. From the nature of the case, the first discharges were filled with the contents of the bowels, and it was not until they were washed out that the peculiar rice water appearance was presented. By this time, the disease had made considerable progress. The strength had generally begun to sink, and the patient often fell into collapse before medicine could change the nature of the discharges. The issue, however, was often more favorable, for although when the rice water discharges had appeared, the disease was for the most part far advanced, the proper treatment at this period often arrested the complaint. It was always a stage of imminent danger, which might oftener have been prevented had people been aware how closely it followed the first intimation of diarrhœa.

In laying down the treatment which I pursued, and should recommend in cholera, I am aware that I shall differ from many of the profession. Where plans have been so various, and often so contradictory, it is impossible to give satisfaction to the advocates of all. In no country, perhaps, have the extremes into which practitioners have run, been greater than in our own, and each party, as is natural, has the most unbounded confidence in its own method. By some, the salt emetic is recommended as almost infallible in the disease, while others proscribe emetics altogether, as unsafe if not injurious, and at the same time, indicate some other system which they have found unfailing. Thus, it is not difficult to find numerous infallible cures for cholera, announced in the journals of the west, while the disease has been marked in its progress by a frightful mortality. For myself, having witnessed most of these plans, I am obliged to confess that I have seen them all fail. That they have been attended with better success in other places, I cannot for a moment doubt, and this only confirms the truth of what has been often remarked of cholera, that it is an ever-varying disease, in point of violence, sweeping over some places with the fury of a tornado, while it passes over others with the gentleness of a summer breeze. It is only in this way that I can understand the various results of the same remedy in different places. And it has at least impressed upon me this useful lesson—to be slow in condemning a practice which I have not tried, or which has not succeeded in my hands—a lesson which the history of medicine ought long since to have taught practitioners.

Cholera may be divided into three stages, with reference to the treatment. *The first* is the stage of fæcal diarrhœa; 2nd, that in which rice water discharges and cramps are the prominent symptoms; and 3d, the stage of collapse. In those cases where the disease does not progress with extraordinary vehemence, these stages arepretty clearly marked; but in its most malignant form, the patient is precipitated, almost from the commencement, into the last fatal stage.

The diarrhœa has scarcely made its appearance before spasms supervene, and the whole train of symptoms characterizing collapse are ushered in. In these cases, it is scarcely necessary to add, the issue is nearly always fatal.

Treatment in the first stage. In this stage the only disorder of which the patient complains is disturbance of the bowels, with occasional nausea, and giddiness. This looseness of the bowels has been often mentioned by writers on cholera, as a premonitory symptom of the disease, which generally preceded it from one to five days. As the disease prevailed here, it constituted the initiatory stage, which was generally followed in a few hours, or at most a day, by the more unequivocal symptoms. A premonition it was, so far as the mild stage of an affection may be considered as warning of the more aggravated stages which are about coming on. The treatment in this stage consisted, first, in confining the patient to his bed, and enjoining strict rest. This was an important preliminary. Dr. Rush has said, "the quickest and most effectual way of conquering fever, is by an early submission to it;" and the remark is equally true of cholera. With rest, and attention to keeping the skin warm, a single dose of calomel was, in most cases, sufficient to effect a cure. I generally gave at the first dose 20 grains. If it was found that the looseness grew worse after the first dose, I repeated it in an hour or two, and then the dose was increased to 60 grains. I never considered it safe to trust to the first dose beyond two or three hours, if the watery discharges increased in frequency or became more copious, and when the access had been sudden and violent, I gave at once 60 grains of calomel, followed by 120 in a few hours, if the first did not check the discharges. This effect, I had the satisfaction to find, a large dose of calomel generally produced, and hence only in a few instances did I combine opium with it. In this way I seldom failed to relieve the patient in a few hours, when called in at this stage of the disease. The calomel promptly arrested the watery passages in most cases, and dark green, consistent matter followed in a short time. When this state

of things was brought about, the patient felt relieved, and was considered safe, and if he did not expose himself too soon to the sun, or commit some excess in eating, gave his physician no farther concern.

To a number of my first patients I administered an emetic before giving calomel. I employed warm salt and water, with the addition, occasionally, of ipecac, or mustard, a tumbler full at a time, repeated every minute or two, until the effect was produced. It was always desirable that free vomiting should take place in the course of fifteen minutes, and that the operation should be soon over. Slow, imperfect emesis produced not the desired effect, and the consequences of a large quantity of salt water being carried into the bowels, as they could hardly have failed to be injurious, were carefully avoided. If the patient had just taken a meal the emetic had the effect of dislodging the undigested food; but the effect aimed at in the administration of this remedy was beyond this. It has been mentioned that the pulse was uniformly below par, the skin cold, and bedewed with perspiration, and the countenance pale and haggard, all which symptoms evidenced a deep-seated congestion. Whatever the original injury done to other organs, the heart seemed struggling with an unequal load. There was a disturbance in the balance of the circulation. The blood had retreated from the surface, and accumulated in the large veins of the interior. Such, at least, was the condition of the system, conveyed to my mind by the phenomena of the disease; and as there was usually no irritability of the stomach to forbid it, the emetic was given for the two-fold purpose of preparing the stomach for the reception of calomel, and giving a salutary impulse to the circulation. The skin generally grew warm under its operation, a profuse perspiration broke out, and the pulse became full and natural. When administered at a more advanced stage of the disease, I have seen emetics relieve the spasms promptly. I have given them with advantage, upon the occurrence of spasms, several hours after calomel had been taken, but before it had operated. I may

add, however, that I ceased to use them so generally after the first weeks of the epidemic, without finding the result of my practice less satisfactory.

Upon the whole, therefore, while I regard emetics as salutary in certain conditions of the system, my experience does not warrant me in concluding that they are indispensable to the cure, much less, that they possess that perfect control over the disease which they seemed to have in the hands of a few physicians in other places. Nor have I witnessed any of those effects which are so much dreaded by many others, and which are said occasionally to result from their operation. I can only give my own experience. I have found them often efficient, and always safe. That they have always proved so, when administered indiscriminately, or by ignorant persons, I do not venture to affirm. Cases have been mentioned to me, I feel bound to confess, in which, from being injudiciously given, perhaps, they operated slowly, and with difficulty, producing great nausea and prostration, and appearing to contribute to the rapid march of the disease.

Every where, cholera in this stage has been considered a curable disease. The profession have labored to impress upon the people the importance of arresting it here. And certain it is, that when allowed to go further, all plans of treatment have been too often unavailing. The success attending the treatment in this stage will depend upon the disposition of the disease to hasten into the succeeding one. If it lingers in this for a day or two, there is comparatively little danger of a failure. If taken at the onset, eight or ten hours may be a sufficient period for checking it. But where the transition is more sudden, the patient may be in collapse before the medicine given has had time to operate, and here, however promptly met, the case generally issues in death. Such must be the general result of those cases where collapse succeeds immediately to diarrhœa—unusual cases it is true, but yet occurring so often, in the truly epidemic form of the disease, as always greatly to swell its mortality. Every physician had more or

less to do with such cases during the raging of the epidemic in this place.

2d Stage.—The first stage, it has been remarked, is one of comparatively little suffering. The patient may feel some burning or pain in his stomach and bowels, slight nausea, a sense of oppression about the præcordia, giddiness, &c. But in most cases, he is able to go about, and would not consider himself indisposed, but for the presence of the profuse diarrhœa. With the coming on of the *second stage*, the urgency of all the symptoms is increased. The discharges have now assumed the appearance, so often described, and so characteristic of cholera—of dirty rice water. Spasms are felt in the extremities, the skin is covered with a profuse perspiration, and acute pains occur in different parts of the body.

Called, for the first time, to a patient with these symptoms, when I did not deem the salt emetic advisable, I gave, at first 60 grains of calomel, and in an hour or two, according to the urgency of the case, 120 more. In my own case, when attacked with considerable severity, I took this quantity in less than three hours, after taking an emetic. And in some very violent cases, I even transcended these doses. To one patient, in whose case vomiting was a distressing symptom, and who was cramped in almost every muscle, I gave an ounce at three doses. I saw her at 1 o'clock, when she had labored under the disease 24 hours. The rice water passages were copious and frequent. She was exhausted, and nearly pulseless. I gave her 120 grains of calomel, ordered cold drinks, with mustard to the epigastrium. At 6 o'clock when I visited her again, all the symptoms were aggravated. I then gave her 135 grains, and in a few minutes a similar dose, as she almost immediately vomited, and it was supposed, probably threw up a portion of the first. In the course of the night the character of the stools was changed. She continued to pass dark, green matter for 48 hours, and recovered rapidly, with scarcely a slight salivation. Besides calomel, on account of the distressing vomiting, this patient took laudanum for a few hours. It did not, however, sensi-

bly check the discharges, or allay the vomiting. These were only relieved by the operation of the calomel.

In spite of our remedies, though given on the accession of the first symptoms, the disease very often ran on into this stage. Under these circumstances there was always cause to apprehend the near approach of collapse, and hence it was important to arrest it as speedily as possible. And as my chief reliance was upon calomel, I gave it always in increased doses—from 60 to 120 grains, and repeated it according to circumstances, every two or three hours. A frequent repetition was, however, not often demanded, the patient being either relieved or dead in a few hours after the access of this stage. In a few cases I repeated the emetic at this juncture, before administering calomel, with the effect of relieving the spasms.

By this course I generally succeeded, and my confidence in it is such, that under the same circumstances, I should resort to it again. As I kept no register of cases, I can only state the result of my practice in general terms, and I may add that where I failed, it was generally because application had been too long delayed, or from age, or other infirmity the patient sunk under the attack before medicine could make an impression. This statement is made, without any disposition to boast, as a part of the history of the epidemic of which I am writing. The disease would be more appalling than it is, if the resources of our art, timely applied, did not generally give relief. But owing to the causes specified —the negligence, or ignorance, or feebleness of too many of the subjects of the disease, a number were far gone in collapse, and some *in articulo mortis*, before I saw them.

In addition to the remedies already mentioned, I generally directed mustard poultices to the extremities, where they were disposed to grow cold. It was also necessary to employ rubbing when there were spasms. If vomiting existed, mustard was likewise applied over the epigastrium, and laudanum given, or ice, or iced water, or lemonade, which I believe was more effectual than the opiate It was a

most grateful remedy to the patient, and in my experience, always harmless, if not beneficial. In several instances I was induced by the vomiting, and the profuse evacuations from the bowels, to employ laudanum, but I rarely, if ever derived from it any unequivocal advantage. Where administered as an enema it perhaps retarded the diarrhœa. In this mode I should prefer to use it. And thus employed, I am bound to believe it was useful in the hands of some other physicians. Nor can I doubt that opium in its different forms, given in conjunction with calomel, constituted a good remedy in the practice of the city. One lady at least recovered from a very severe attack by means of it alone, and many persons took it for diarrhœa with the effect of checking it, and were troubled no farther. It should be added however, that a number who pursued this course only postponed the more formidable symptoms, which ultimately came on with increased violence; and hence I should deprecate such a mode of meeting the incipient stage of the disease. It may succeed occasionally, but is oftener attended with disastrous consequences. In combination with calomel, or the blue pill, opium may be serviceable, and perhaps is deserving of higher confidence than is generally reposed in it. My experience inclines me to believe, that the vegetable astringents, of which a tincture, or infusion of galls is one of the best, would also be useful in certain cases, in checking the watery discharges. I certainly saw this article, in conjunction with brandy, moderate the diarrhœa in one case in my neighborhood.

3d Stage. In treating the third stage of the disease, I employed no new remedies, and experienced the same failure in the use of the old, that has been acknowledged by the profession in other places. A patient laboring under collapse from cholera, presents one of the most hopeless cases of disease. With pulseless wrists, skin as cold as marble, cold tongue and breath, shrivelled hands, and livid, contracted features,—with only respiration continuing to show that life is not extinct, our remedies are almost as inert, as if poured into a body

already dead. The most powerful stimulants given internally, and heat and rubefacients applied to the surface, were incapable, most generally, of rousing the heart, or restoring heat to the skin. The susceptibility of the system to the impression of external agents was gone. *The vis medicatrix, naturæ* as John Hunter expresses it, *had given up in despair.*

Nevertheless, a few were reclaimed from this extremity of the disease. Mr. Hale, an esteemed pupil of mine, was called, during my illness, to a female laboring under cholera in this stage. She was poor, and being remote from the populous part of the city, had received no attention. He gave her 250 grains of calomel, applied mustard to the extremities, and left her for the night. When he called next morning, contrary to all expectation, the calomel had produced the desired effect, and the patient was relieved. She has recovered completely, and has since had a child cured of the same disease by this enterprizing young gentleman. One or two patients attribute their recovery from a state of collapse to swallowing pellets of ice. Other cases are reported, in which large doses of calomel seemed to effect the cure. Brandy, ether, and ammonia were the stimulants usually resorted to for the purpose of restoring the pulse and heat. But, as already stated, they rarely produced the effect. The cold dash was also used in some cases, but without avail. I may mention here, that Dr. Addams, of Cynthiana, speaks in strong terms of the efficacy of this remedy, in this stage of the complaint. He applied it to his patients again and again, as the heat declined, with the effect of bringing on reaction; and it would seem that in this way he was very often successful. It is, perhaps, scarcely worth stating, that I prepared the nitrous oxide gas with the intention of trying its effects upon the system in this stage of the disease, but was prevented from carrying my views into practice by my own illness. Prompt, and powerfully stimulating as this gas is, it was thought that it might impart a temporary vigor, in which other remedies could be made to act, and which might even be kept up by a repetition of the substance.

In giving the treatment in the different stages of cholera, I have not yet spoken of blood-letting. The reason is, that I had but little experience of its utility. I saw some cases, generally in the hands of others, in which I now feel convinced it would have been useful, and it gives me pleasure to add, that a number of the practitioners of the city report most favorably of it. Dr. Pawling, who practised extensively in the disease in Harrodsburg, as well as in this place, informs me that he resorted to it with manifest advantage. The pulse was generally so far from indicating an inflammatory condition, that many practitioners felt a very natural repugnance to its use, perhaps overlooking, that there are other morbid states in which it is equally demanded. It cannot be doubted from the general testimony of the profession, that it is one of the remedies upon which, judiciously employed, reliance should be placed in the treatment of cholera. At the same time, it is admitted by those who have had extensive experience of it, that the patient occasionally grows weaker under its operation, and that, therefore, if resorted to indiscriminately, it may do mischief. If the pulse struggles, the effect of it is to give it freedom; if it is feeble and indistinct, it sometimes increases its fulness and force. This is the end always desired, and if not accomplished, the abstraction of a portion of blood from the already diminished quantity in circulation, only adds to the exhaustion of the patient. And hence the impression of the bleeding must be carefully observed, and if the pulse is found to become more feeble, and the anxiety and restlessness of the patient to increase, the vein must be closed. Where the effect is salutary, the load about the heart is removed, the general anguish mitigated, and the operationof medicine rendered more prompt and beneficial.

In conjunction with blood-letting, leeches and cupping over the epigastrium are conceded to be remedies indicated in cases where there is much nausea, or irritability of stomach. And some practitioners apply blisters to the same region in the earliest stage of the disease, with the effect, as is thought,

of rousing the action of the heart, and rendering the operation of other remedies more certain.

Convalescence in most instances has been slow, the disease conforming, in this respect, to the character which it assumed after invading Europe. In Asia, it is stated by writers, that persons who survived an attack recovered rapidly and completely. Patients here, after the disease was subdued, remained feeble and without appetite, for a number of days, or even weeks; and in some cases fever followed. Great care was necessary to prevent relapses, of which undue exercise, and exposure to the sun were the most frequent causes. The use of fruit, and indigestible food produced the same effect. But the former had but little agency in bringing on the disease, in the first instance, so far as my observation extended. Children, who in spite of the vigilance of parents would now and then obtain it, pretty uniformly escaped; and many adult persons who indulged themselves freely in the same way, remained quite healthy throughout the prevalence of the epidemic.

The treatment of the consecutive symptoms was necessarily various. In some cases, a recurrence to the remedies first employed was necessary; in others, brandy, opium, or some other astringent relieved the diarrhœa; and where fever came on, it was treated as such.

If there are those who will question the propriety of emetics in cholera, more perhaps, will doubt the necessity of giving calomel in so large a quantity. I can only state the views which lead me to the adoption of the practice, and the results attending it, leaving others to pursue or reject it, as it may be sanctioned by their principles or experience. In the cases of the disease which fell under my care during the last season, I had an opportunity of trying the effects of the different methods of cure. To the first patient who applied to me with clearly marked symptoms of cholera, I gave 20 grains of calomel and one of opium, and had the mortification, after waiting six hours on its operation, during which time he had but two discharges, to see him seized with spasms ,and

ultimately die. In other cases, where cramps and rice water passages were also present, I gave the calomel in doses of 60 grains, and in every instance with a different result. With this experience, I was inclined to the use of this remedy in large doses, and the first case which I saw in June confirmed me in the propriety of the course. The patient was a healthy lad, in a factory, aged about 18 years. He was seized with diarrhœa at 4 o'clock on the morning of the 4th, but continued at his work until 10, at which time he was in advance of his task. I saw him at 12, when his owner had given him 20 grains of calomel. He was sitting up dressed, and complained of nothing but the looseness of his bowels. Nevertheless, he looked ill, and his pulse was much below the healthy standard in force and fulness. In about three hours, and of course, before the calomel had operated, he was taken with spasms, and died before 6 in the evening.

From the repugnance of many persons to large doses of calomel, I was obliged, in a few cases afterwards, to commence with small doses. And, as stated, this course very often succeeded; but now and then the case proving obstinate, it was found necessary to increase the quantity in the manner above referred to. In nearly every instance where 60 or 100 grains were given at first, the effect was that of an opiate upon the bowels—arresting all discharges until bilious matter began to pass off.

In using this article thus liberally I had but one fear—that of salivating the patient, and when it had acted favorably, aloes freely given kept up the secretion of the liver, and obviated this difficulty. Calomel, it is well known, is one of the most insoluble of substances, and though administered in large quantities can enter, in any reasonable time, but sparingly into the circulation. Hence the danger of ptyalism is not in proportion to the quantity taken, while I have experienced that the certainty of its operation is. Such being the case, and since hypercatharsis is not one of the consequences to be dreaded from it, it appeared to me but reasonable to employ the remedy, in which I had most con-

fidence, in the most efficient doses. If more be given than can be brought into action, the excess is carried off, as comparatively an inert mass, without producing any disturbance in the system, that I have witnessed, or seen mentioned by writers on the Materia Medica.

The result of my practice being in harmony with these views, I have felt less hesitation in laying them before the profession. No one of my patients was seriously salivated. Their convalescence has been as rapid as that of others who took less calomel. In no case have I seen what is termed *bad health*, as a consequence of it. On the contrary, those who suffered last season, as well as those who were affected in the late epidemic and survived, are now enjoying their usual health, and some have even felt it improved by the course of medicine.

In reference to their termination, the cases of cholera, as the disease appeared here, and no doubt manifested itself in other places, may be divided into two classes. The first matured slowly, being generally preceded, for a day or so, by some slight indisposition. The fæcal diarrhœa continued several hours, and occasionally more than a day, before the appearance of rice water, and the more formidable symptoms. In such cases, the cure was comparatively certain. Time sufficient was afforded for the patient to take alarm, and for medicine to impress the system. In the second class, the invasion was sudden and overwhelming. Almost without premonition, the patient felt himself struggling with the disease in its matured form. Diarrhœa had scarcely made its appearance, before the vital forces gave way, and the system sunk, without commotion, as in the worst cases of the epidemic of London, described by Sydenham. The subjects of these attacks were for the most part aged persons, or those who were debilitated by disease, or intemperance, and the issue, it need scarcely be added, was rarely favorable.

This brings me to remark, that the epidemic appears to have acquired fresh vigor by its repose during the last winter, or that it has found, in the Valley of the Mississippi, a

state of things more favorable to its production than exists in the north and east, where it first touched upon our continent. Its ravages were considerable in Quebec and Montreal, and local causes were discovered which were deemed by medical observers sufficient to account for its malignity. In these cities the mortality was about one in 13. And it is worthy of remark, that, when from these points it spread into the surrounding villages, it assumed a mild form, while the country remained comparatively exempt. Of the cities on the Atlantic coast, New York was most seriously affected. The mortality there in the whole population, with numerous causes to lend to its violence, was only 3000, or less than 2 per cent. And as remarked of Canada, the villages and country, with few and partial exceptions, experienced little of the visitation. In Philadelphia the form in which it appeared was yet more mild. Every circumstance was thought to be favorable to the health of that city, and for once, predictions in reference to the march of the epidemic were verified. In that population only 913 deaths occurred, or one in 170.

Appearing in Cincinnati in October, it seemed to have assumed a more malignant character. In a population of 30,000 571 died, or about one in 50.

In Louisville, which it attacked about the same time, according to the writers of that place, it scarcely acquired an epidemic character, being confined to a few districts in the city, peculiarly exposed to what were deemed exciting causes. The mortality in that place is not accurately known, but was much less than in Cincinnati.

In Frankfort it broke out with violence, but disappeared in a short time. The mildness with which it appeared in this city, for a few days, has already been alluded to.

If the ratio of mortality, observed by the disease in the Atlantic cities, had not been exceeded in its progress westward, what would have been the losses of our largest cities? Louisville, with the largest population of the towns south of the Ohio, would have lost about 100, and Nashville and Lexington in the same proportion. But how different the actual state of

the case! From having prevailed for so long a period in the former places, it is difficult to ascertain the number who have died; but it is well known that it greatly exceeds this estimate. While in Lexington, where, as its progress was rapid, and the deaths crowded into a few days, its mortality was more striking, about 450 are supposed to have died.

Nor is this equal to the mortality of numerous other places. In some neighborhoods, a few miles from the city, the disease manifested itself in a form of more concentrated energy. One family, out of 20, lost 17 members; and other instances of a similar fatality might be mentioned.

Among the towns of this state which suffered in the greatest degree, may be mentioned Flemingsburg, Simpsonsville and Springfield. According to the reports published, in the former place, the population of which is about 700, 50 died in 5 days —one family losing 12 out of 14 members; and in the latter, with nearly the same population, the same number died in a few days. The mortality here was rendered more striking by the circumstance, that it was confined chiefly to a small portion of the town. Georgetown, Paris, and Millersburg also suffered, but not to so great an extent. In Maysville, where it broke out a few days before it made its appearance here, its ravages were such that the town in a short time was nearly deserted.

Palmyra, in Missouri, lost a large proportion of it population; though I have not been able to learn the exact number. Some of the towns in Tennessee have also been sorely afflicted. Pulaski lost one in 12 of her whole population. But of all the spots upon which it has yet exerted its force in our country, Shelbyville has experienced its desolations most severely. It is a singular coincidence, that this village was visited by a storm of uncommon violence three years ago, by which a number of houses were blown down, and many of its citizens lost their lives. In two days after cholera made its appearance there, 55 cases occurred, out of which 40 terminated fatally in a few hours; one in 10 died the first four days; and in less than two weeks, during which it raged, more than one eighth of the whole population

perished. In Nashville it appeared towards the latter end of January, since which time it has never entirely subsided. About the time that it broke out in this place, it was raging there with some violence, as many as 7 dying on one or two days; but the prevalence of the disease in that city has been more like that of endemic disorders. And the access, and progress of the individual cases, as of the epidemic, would appear to have been less sudden and violent, which is also true of Louisville. In both these towns, situated alike in many respects, the latter particularly, having suffered seriously, at one time, with bilious diseases, it has never assumed the truly epidemic form, nor attained to the height of malignity which marked it in Cincinnati or Lexington. Should it continue to hang upon them it is possible that, from first to last, they may not lose fewer of their citizens than fell victims to it in the latter places, in the few weeks whilst it raged.

With all these facts before our eyes, it will scarcely be maintained that cholera is equally violent and incurable in every place where it appears;—that it is unaffected by the state of the atmosphere, by local peculiarities, and possibly other circumstances, which, in the present state of medical science, it is impossible to appreciate. It is well known that fevers, and many other diseases are influenced thus, and that they present very different grades of malignity in the different localities where they prevail. Such being true, it would seem scarcely necessary to look beyond these causes, in order to find additional ones for its mortality, in the plan of treatment pursued by the physicians of a place where it has chanced to be peculiarly intractable. And yet as able and experienced a writer as the Editor of the Western Journal of the Medical and Physical Sciences, has suffered himself to be betrayed into this delusive way of viewing the subject. In the last number of his Journal he suggests, "that perhaps some part of the mortality at Lexington, is referable to a reliance, too exclusive, on certain remedies, and a rejection, not warranted by experience, of others possessing great power." The possibility that this cause did something, will not be de-

nied by those acquainted with the uncertainty of medicine; nevertheless, it is unphilosophical to assign more causes for an effect than are sufficient to explain it. Cholera has uniformly exhibited this diversity of violence, and if such an explanation holds good in reference to the disease in Lexington, it must apply to the other places which it has desolated. We must believe then, that it was more fatal in New York than in Philadelphia, because the physicians of the former city either relied too much upon some favorite remedies, or rejected others of equal efficacy. And Louisville, thus, must claim to have a more judicious, or skilful Faculty than her neighbor Cincinnati. This may even all be true, but it is not very plausible.

In the same town, some districts are affected more seriously than others. My own neighborhood, during the prevalence of the epidemic, furnished much less than its average of fatal cases. Of more than twenty families, containing not less than 200 members, many of whom were considered favorable subjects for the disease, only four persons died. It would be as illogical, as I am persuaded it would be unjust, for the physician of this neighborhood to claim for the skill of his treatment this remarkable success.

But the most conclusive evidence is the testimony of intelligent medical men who have had intercourse with the disease in more places than one. Dr. Pawling found it much less intractable in Harrodsburg than in this place. A smaller proportion of cases was of the class which hasten so rapidly into collapse, and hence the success of his remedies was greater. Other physicians have experienced the same, during the present season.

Finally, cholera was a manageable disease in Lexington. The fatality truly was great, but not greater, in proportion to the number of cases, than it has been elsewhere. When met with proper remedies in its early stage, where the constitution was not worn out by age or disease, it yielded with as much uniformity as other violent disorders—more promptly, and with more uniformity, perhaps, than bilious fever, taken at the same period. The rate of its mortality was fear-

fully raised by the circumstances already indicated in this paper —chiefly by the ignorance, or carelessness of its victims, through which the time, when cure was practicable, was allowed often to elapse. When, therefore, experience shall have taught men the importance of meeting the first symptoms of the disease, and of controlling their passions, and governing their appetites, its ravages will cease to be so frightful.

ART. VI.—*Observations on Epidemic Cholera.* By BENJAMIN W. DUDLEY, M. D., &c. (In a letter addressed to the Editor.)

DEAR SIR:—I present you with a brief summary of my observations and practice in the epidemic cholera, which has recently visited our city. The history of the disease, even when confined to our small population, and to the localities within the city, presents inscrutable difficulties to the consideration of the medical philosopher. Last fall, the very few cases that occured, were all confined to the imprudent, or the indigent, on Water Street, or in other low situations. On the recent occasion, the complaint appeared about the same time in different parts of the city without regard to locality. The isolated dwelling, enjoying all the advantages of elevation, and of air, did not prove more exempt from its ravages than others, situated in the lowest, and most dense parts of our city.

For some weeks previous to, and during the continuance of the malady, almost every person with whom I had intercourse, complained of the generation of large quantities of wind in the stomach, and of unpleasant sensations in the bowels. After the cholera made its appearance, notwithstanding the prudent and discreet reduced the quantity, and variety of their food, and paid particular attention to its quality, still the symptoms of indigestion were very general. "Cholerine" made its appearance in some instances, both be-

fore and during the epidemic, yet it was at no time so general, as to constitute the characteristic condition of the population. The ravages of the disease have been most extensive in the black population, and among those of the whites who failed to secure the advantages of nursing, appropriate food, and professional attendance; yet among the easy and affluent, those of sober and temperate habits, it has been attended by great mortality, as has been observed in the obituary list. The regular brandy drinker has been peculiarly fortunate. The maintenance of his powers of digestion by the aid of this stimulus, in almost every instance preserved him safe.

Confiding too much in our great elevation above the beds of our rivers, in the absence of all collections of water, favorable to vegetable decomposition, and in the undulating nature of the face of the surrounding country, it had been presumed we should escape the consequences of the scourge. The entire want of all those arrangements on the part of the city authories to avert this evil, or to mitigate as far as practicable, the consequences of the epidemic, added no little to its fatality; but independent of all premonitions, and of every arrangement that might have been made for its reception, it came among us with a type so malignant, and its march in the work of death was so rapid and unhesitating, that extensive mortality was the inevitable result of its visit. To compare the disease, as it existed here for the first twelve days after its appearance, with what it has shown itself to be in most other quarters of the United States, would be like placing the tiger by the side of the lamb with a view to an estimate of strength and danger.

No remarkable variety of symptoms appeared in the different periods of the epidemic among us. Coldness of surface, excessive perspiration, and spasms, were more characteristic of the early, than of the latter period of its history. Severe spasms, profuse perspiration, with an icy coldness of the skin, characterised most of the fatal cases, I had an opportunity of seeing for the first twelve days. After that time, death took place in many cases, without either cramps,

coldness of the surface, or much perspiration. This feature in its history was not confined to the aged, as young persons sunk under circumstances of a similar kind.

In different climates, seasons, localities, constitutions, and in different periods of the disease, a variety in treatment is demanded. At one time and place it is mild and gentle in its progress, and is manageable on the system of practice of the French School. In other localities, its march is as destructive and rapid as the hurricane, calling for the most prompt action, and the most powerful remedies.

After all my recent experience in this epidemic, added to that of my friends, which has been made known to me, the confidence I had reposed in the efficacy of emetics, in the early stage, as preparatory to the exhibition of calomel, is not only unabated, but confirmed.

A gentleman of great intelligence and moral worth, whose family was among the first to be invaded by the epidemic, and who became satisfied of the superior efficacy of emetics, as well in the spasmodic form of the disease, as in the earlier stage, with a view to the subsequent, and more successful administration of calomel, observed to me, that in the decline of the epidemic, where he could "*safely calculate on six hours*," he relied on calomel alone; but that in more doubtful cases the emetic was used first.

I have lost patients who went into collapse six hours after the exhibition of 20 grain doses of calomel with opium; but I did not lose *one*, when the operation of the emetic was *full and complete*, before any symptoms of collapse supervened. Half an hour was sufficient to accomplish this object. One gentleman of the city had forty-seven cases in his family. Of this number eleven reached the spasmodic form of the disease. Forty-six of them were treated by emetics and calomel, taking care, to maintain as much heat of surface as practicable. One out of the entire number thus treated was lost. Fifty cases were prescribed for among my relatives of this vicinity, and of these, twelve were in the spasmodic form of the malady before any thing was done: one individu-

al died, an old female slave of seventy years, who was in collapse when first observed, and from whom the emetic was withheld.

In all my intercourse with the sick of the city, I was uniformly pleased with the effects of the emetic, administered in the early stage of the disease. I was enabled by it to subdue the irritable state of the stomach, and thus prepare that organ to retain calomel, which it too often failed to do, when not tranquillized by medicinal vomiting. The benefit of the emetic was manifest in many cases, where the contents of a torpid stomach were thrown off unchanged, the day after indulgence in a hearty meal. Among many cases that might be recited, was that of a cook of a private family, who was attacked with copious rice water discharges, and who, under the free influence of ipecac and salt water, threw off half a bason-full of snap-beans unchanged by the powers of the stomach, which she had dined on the day before. The effect of free vomiting upon the watery secretions of the bowels, was equally evident. A young female who had been exhausted by her attention to the various members of her family, added to all the domestic labors which devolved upon her, became finally the subject of rice water discharges, and had six copious evacuations between my noon and evening visits. Being without a nurse, or any person to assist her, I administered the emetic myself, and vomited her freely half-a-dozen times. She was then placed between blankets, where she remained without molestation from her bowels five hours. At the expiration of that time, the liver began to act freely, and continued to do so, until the secretions became healthy; so that at the expiration of twenty-four hours, she resumed her attention to her sick family. This treatment was not the result of choice, but in part of necessity, as she had no one to send after another prescription, and the urgent importunities of others, whose cases were thought more violent, caused me to neglect her. In all cases where the emetic was administered in the early stage, to a

patient capable of resisting disease, I witnessed with satisfaction its virtue in suspending the rice water secretions.

The benefit derived from the use of blankets in excluding the atmosphere from the surface, was observed in every stage of the disease; and in the curable stages, the practice of protecting the entire surface was enjoined on the sick as indispensable to safety. By this precaution the stomach and bowels were preserved free from morbid movements to a certain extent, and thus time was given for the healthy influence of calomel. It is presumed that every body, who was observant at the time cholera prevailed, must recollect, and the fact is of daily observation even at present, in our city, among those of delicate health, that the exposed parts of the person were habitually cold and moist. Hence the necessity for this protection, not only for the sick, but for others also. The recovery of several patients in the aggravated forms of the disease, was ascribed to the dry heat of the kitchen and the stove room.

In the spasmodic form of the malady, I could call to my assistance no remedy possessed of the tranquillizing influence of an efficient emetic. In every instance it checked the violence of this symptom, and in very many, subdued it altogether. It *may* have hastened the moment of dissolution among those who had no power of reaction; but it invariably brought along with its effects, a certain amount of tranquillity, with an increased susceptibility to the speedy influence of healthy purgation, among those not already exhausted by the disease.

Its virtues were faithfully tried in the stage of collapse, not only in the early, but in the latter periods of the epidemic among us; and the manifestations for the moment were flattering in many instances; but it is proper to add, that notwithstanding a partial recurence of heat, and circulation, and an expression of comfort on the part of the sick, yet for this stage of cholera, I am not taught by experience, to place reliance in emetics, calomel, stimuli, cold water, or any other remedy, which has been suggested. It

is the stage in which no rational calculations can be made; and consequently no uniform prescription urged for its treatment; at least, so far as I have remarked upon it in Lexington. Cases of collapse may have been cured; I might even state a case of the kind within my own practice; yet such instances must stand as signal exceptions to a general rule, in the history of the epidemic of this city. In almost all cases where I have administered calomel, without the previous use of the emetic, larger and more repeated doses were found necessary to accomplish the object before me; and in other cases where I have relied on calomel and opium with a view to cure, the patient recovered very slowly after the disease was arrested, and was much more liable to relapse, than when treated by emetics and calomel, or by calomel alone.

Many cases of confirmed cholera have been cured without the aid of either calomel or emetics. A gentleman eighty years of age in the vicinity of this city, was attacked with rice water discharges which soon began to run from him involuntarily. In this situation, he passed the evening and night, wetting every thing beneath him, and remained wraped up in his bedding. In the course of the forenoon of next day, the secretions changed in character, and by the following day he was entirely relieved, without the aid of any medicine with a view either to alleviation or cure. A precisely analogous case occurred in an elderly lady of this city, who has for a long time been confined to her bed. A small pill of opium, riding on horse back, free exercise on foot, and burnt brandy, have each relieved cases of a decided character; nor need credulity startle at this, when it is familiarly, known that a large number of cases wherever the disease may prevail, is the result of panic. As the operations of the mind are capable of exciting it, during a cholera predisposition, there must be a corresponding multiplication in the resources of the profession with a view to cure. Any remedy which may produce a return of the healthy secretions of the stomach, liver, and bowels, will cause all

other morbid appearances to vanish, and thereby the patient will be restored to health.

I have declined saying any thing on the effects of external remedies, except heat; or of any of the internal remedies of an anodyne or stimulating character, from all which I have occasionally witnessed benefit—my more especial object being to offer testimony in favor of a remedy, better calculated than any other with which I am acquainted, to equallize the circulation, restore the secretions, arouse the digestive organs to vigorous and healthy action, check spasms, and relieve the system from the effects of undigested materials in the stomach. I do not wish to touch upon the pathology of a disease, wherein there is so much variety of sentiment; but prefer a faithful record of a few facts, as constituting my more immediate duty for the present. I cannot, however, feel other than a sentiment of regret, that so much time has been occupied in post mortem examinations of the bloodvessels in cholera, when authors of the highest distinction disagree in their reports of the condition of this sub-system, in a much more common disease—intermittent fever; especially, since the morbid physiology of the general nervous system, to which, it is apprehended, most attention will be ultimately directed, should have been so much disregarded.

Pattison on Cholera
Caldwell's National University
Remarks on Silliman's Chemistry
Mayer's Introductory
Dewees' do
Cartwright on Cholera.
Nicholson's Pamphlet,
Dr Dudley's reply -
Webster's Speech
Pattison's Lecture (Pending)
Drake's Report on Wood's Lectures
Lindsley's Centennial Address.
do Baccalaureat do
Drake's Pamphlet on O. Cholera
Henry's do do
Civiales Operations -
Gerhard on Place
Young's Speeches
Shortland's Address.
Yandell on Cholera

Yandell (L. P.)

An account of Spasmodic Cholera, June 1833.

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