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Bowling

Cholera as it Appeared in Nashville
in 1849, 1850, 1854 & 1866

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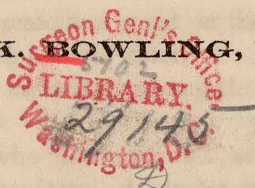
Appeared in Nashville,

IN

1849, 1850, 1854 AND 1866.

BY

W. K. BOWLING, M.D.



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UNIVERSITY BOOK AND JOB OFFICE, MEDICAL COLLEGE.

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OUR CHOLERA RECORD.

In the first volume of the Nashville Journal of Medicine and Surgery, of which we were then, as now, editor, in the April No., page 126, we say of the cholera of 1850 as follows:

“So much has been written upon this subject to so little purpose that few readers would undertake a lengthy article upon it. This city has been awfully scourged with this plague. From the 9th of June until the 1st of August, 1850, it is probable 500 persons perished in this city and the suburbs from cholera. During the progress of the epidemic a large majority of our physicians were agreed as to the following facts:

“1st. That the disease was worst in those districts where the population used spring or well water.

“2nd. That it was most fatal among those who were not acclimated.

“3rd. That those who ‘ate and drank, as they always had,’ during the epidemic, when assailed, almost invariably died.

“4th. The abstemious and prudent, when assailed, almost as invariably recovered.

“5th. Those who relied on patent, and other cholera nostrums, died.

“6th. Those who kept such prescriptions by them as experience here had demonstrated most effective, and took them instantly upon seizure, recovered.

“7th. Small doses of Mercury and large doses of Opium combined, proved the surest method of arresting the disease.

“Four grains of Opium to five of Calomel, in powder, given instantly upon the appearance of liquid and copious evacuations, and repeated after every such evacuation, effectually put a stop to the progress of the disease in those persons whose stomachs had not been gorged with fruits or crude vegetables. With the latter the prescription had little or no effect. Where the powder could not be easily retained on account of extreme gastric irritability, a pill composed of three grains of Opium and 4 of Pil. Hyd., and repeated after every discharge, was successful, except among the fruit and vegetable eaters. Ice eaten *ad libitum* and *no drinks*, succeeded best in allaying the agonizing thirst and vomiting. A blister early applied over the region of the stomach, was a powerful means of ameliorating gastric distress. The remedies enumerated were alone those that possessed the confidence of our ablest and experienced physicians. All manner of remedies were tried, and every *plan*, rational, irrational and empirical which it were a wanton waste of time to enumerate.

“From the fatality of the disease here it might be argued that the *treatment* could not have been very successful. The disease was met and combatted fearlessly by as able a faculty, in proportion to its extent, as exists in America. There could not have been less than five thousand cases, in a population of about twenty thousand, of which five hundred proved fatal. Among these five hundred who perished by cholera, we have neither seen nor had reported to us the case of any of them where the subject had demeaned himself before seizure in accordance with the prescribed rules of the physician. A large majority of them were poor, and without those comforts which experience has demonstrated necessary to bar out the ferocious invader. Many of them were foreigners, engaged here on the public works, and who could not be made to comprehend that they were dangerously ill until in the jaws death. Again they had, many of them, their *Water* and *Cancer* Doctors. We are confident we hazard nothing in the assertion that a large majority of those who died were not seen by a physician before being collapsed. The treatment we have indicated was prompt and decided in its beneficial action, rescuing the patient from imminent peril and placing him on sure ground in a few hours.”

In the August No. for 1864, Vol. 4, page 157, we say:

“From the 1st of May to the 11th of July, 1854 (after which there was but little cholera here), the report of the Sexton of the interments in the City Cemetery is as follows:

	Cholera.	Other Diseases.	Total.
May,	16	15	31
June,	61	71	132
To July 11,	11	29	40
	88	125	203

“These interments were not for the city proper, but include those of South Nashville and the suburbs of the two cities for several miles—the whole embracing a population not far short of 30,000. The report shows of these 88 deaths from cholera, a large majority occurred among negroes and children.

“A good deal has been said here about *water*, and many of our citizens suppose there is either something protective in hydrant water, or that spring or well water excites the disease. But while it is true that those who suffered most reside in portions of the city not supplied with hydrants, and who therefore derive their supplies from springs and wells, it must not be forgotten that it so happens that the districts dependent upon wells and springs are the most neglected, deriving *no* advantage from those sanitary measures enforced in the more populous and wealthy portion of the city. Again: the inhabitants, for the most part, of such neglected, unimproved districts, are wanting in the intelligence to recognize, and the means to meet the first and only curable stage of the disease. Upon these latter accounts, therefore, rather than to the hard water,* is the greater mortality in such districts to be attributed. On the summit of College-Hill, cut by Summer and Cherry Streets, is the heart of the city of South Nashville. In buildings and comforts generally, it will compare favorably with any portion of Nashville proper. The inhabi-

* Dr. L. P. Yandell, in a report upon Public Hygiene to the American Medical Association, shows that Louisville is supplied with water from wells and that the water is strongly impregnated with carb. of lime. Cincinnati, upon the contrary, is supplied with water from the river. Yet the cholera was infinitely more fatal at Cincinnati than at Louisville in 1832. See reports on Public Hygiene, by Dr. Harrison of Cincinnati, and Dr. Yandell of Louisville.

tants drink cold limestone water from wells. The citizens there enjoy as great an exemption from cholera as did those residing in any portion of Nashville who used hydrant water exclusively. To cleanliness and comforts, therefore, together with an enlightened understanding in regard to the true character of the disease—the importance of meeting the first symptoms—and the means adapted to that end, must the people be taught to look for safety, rather than to the quality of their water. We have battled with every epidemic cholera, from the first to the last day, in our region of operation, which has visited this country, and we affirm, without the fear of successful contradiction, the following truths of this pestilence which walketh in darkness, and destruction which wasteth at noon-day :

“ 1. That *prudence* in the use of *all things* pertaining to man as an animal, is of the first importance.

“ 2. That this prudence, in *many things*, is imperfect, and therefore *useless*, short of positive interdiction—total abstinence.

“ 3. That among the interdicted is every description of fruit, non-cereal vegetables, and animal products, as milk and eggs. We say non-cereal, so as to admit bread-stuffs, which the goodness of God has stamped with innocense even here, for He has declared them the staff of life.

“ We do not regard fruit and vegetables an *exciting cause* of cholera, and we would no be understood as so teaching. *But if the ship be overtaken by the storm of cholera while laden with vegetables, IT SINKS.* This is what we teach. But if so overtaken without vegetables on board, she weathers the storm and enters port unimpaired. Those during cholera who eat fruits and vegetables, are no more liable to be assailed than those who abstain ; but if *they are* assailed, *they die!* This is the rule—the recoveries under such circumstances constitute the exceptions. When a non-vegetable and non-fruit-eater is assailed with cholera, his system responds instantly to medicine, while the system of the fruit and vegetable eater will frequently not respond at all, and his physician will find the result the same, whether he put the medicine in the patient's boot or stomach.

“ Neither in 1850 nor 1854 have we found a single instance in which a non-vegetable and non-fruit-eater died of cholera, save

we count a few cases of children with summer complaint dying with symptoms of cholera superadded, while *all* the deaths occur among those who indulge in these *very innocent* luxuries. In a conflict with cholera, the bullets of the enemy, from a masked battery, are flying in every direction, and any one is liable to be hit; but woe to the soldier who is cut down with fruits or vegetables in his stomach, for his wound is almost immedicable. He may recover, *but he cannot be cured!*—and the chances are *many* against his recovery. We have more than once seen the fruit or vegetables ejected or voided in the death struggle, when reaction would immediately begin, and recovery result.

“The editor of the N. Y. American Medical Monthly, and with us there is no higher authority, believes fruit when ripe and sound is not injurious in a choleraic atmosphere. We are sorry that Doctors must differ. He says that:

“If we contemplate the harmony and order which prevail in the recurrence of the seasons, and the production of a vegetable character peculiar to each, we must arrive at the conclusion that in each providing so great a variety, in such abundance, and of such grateful and pleasant qualities at this season of the year, God in his wise providence intended that his creatures should avail themselves freely of his abundance and goodness. We find not only this peculiar supply granted us in our climate at this season, but we observe that in other countries where the climate more or less resembles our summer, the same benevolent provision of succulent and nutritious fruits obtain. Nor is this all that can be said—for it is now generally well understood by all intelligent people, that there are in every climate, and at every season, certain productions which are peculiarly adapted as corrective, possessing, in fact, medicinal as well as nutritive properties in addition to their palatable qualities. The spices and condiments of tropical climates, most sparsely produced in temperate regions—produced, in fine, in proportion to the amount and kind of vegetable diet growing and employed by their inhabitants; the juicy, sub-acid, and fragrant orange and berry tribes, so plentiful in hot seasons—the former in tropical, the latter in temperate countries; the mellow, common to both; *cum pluribus aliis*. We have written enough for illustration; our deduction from those examples is, that all this wholesome and abundant supply of nutritious and beneficial articles of diet has been bestowed designedly for our use, under the circumstances when they were most required, and that, therefore, it is not only right to eat fruit at this season, notwithstanding the cholera, but that it would be wrong and ungrateful to abstain from the use of that which was intended for our benefit and gratification.”

“All this is very pretty and very logical, and precisely agrees with the thoughts and opinions of Napoleon’s soldiers while retreating with their faces to the enemy before a foreign foe in their own country—just before the abdication of their great chieftain and

his banishment to Elba. They argued as our friend argues, and the historian tells us that fruit destroyed more soldiers than the *foreign* enemy. An intelligent old female acquaintance of ours, very fond of apples, always insisted on eating the peel, alleging that if Providence had not intended it to be eaten, He would have provided no peel. 'If you would extend your argument a little,' said a friend to her one day, 'the world would become barefoot, for upon the same hypothesis you might insist upon eating the skin of bullocks.' Our own belief is that the fruit arrangement in the providence of nature, dates considerably back of the cholera arrangement, geologically speaking, making the former an older *formation*, and when the latter was brought into the world, it received its laws without any reference to the former. However this,

'Sage experience bids us to declare,'

that while fruit will not excite cholera, *possibly*, yet it almost insures the fatality of an attack of that disease. We know that we are not mistaken. Three cases of cholera here, occurring since the 11th inst., were all connected with apples, and that very innocent fruit, the blackberry, which many eat to *prevent* cholera, has sent many a mistaken advocate for fruit to his long home. But fruit eaters will say your patient eat bad fruit. It may be so. That is just what is said of those who are fond of strong drink and die of cholera. 'They drink *bad* liquor,' and the idea to this day prevails that *fine brandy* is a preventive. Now we believe it is just as bad to drink fine brandy as 'bald-face,' and we are not so certain but that the old whisky toper can stand a better battle with cholera than your bloated absorber of mixed liquors at five dollars a gallon.

"In a district in this city where at every visitation of cholera, more people have suffered than in any other district in the city, and where, in 1850 in two days more than 40 people died, and which furnished this year nearly one fourth of the entire mortality from cholera, there are three pretty large families under our medical supervision—they ate neither fruit nor vegetables, and not one was lost during either of these visitations, while their neighbors indulged freely and when assailed almost invariably died.

The whole district would not cover ten acres. Mr. Robertson's family, corner of Gay and McElmore, Mrs. Stainback's, McElmore, half square from Mr. Robertson's, and Mrs. Work's, on Gay, one square from Mr. Robertson's. These are the families to which we allude, and they reside in the very heart of the district where the disease raged, and upon enquiry we learn that they were the only families that observed a strict abstinence from fruit and vegetables. Mr. Robertson one evening in June last, passed the door of a neighbor at 6 o'clock in the evening. His neighbor at the time was picking and eating some very fine cherries from a tree which grew in his yard. 'Are you not afraid to eat cherries?' said Mr. R. 'No,' replied his neighbor, 'they were made to eat.' 'Ah! for you to eat,' rejoined Mr. R., 'but not for me when cholera is upon the land.' Next morning at nine the cherry-eater was in a hearse on his way to the cemetery. We could fill whole pages with similar instances, but we will stop.

"The remedies to which we have alluded refer exclusively to the first stage, the indication being to arrest the purging and the vomiting. When *collapse* has supervened there is no doubt but that opium is injurious, and though the purging continue it should be given, if at all, with extreme caution. Astringent injections, as tinct. of galls, tannin, or sugar of lead, in liberal quantities, promise more, while at the same time a favorite remedy with us is Gum Camphor dissolved in chloroform.

R Chloroform, ℥j.
 Gum Camph. ʒj.
 M. et ft. Sol.

S. gtt. xl, in ice water every 30 or 60 minutes, lengthening the intervals.

"Ice is given freely, and the only external applications in which we have any confidence is a large blister over the epigastrium and alternate friction with ice, and woolens."

In 1866, page 315 of the same Journal, we say:—

"This scourge, as usual, in paying its respects to the cities of the earth, has held high carnival in Nashville.

"Since our last issue, probably a thousand souls within our

city limits and vicinity have been sent to their final home by this terrible enemy of mankind.

"We were in a high state of preparation for cholera. During three years of the late civil contentions, Nashville presented many attractions for every species of vagabondism; as Tacitus says, was the case of Rome upon all occasions. They lived upon the offal of a large army, and when the army was gradually withdrawn, like subsiding water after an inundation, they were left behind, a heterogeneous deposit of humanity, dabbling in the mud, and living and dying as best they could.

"Does any one, acquainted with the habits of cholera, wonder that it did not overlook so tempting a banquet? The old city of Nashville and its inhabitants have scarcely felt cholera—the theatre has not been closed—yet the record shows that cholera was twice as fatal here as in the great visitation of 1850.

"It is fast fading out—the daily deaths having fallen from 70 to 9—trade has revived, and our own people scarcely realize that we have had cholera, till reminded by the tax-gatherer that three thousand dollars have been expended for coffins for cholera paupers.

"Our physicians valiantly followed the enemy into his lurking places and fought him at every disadvantage. As they are putting off their armor after the conflict, each seems satisfied with the result. Many declare that they never lost a case that was not in collapse when they saw it. Many we know expressed the greatest confidence in remedies, embracing all sorts of 'doctor's stuff.'

"We account their success great, inasmuch as not one of *them* was lost. Some suffered, however, and some severely, but thank God, none died."

Now what can we add to this? The experience of 1866 but confirms that of '32 and '50.

Of the families that obeyed the law in regard to vegetables, fruits, and animal products, and individuals under my care, not one died. Many of them had the disease but none died.

I know that Prof. Frank Hamilton *pledged* himself to drive the cholera off Blackwell Island, in from three to five days, and one of his means was a plentiful supply of vegetables. The

pledge was given on the 1st day of August when the cholera was at its height, in the Work-house, to the Commissioners, and to the President of the Board of Health. Within the specified time, Prof. Hamilton reports the disease gone and his pledge redeemed. And this wonderful achievement is made, in part, by the help of vegetables. But, when we come to look at the matter a little more closely, all wonder subsides. In the first place, no epidemic ever killed every one. God has provided that some shall live. Therefore, susceptibility to epidemic influence is by no means universal. From all we know of cholera, multitudes, if not entirely exempt, are but slightly impressed by its efficient cause. Even here, with such a population as we had, but two and a half per cent. died. But on Blackwell Island, one hundred and twenty-three out of eight hundred died. Before this, we had no idea that anywhere one hundred and twenty-three out of eight hundred would die of cholera under any circumstances—*could* die of cholera. The mortality is absolutely appalling; it seems that the cholera had destroyed as many out of eight hundred, as it was ever known to destroy before, and the Doctor *pledged* himself to drive it off, and it was in the driving that this appalling excess occurred.

To us, therefore, Prof. Hamilton's experience proves nothing, save that by the free use of vegetables in a cholera atmosphere, it is possible (for under his observation the fact certainly occurred) for one hundred and twenty-three out of eight hundred to die of cholera; and these eight hundred, being convicts, strictly under the control of the physician, he has a better opportunity of enforcing his orders, than he could pretend to, in an ordinary population.

We have felt it due to ourselves to say what we have about the cholera on Blackwell Island, because the teachings of the current accounts of it, inculcates a great error, which we were the first to point out. The absolute interdiction of fruits, vegetables, and animal products, is original with us, and we defy any one, here, or elsewhere, to point to a case of cholera that was lost among those who obeyed the law. Every death here was among those who disregarded this law.

I repeat what I wrote in regard to former visitations, that the

deaths in our recent visitation, were exclusively among the fruit and vegetable eaters. As we have stated, we do not believe that these things give one the cholera, but those who eat them are liable to cholera, as those who do not, and if overtaken with these things in the stomach, they die. Had as well put medicine in their boots as stomachs.

Our experience this year enables us to say more, viz :—that it is our deliberate opinion, that if this rule is religiously obeyed, cholera, if it occur, is so shorn of its malignity as to make it incapable of destroying life, in the absence of doctors.

This happened this year, in the case of a stout black-smith, “blue, with vomiting, purging and cramp, and croupy talk.” As the principal of the shop, an honest, truthful acquaintance told it to me. “Turpentine was poured on a coffee sack, and the abdomen of the patient rubbed to a ‘red heat,’ and then poulticed with onions beaten to a pulp, while raw. He took a few spoonfuls of ‘pepper-sauce,’ in water. He never had a cramp after the onions were put on, and the purging and vomiting soon stopped, though he did not get warm for many hours.”

This man had religiously obeyed the dietetic law ; but he was prejudiced against medicine.

In 1850, very few people obeyed our law we published where they lived, as was so often done by Hippocrates and Sydenham, and so seldom now. Not one of them died. This year, we are vain enough to believe, that our published opinion, influenced to a greater or less extent, nine-tenths of our old population, and, in addition, about three thousand Israelites. Of the latter, a very moral, religious, happy and intelligent people, only four adults, and four children died. Of the four adults, every one violated our law.

Dr. Hamilton’s notion of whisky and red-pepper, is almost as unfortunate as his vegetable idea. We are told that these convicts were from the city, and had been intemperate. Now a man, long in the habit of being daily drunk, is finally arrested and thrown into prison, and whisky rations cut off. For a week or so, his sufferings are awful ; but the system finally accommodates itself to the new order of things, and the man is able to work and treat, upon his transfer from close prison to work-house. But

every one knows who has studied these cases, that the demon of dissipation is only asleep. Give such a man but a thimble-full of whisky, and every nerve in his body will yell for more! more! Knowing these things from long observation, (never from experience, thank God), as we saw in imagination Dr. Hamilton's patients retiring each with a small quantity of whisky and tinct. of capsicum poured in his stomach, and thought of his sufferings for *more*, during a sleepless night, we could scarcely restrain tears of sympathy. What possible good could the whisky and pepper do? while the evil must be patent to every one who thinks.

The first occurrence of cholera at Nashville, was in 1833, and during that year there were 174 deaths from it. 1835 was its next visitation, when 66 persons died from it. 1849 it again came and swept away 311. 1850 it re-appeared and claimed 316. 1854 it came again destroying 88. In 1866, the following, summed up by our contemporary, the Dispatch, is as correct an account, probably as will ever be made :

"From the daily reports of the Secretary of the Board of Health and the sextons of the different cemeteries, we have made up a statement of the number of deaths from cholera occurring each day to the 16th of September, inclusive, and from that day forward have adopted the daily reports of the mortuary committee of the Board of Health, as follows :

Aug. 31	.....	7	Sept. 20	.....	29
Sept. 1	.....	1	21	.....	33
2	.....	2	22	.....	55
3	.....	2	23	.....	54
4	.....	5	24	.....	70
5	.....	1	25	.....	41
6	.....	1	26	.....	26
7	.....	4	27	.....	22
8	.....	5	28	.....	21
9	.....	3	29	.....	22
10	.....	9	30	.....	51
11	.....	3	Oct. 1	.....	15
12	.....	3	2	.....	11
13	.....	5	3	.....	9
14	.....	19	4	.....	7
15	.....	22	5	.....	4
16	.....	12	6	.....	11
17	.....	51	7	.....	8
18	.....	56	8	.....	8
19	.....	43	9	.....	2
Total	.....				753

"In addition to these, there were 57 interments in the Catholic cemetery from the

breaking out of the cholera to the 16th of September, nearly all of whom, we were informed, had died of cholera. We have, therefore, over eight hundred deaths as the harvest which the pestilence gathered while it held high carnival in our city."

We know that the Board of Health did all in their power to bring faithfully before the people the facts of the entire case—and what they failed to do, will never be done. As to the prevalent idea, that "half was not told for fear of injuring the city," it is only necessary to say that the idea has no foundation in fact; the physicians and the authorities did all, (and that was an amazing amount), that they could to lessen the mortality and sufferings of our people during the pestilence. To the poor, hydrant water was given to any amount, without price, and certain first class Apothecaries opened on the same terms. Physicians, *all of them*, met it gallantly, and as every thinking man must know without hope of reward *here*, as cholera delights to wind up the affairs of the poor and miserable. Not a single physician deserted, and not one died.

On the 9th of August a negro woman arriving here with symptoms of cholera from Cincinnati died. The disease at that time was said to be epidemic at Cincinnati. It is clear that no case here occurred as a consequence of this death. During the last of August certain United States Army recruits arrived here. It is now known, though it was denied, that there was cholera among them. The first case of cholera, and the first death from it among our citizens happened to one living in the hospital enclosure. Next two persons living opposite the hospital gate. Certainly from the hospital the disease spread over the city.

To the foregoing remarks upon cholera we make the following extracts from a most interesting letter upon the disease from my colleague, Professor Jones, to Professor Eve:

"In the Hospitals, Lunatic Asylum and Almshouse, where it was impossible to carry out such rigid measures, the cholera continued to linger, and was especially fatal amongst the infants in the Foundling Hospital. Up to the time of my visit to the Island, in company with Dr. Hamilton, about the middle of August, not one of the House physicians and surgeons had suffered with the epidemic.

“It is generally maintained in Europe as well as in New York and other large American cities by the most experienced physicians, that Asiatic cholera is both portable and communicable by persons, ships, clothing and baggage; and that the quality of infectiousness belongs peculiarly, if not exclusively, to the matters which the cholera patient discharges by vomiting and purging.

“It also appears to be well established, that if cholera discharges be cast away without previous disinfection, they are capable of imparting their own infective quality to the excremental matters, or filth with which they mingle in drains or cesspools, and wherever else they flow or soak, and to the gases and effluvia which these substances evolve.

“There are facts to show, that if the cholera poison, by leakage or soaking from drains or cesspools, or in any other manner, mingles even in small quantity with wells or other sources of drinking water, it will infect and poison large volumes of drinking water.

“In attempting to regulate the sanitary affairs of such a city as Nashville, too much importance cannot be attached to these modes in which the cholera discharges are capable of poisoning the air, drains, cesspools, subsoil water and drinking water.

“What terrible sources of active contagion must the filthy privies of large hotels become, after having received the cholera discharges without previous disinfection. And if it be true that the cholera poison effects, with equal violence, everything in the nature of bedding, towels, and the like, how much depends for the arrest of an epidemic, upon the hygienic measures instituted by each family.

Your energetic and intelligent Board of Health have, without doubt, all the sources of information, and have acted promptly upon every emergency with enlightened judgment; but your city has been peculiarly situated during the past three or four years, and many of its circumstances and surroundings during this period have, as it were, directly prepared the way for cholera. As a great military centre, with its population suddenly expanded from thirty thousand to over one hundred thousand, with every available space crowded, and the whole face of the sur-

rounding country denuded of trees and defiled by the offal of soldiers, military artisans, and negro refugees, it must have required gigantic efforts to have cleared out the neglected and obstructed drains, and disinfected the overloaded and foul privies and cesspools. The camp-followers, and unfortunate freedmen, the rotten and rotting ends of the war, must, without doubt, have formed the first nidus and the chief food for the cholera.

“Upon a rough estimate, I should suppose that each privy and cesspool in the city of Nashville would require for its disinfection at least 20 lbs. sulphate of iron, 10 lbs. of chloride of lime and 5 quarts of coal tar.

“If there be one thousand foul privies to be thus disinfected, then there would be required at least for this purpose alone :

20,000 lbs. sulphate of iron, (copperas),
 10,000 “ chloride of lime,
 1,000 “ gallons coal tar.

“In addition to this, the public drains and foul streets and crowded houses and infected premises, would require, perhaps, an equal, if not much larger quantity.

“Large quantities of these disinfectants should also be distributed to all families in which the cholera is prevailing, and a mixture of sulphate of iron (copperas) and coal tar, and better still, carbolic acid should be kept in all chambers and vessels into which the cholera matters, whether from the bowels or stomach, are received. The attention to the private hygiene—to the sanitary regulations of each family, is of as vital importance, in the arrest of the disease, as the careful execution of the public health ordinances. It should be borne in mind, that a single disinfection of any infected source is not sufficient, but the sanitary measures should be kept up, even after the total disappearance of the disease from the city. To accomplish these ends, *large supplies should be kept constantly on hand of the most efficient disinfectants, by the Board of Health ; and its officers should see that these agents are continually distributed to all parts of the city, and the inhabitants instructed in their use.*

“A powerful disinfectant may be rapidly prepared, by mingling

the commercial Nitric and Hydrochloric acids, in the proportions of one part of Nitric acid, to two parts of Hydrochloric acid. If this mixture be made in large glass or porcelain vessels, and then used in proportion of ten gallons of the concentrated Nitro-muriatic acid, to *one hogshead* of water, the streets, and all infected places, might be lightly watered, in the same manner in which they are watered in dusty weather. The free Oxygen, Chlorine and the Nitrous acid liberated from this mixture would exert a most salutary effect upon the atmosphere of infected districts.

“None but experienced chemists or druggists should be charged with this process of disinfection, as the handling and mixing of the acids require considerable care, and the operators should not inhale the fumes. I believe that those who prepared such a mixture would be proof against the cholera.

“Accompanying this, I send you some valuable instructions on the subject of the cholera, and especially upon the disinfectants, drawn up for the use of the Metropolitan Board of Health, by the Registrar, Dr. Elisha Harris.

“With reference to the *treatment*, during the recent epidemic, it appeared to me that little or nothing had been developed, in addition to our previous knowledge. Unfortunately, we possess but little or no accurate statistical knowledge with reference to the relative value of the different remedies in the treatment of cholera. As far as my experience extends, many patients are destroyed by the injudicious use of such remedies as calomel and morphine. Morphine is especially liable to abuse when used by hypodermic injection. When this powerful agent is used in too large doses or at improper times, as in the stage of cholera collapse, it acts in conjunction with the poison, by depressing the action of the medulla-oblongata, by impeding the respiration and by deranging the circulation.

“It is difficult to discover, upon what physiological, pathological, or therapeutical principle, calomel is given in large and continued doses in cholera.

“The gall-bladder is always full in this disease, and bile is said by good observers, to be always present in cholera discharges, but in a modified form, and the intestinal canal is in an injected,

irritated condition, the epithelium is being rapidly cast off, and the endosmotic power of the intestines appears to be lost. Without entering into any discussion of the "Eliminative Theories," it is sufficient for all practical purposes to know that calomel has been given in every conceivable way and for every possible and impossible end, according to the peculiar belief of the prescriber, with but little other effect in serious cases, than to exhaust the rapidly failing forces, and thus to produce an unfavorable termination, in cases which, if left alone to the powers of nature, would have recovered. The greatest success in the present epidemic, as in all preceding ones, appears to have been achieved, by prompt attention to the diarrhœa which so often precedes the attack of cholera, or more correctly the severest stages of this disease. It would be foreign to my purpose to enter into any prolonged disquisition upon the relative merits of the different modes of treatment employed in the cities which came under my observation; you are without doubt possessed of all the information, and in addition to this, possess the invaluable experience of an old and tried veteran, who has always been found at his post discharging faithfully and efficiently his high duties. I will simply mention the remedies which, in my experience and belief, possess the greatest therapeutic value in the treatment of this disease.

"*Cold Water and Ice.*—When employed alone, the mortality is said to be thirty per cent., whilst it is near fifty per cent., when stimulants and opiates are freely employed. It appears to be well established, that the free internal use of cold water, is productive of beneficial effects in cholera, and that the rate of mortality is increased by withholding it.

"All things being equal, we should prefer, in the treatment of such an exhausting disease as cholera, the most simple and least injurious and depressing remedies, as we should do everything to husband the strength of our patients. It is without doubt true that after the arrest of the disease in many cases, the patients die from the effects of the powerful remedies.

"WATER must *ever* hold the *highest position* among the remedial agents in the treatment of cholera, as the most alarming and

fatal symptoms of the disease are due to its loss from the serum of the blood.

“*Chloroform* administered *internally*, is an agent of great value and power, and our use of it in this way in the treatment of many diseases is daily increasing. Chloroform is, I believe, worse than useless when administered by inhalation in cholera—it rapidly exhausts the vital powers; and even when it relieves the spasms, it leaves the patient in a most depressed state. Administered internally in doses (for an adult) varying from ten to sixty drops, every one, two, or three hours, according to the urgency of the symptoms, it produces valuable effects in stimulating the circulation and nervous system, and in relieving painful cramps and spasms without inducing the painful effects of inhalation. It would appear that when used by *inhalation*, chloroform interferes with the chemical reaction between the atmosphere and the blood and its gases, and in this manner, in addition to the largeness and uncertainty of the doses, acts injuriously in depressing the forces.

“*Laudanum and Chloroform in equal proportions*.—This is a valuable combination for internal use. In the dose of from ten to eighty drops (for an adult), according to the urgency of the symptoms; repeated at intervals of one or two hours, if necessary.

“I found this mixture of considerable benefit in my own case, when suffering with the preliminary diarrhœa, during continual exposure to the cholera poison. A single dose of from thirty to sixty drops of the mixture of chloroform and laudanum, is frequently sufficient to arrest the diarrhœa in its first stages.

“*The Aromatic Spirits of Ammonia*, administered in drachm doses, possesses considerable value as a stimulant and antacid. In cholera, all the discharges are acid, the stools as well as the vomits are acid, and the blood itself becomes neutral and even acid.

“There exists much testimony to the efficacy of such alkalies as carbonate of soda, and the Aromatic Spirits of Ammonia, in the treatment of cholera.

“*Tincture of Camphor*.—I think that this invaluable remedy is not employed even as frequently and continuously as it should be in the treatment of cholera. It may be given advantageously

in combination with the mixture of chloroform and laudanum, with the Aromatic Spirits of Ammonia, or in combination with any one of the vegetable astringents; and its free use as an external application, is beneficial both from its stimulating and antiseptic properties.

“*Tannic Acid and Gallic Acid, and the Vegetable Astringents* generally, as *Kino and Catechu*, have been used from the earliest times, and enter into the composition of most of the cholera mixtures, in combination with tinct. of red pepper, camphor and rhubarb. These mixtures without doubt accomplished much good in the early stages, and preliminary diarrhœa.

“And now, my dear Doctor, I hope you will excuse the liberty which I have taken in trespassing upon your valuable time with this long letter; and if this has been a work of supererogation on my part, I know that you will excuse it, as an exchange of friendly views upon this important subject, and an earnest of my best wishes for your safe passage through this epidemic.

“With the kindest regards, I remain,

“Truly your friend,

“JOSEPH JONES.”

The following letter from Dr. Harris forwarded by Professor Joseph Jones, to Dr. Paul F. Eve, sufficiently explains itself. The memorandum accompanying it contains much valuable information regarding cholera, and, explains the means used by the Board of Health of New York to prevent the spread of cholera.

“BOARD OF HEALTH ROOMS,
No. 301 MOTT-STREET, Aug. 24, 1866.”

“To the President of the Metropolitan Board of Health :

“SIR: Requests for information concerning latest and best results of experience in the application of preventive measures against cholera are now so numerous and important as to render it necessary for us to prepare a concise summary of practical points relative to this subject. The epidemic has recently become so threatening in the commercial centres of the Mississippi Valley, and in various portions of Europe, that sanitary vigilance will be the price of sanitary security for many months to come, in all cities, towns and families that cholera is liable to visit. Precisely what are the sources of peril, or wherein the infection or infective agent and conditions, and precisely what are the best methods of protection therefrom should be known everywhere. Experience in New-York and Brooklyn this Summer has afforded abundant testimony to the value of the definite sanitary measures which have proved most available in these

two cities. This experience, and a precise knowledge of our methods, will continue to be eagerly sought by towns that are exposed to the epidemic. These methods were based upon sanitary researches, of which the public had little knowledge previous to the present epidemic. Responsible public duties and constant inquiries in hygiene led to the practical conclusions upon which preventive measures against cholera are based, and these conclusions now have the full support of the chief authorities in sanitary science. To Dr. Wm. Budd, of England, whose researches were commenced in 1849, and partially made known in 1854 to Profs. Von Pettenkofer, Pfeiffer and Thiersch, of Bavaria, and to Dr. E. A. Parkes, and several army surgeons in India, we owe the confirmation of the facts upon which the methods of our procedures in cholera were based last Spring. As early as 1855 these facts were known to us, and were incorporated into the sanitary regulations of the Quarantine Hospitals under our direction. But in the terrible experiences of the Crimean campaign, in later more convincing experiences in Northern India in 1860-61,—a faithful report of which has been officially suppressed, because both the neglect and the utility of protective measures were proven; then, since 1862, in the reliefment of the East Indian armies from pestilence by the operation of Sir Hugh Rose's military order enforcing the preventive measures which Drs. Budd, Parkes, and others had advised to be promulgated by that distinguished commander-in-chief in India; and finally, the success of these new and exact methods wherever enforced in Europe last year, the principles upon which we base our methods were fully corroborated. Humanity and every claim of society demanded that when the Asiatic pestilence again visited this chief centre of the world's emigration, and the continent's trade, there should be no delay or uncertainty in applying all the sanitary resources which the progress of knowledge has given. Your Board has furnished an example of prompt and unhesitating reliance upon these resources of sanitary science. The experience of your sanitary officers the present Summer, and the results witnessed elsewhere, warrant us in sending forth the statements now presented.

“Respectfully,

E. HARRIS,

“Corresponding Secretary and Registrar, M. B. H.”

“PREVENTABLE CAUSES OF EPIDEMIC CHOLERA.

“The preventable causes of cholera are believed to depend upon two essential factors, viz.: First, the fluids discharged from the stomach and bowels of the sick with cholera or any kind of choleraic diarrhoea; second, local conditions contaminating the atmosphere or the drinking water. All localizing causes should be removed before cholera comes, and they must be controlled by cleaning and antiseptics whenever it is present. The infective fluids that are discharged by the sick, whatever the period of the illness, must be quickly and entirely destroyed, or be specially and permanently disinfected.

“CHOLERA INFECTIVE.

“The conclusion of medical knowledge relating to the question of the specially infective agency of the ‘rice-water’ and diarrhoeal discharges are well stated as follows: ‘It appears to be characteristic of cholera, not only of the disease in its developed and alarming form, but equally of the slightest diarrhoea which the epidemic can

produce, that all matters which the patient discharges from his stomach and bowels are infective, and that the patient's power of infecting other persons is represented almost exclusively by these discharges; and that however, they are comparatively non-infective at the moment when they are discharged, but afterward, while undergoing decomposition, these fluids acquire their maximum of infective power: that if they be cast away without previous disinfection they will impart their own infective quality to the excremental matters with which they mingle in filth, sodden earth or in depositories and conduits of filth, and to the effluvia which those excremental matters evolve; that, if the infective material, by leakage or soakage from drains or cesspools, or otherwise, gets access, even in the smallest quantity, directly or through porous soil, to wells or other sources of drinking water, it can effect in the most dangerous manner very large volumes of the water; that the infective influence of choleraic discharges attaches to whatever bedding, clothing, towels and like things that have been imbued with them, and renders these things, if not disinfected, capable of spreading the disease in places whither they are sent for washing or other purposes; that in the above-described ways even a single case of disease, perhaps of the slightest degree and perhaps quite unsuspected in its neighborhood, may, if local circumstances co-operate, exert a terribly infective power on considerable masses of population.

"There are such liabilities to the very rapid and wide dissemination of cholera whenever it gains foothold in any populous district that it is manifestly the duty of every community to be prepared for its appearance. This liability is faithfully set forth in the following conclusions, which were unanimously adopted a few weeks ago by the International Conference at Constantinople: '(a) By persons in the state of developed cholera. (b) By persons suffering from choleraic diarrhoea, who can move about and who are apparently in health for some days during the progress of the disease. These last, from their passing unquestioned and unsuspected, are the most dangerous to the community among whom they move. That the discharges of those in a state of developed cholera, or in a state of choleraic diarrhoea, become the chief means by which the cholera poison escapes from the system, and by the mingling with the air or water diffuses the disease; that cholera may be transmitted by exposure of persons to the atmosphere of buildings, places or vessels which have been occupied by cholera patients, and to the emanations from clothes, bedding or other articles which have been in contact with diseased individuals, or which may have been soiled by their discharges; that when infected articles or places are shut up and excluded from free air, they preserve there dangerous qualities for an indefinite length of time, and, on the other hand, the freer the exposure to ventilation, the more rapidly they become innocuous; that there is no reason to suppose that cholera is communicable by actual contact between individuals.' The following summary of facts relating to sanitary measures against epidemic cholera have been accepted by the best informed sanitary authorities, and is recognized in the practical operations of the Metropolitan Board of Health of New-York:

SUMMARY OF FACTS RELATING TO SANITARY MEASURES AGAINST EPIDEMIC CHOLERA.

"Cleaning—absolute, thorough and continual cleaning of dwellings, court-yards, cellars, vaults, house-drains, garbage, privies, stables and the public streets. Removal

of all surface filth and surface moisture from the vicinity of dwelling houses, streets and towns; and for this purpose look well to every house-drain, cesspool, gutter, ditch and sewer. Remove every obstruction to perfect drainage. To absorb moisture about court-yards, cellars and vaults, use quicklime or the calx powder of fresh lime and charcoal freely and frequently. Whitewash walls and ceilings. Flush all drains and waste pipes, particularly those leading from sinks and water-closets, freely every day with a full volume of water. Antiseptics must be abundantly applied and appropriately selected, to arrest and prevent every kind of putrefaction in privies, water-closets, house-drains, sinks, cess-pools and garbage tubs, cellars, styes, offal depots, filthy manure heaps, and whatever materials or places tend to putrefaction or the production of effluvia. [See appended rules for disinfection.] Live prudently; use nourishing food; look well to the destitution and wants of the poor and ignorant classes. Watch the first tendencies to diarrhœa, and provide immediate medical care for the sick with that disorder, particularly if occurring in persons traveling, or recently from the regions where cholera prevails. Seaports and all waterside towns that have any marine or boating intercourse with infected places should institute strict sanitary inquiry upon every vessel arriving from such places with reference to: 1st, the sickness of any person on board; 2d, the cleanliness of the vessel itself. The sick in any stage and symptom of cholera to be under medical advice, and all filthy vessels to receive sanitary orders, for the neglect of sanitary cleansing and care in both sea and inland passenger vessels, and the neglect of the cholera sick on board of them frequently have furnished the exciting and the disseminating causes of the epidemic. Every passenger vessel should guard against evils by means of constant ventilation and the use of antiseptics in all foul and damp places. Perfect cleanliness and ventilation of the ship or boat, and a proper care for the sick, and faithful reporting by the sick to officers of the vessel and sanitary authorities in ports are vitally important duties. Railroad officers should enforce daily repeated cleansing and the use of antiseptics in the accommodations at passenger stations and in the closets of passenger cars. Quarantine and sanitary cordons are rarely available between inland towns and neighboring ports, except for single purposes of cleansing and for the discovery and care of the sick, and this is humanity, not quarantine. Between distant ports the sanitary restraints and quarantine detentions will be determined according to circumstances and to the sanitary conditions and regulations of the port, district, and the intelligence of the sanitary authorities. Sanitary inspection, cleansing of vessels, and the prompt care of the cholera sick are duties that should not be neglected in any seaport or commercial river town. Prisons, almshouses, asylums, hotels, and all edifices and places where large numbers of people daily congregate, should be put in the most sanitary condition without a day's delay. Cleansing thorough ventilation, and the daily purifying and disinfection of every privy, water closet, house and drain, the trimming out and distribution of the occupants, and the provision of every requisite means of care for the sick, are the best guards against an invasion of the cholera. 'To be forewarned is to be forearmed.'

"Preventive and prophylactic care should first secure thorough cleansing and the preservation of purity; second, apply the appropriate antiseptics in privies, water-closets, garbage-tubs, and upon whatever is liable to putrefaction; third, guard against all impurities of drinking water, particularly from filth, soakage, and other organic matter. But it is better never to use water that needs such purification.

To test for the presence of such organic impurities in drinking-water, proceed as follows: Make a solution of chemically pure permanganate of potassa 8 grains to 1 ounce of distilled water. Into $\frac{1}{2}$ a pint of the impure or suspected water, in a goblet or a tumbler put 1 drop of the red solution; if the red tint dissappears from the glassful in half an hour, add more of the solution. For every drop that loses its color in the half-pint there will be found to be from $1\frac{1}{2}$ to 2 grains of putrid organic matter in the gallon of that water. To purify such water, if it must be used, drop in the permaanganate until the red tint remains in the water.

"When cholera comes, the sick must have constant and faithful care. Upon the early and intelligent sanitary and medical care of cholera, especially the first cases, may depend the preservation of families and neighborhoods from ravages of the epidemic. The first symptom—diarrhœa—must receive medical attention without a moment's delay. Choleraic diarrhœa and all diarrhœal diseases in the family, house and neighborhood where there is cholera, should receive the same sanitary care as cholera. All persons with such disorders should be under medical care, and the privies and vessels used by them should be constantly disinfected. The sick-room and the house where there is cholera should be ventilated as constantly and forcibly as possible. Perfect cleanliness must be enforced. Every particle of the fluids ejected by the patient, and everything that is soiled by them must be disinfected without delay. The chief centres or fields of the epidemic should be daily inspected and kept under the full influences of cleanliness and antiseptics. House-to-house visitations, to discover and arrest the premonitory diarrhœa, should be resorted to in every cholera field, whether it be a single row of houses, a district or a town. Wherever cholera becomes localized, such searching for its earliest symptoms by the inhabitants is a measure of public safety as well as humanity. Business and commercial intercourse ought not to be seriously interrupted when cholera prevails. The public safety must depend upon sanitary regulations, and not upon universal quarantines. If the local boards of health will publish daily the names and residences of all who die of cholera, and truthfully state where and how the epidemic is prevailing, the public will profit by the information. Let it be borne in mind that filth, crowding, and the neglect of specific sanitary precautions are the preventable causes of the dissemination of cholera."

DISINFECTION AND DISINFECTANTS, AS ADVISED BY THE METROPOLITAN BOARD OF HEALTH.

"Uses.—1. To destroy or to neutralize the offensive gases and products of putrefaction. 2. To prevent fermentation and putrefaction. 3. To destroy all infection and infective processes in the specific contagions and infections.

"I.—Chlorine, chlorinated soda, chlorinated lime, chlorides of zinc, iron and magnese, sulphates of iron and zinc, permanganate of potash, carbolic acid and the coal-tar preparations are the most available deodorizing disinfectants.

"II.—Fermentation and all putrefaction will be most effectually prevented by carbolic acid and coal-tar preparations, and may be aided by any of the metallic salts above-mentioned.

"III.—Any of the metallic sulphates and chlorides named above, the carbolic preparations and the hyposulphites of lime and soda are the most reliable. For practical purposes, saturated solutions of the sulphate or the proto-chloride of iron,

and any appropriate form of carbolic and coal-tar preparations are cheapest and most effectual.

“DETAILS OF ADVICE IN THE APPLICATION OF DISINFECTANTS.

“To absorb moisture and putrid fluids, use fresh stone lime finely broken; sprinkle it abundantly on the place to be dried, and in damp rooms place a large number of plates filled with the lime powder. Whitewash with pure fresh lime, and not with kalsomine. To absorb putrid gases use charcoal powder. The coal must be dry and fresh, and should be combined with lime. This excellent compound is the ‘calx powder.’ To give off chlorine, to absorb putrid effluvia, and to stop putrefaction:—Use chloride of lime as lime is used, and if in cellars or close rooms the chlorine gas is wanted, pour diluted sulphuric or muriatic acid upon your plates of chloride of lime occasionally, and add more of the chloride. To disinfect the discharges from cholera patients, and to purify privies and drains, dissolve ten pounds of copperas in a pail-ful of water, and pour a gallon or two of this strong solution into the privy, water-closet or drain every hour—if cholera discharges have been thrown into those places; but for ordinary use to keep privies from becoming offensive, pour in a pint of this solution into every water-closet, pan, or privy-seat every night and morning. Bedpans and chamber vessels are best disinfected in this way, by a teacupful of the copperas solution. Add the same quantity of carbolic fluid or coal-tar powders to insure permanent disinfection. Chloride of zinc, chloride of magnese or proto-chloride of iron may be substituted for the sulphate of iron. Permanganate of potassa, to be used in disinfecting clothing and towels from cholera, and fever patients during the night, or when such articles can not be instantly boiled. Throw the soiled articles immediately into a small tub of water in which there has been dissolved an ounce of the permanganate salt to every two or three gallons of water, until the clothing is boiled, and see to it that the permanganate salt or solution is added in just sufficient quantity to keep up a purple or red color in the water that covers the clothing. A pint of ‘Labarraque’s Solution of Chlorinated Soda’ may be used for the same purpose in the tub of water, if the clothing is to be very soon boiled. Either of these solutions may be used in cleansing the soiled parts of the body of sick or dead persons; may also be used in bed-pans, etc. The Permanganate solution will instantly disinfect and deodorize whatever it touches; but its action continues only while it gives a purple or reddish color. Carbolic acid and the coal-tar disinfectants are the most efficient and permanent antiseptics. The crystalized acid (costly) will discolor in one hundred times its own weight of water. A tablespoon-ful of such solution will disinfect a chamber vessel. The fluid acid (cheap)—70 per cent. strength of crystalized—is most available for common use. Dilute it in 25, 50 or more parts of the iron or chloride solutions, for fluid use, or in fine quick lime or sawdust.

“Use to disinfect discharges from cholera patients, privies, water-closets, garbage-tubs, stables and foul heaps or surfaces, the strongest of the coal-tar or carbolic powders, which are powerfully antiseptic. Those that contain a large amount of some proto-salt of iron and the most carbolic acid, are best. For disinfecting cholera, always use one of the soluble salts of iron or zinc, as mentioned in this memorandum, whatever else is employed. Never use chlorine, chlorides, or the permanganate with car-

bolic acid disinfectants. Let closets and bed-rooms be cleaned, dried and ventilated. Beds and bedding must be frequently ventilated in the sun. Whatever soiled clothing and bedding can be boiled, should if possible, or soon as removed be thrown into boiling water and be kept boiling for an hour or two. While waiting the boiling, keep all the cholera soiled clothing covered in the disinfecting permanganate water or in the chlorinated solution, but this is far less effectual. Whatever articles have received the infective matter and cannot be immediately disinfected by such means or by sulphurous fumigation, should be destroyed by fire. Let it not be forgotten that all the discharges from the bowels and the stomach of the cholera sick must be immediately disinfected by the means specified for the purpose in this memorandum. And never cast these discharges from the sick into a privy or upon the surface of the ground, but into some privy or water closet not, for the time being, frequented, or into a specially prepared little pit of quick-lime and coal-tar powders.

"FUMIGATION.

"In any room, house or ship where the infection of cholera exists or is liable to exist, after cleansing, fumigation should be practiced with sulphurous acid gas, by burning a few ounces of sulphur upon a dish of red-hot embers; with nitrous acid fumes, by pouring three ounces of concentrated nitric acid over an ounce of fine copper shavings, or by heating a mixture of nitrate of potassia and sulphuric acid in an iron or porcelain dish, or with chlorine gas (but not for cholera) by mixing a quart of muriatic acid and a pint of water, and pouring it upon a pound of finely powdered black oxide of magnese, or by any other methods of envolving this gas. Sulphurous acid gas is the most effectual and the most easily applied of all the methods of fumigation. Before fumigation begins, let all chimneys and windows be closed, and as soon as begun, let the person on duty withdraw from the place, close all the doors and keep them closed for twelve hours. Then open every window, door and aperture, and keep open for successive days and nights.

"There is no substitute for cleanliness and ventilation. To protect from cholera, attend to these sanitary duties, and also destroy by chemical agents the choleraic discharges."

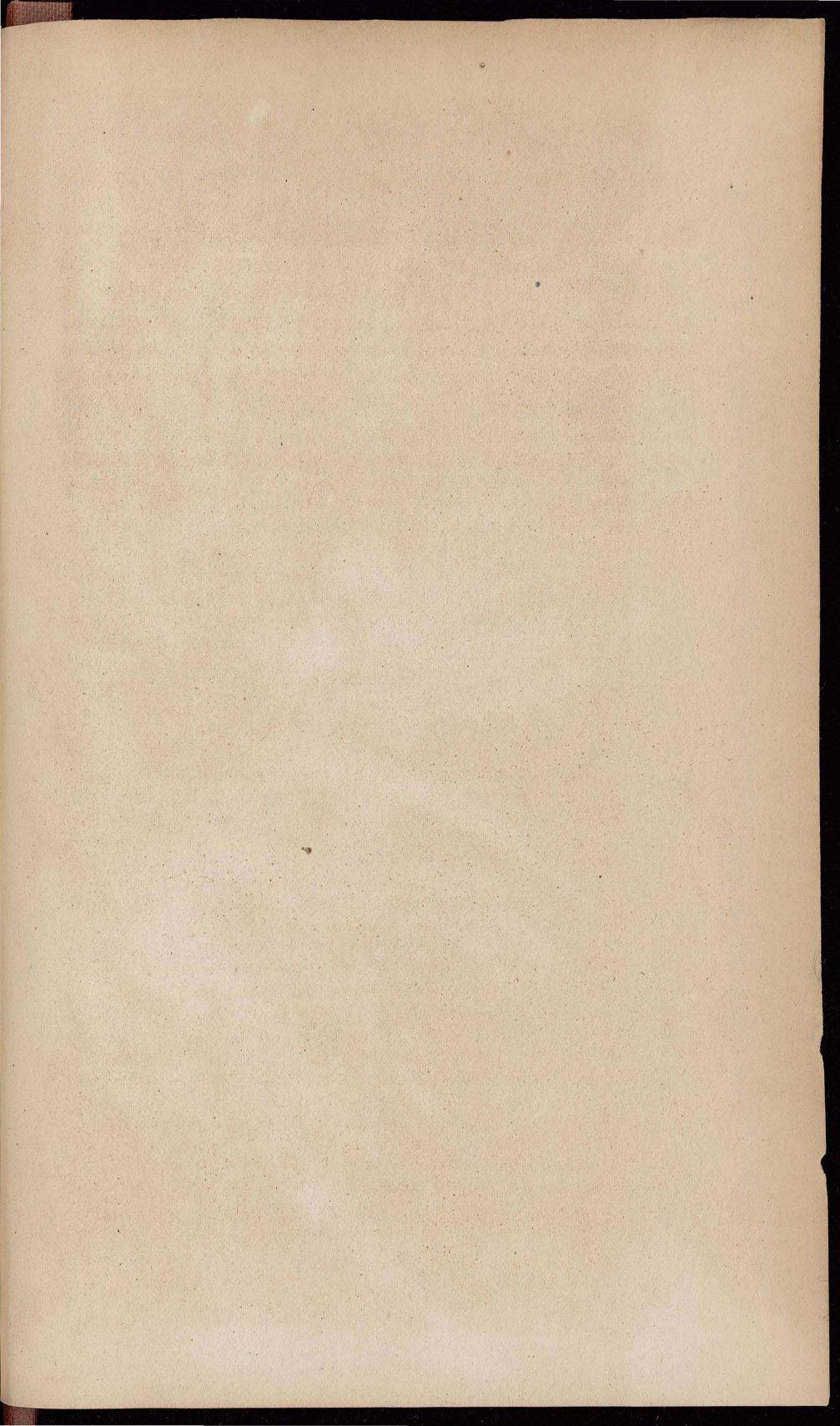
CONCLUSION.—We were in the practice of medicine before cholera ever visited America. We have met it face to face at every visit and we feel sure of our ground, when we assert that no scourge known to the annals of Medicine, from the beginning until now, was so completely obedient to art as cholera. At every visitation our observation has proved that if the people avoid fruit, non-cereal vegetables and animal products they will not die of cholera. By quarantine, disinfectants, &c., &c., one set of people can do a great deal of good for others, but by the above rule each SAVES HIMSELF. However great the folly of your neighbor, he cannot endanger you.

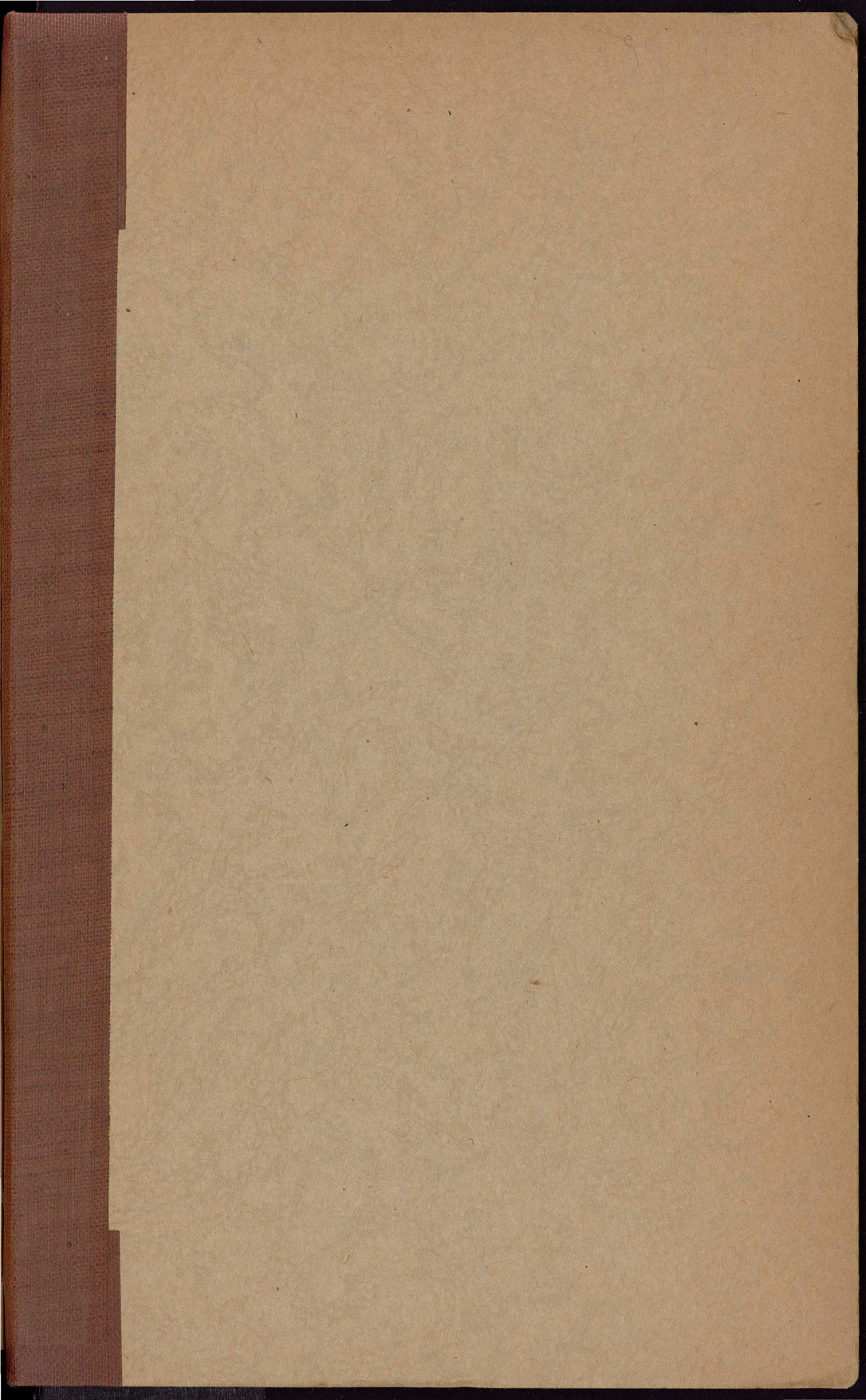
It is urged against our rule that it starves one. I allow a full ration of beef, mutton, chicken, ham, breakfast-bacon, crackers, dry toast, biscuit, *plain* corn bread, tea and coffee. If one can not live upon this diet six weeks (about as long as cholera ever lasts in one place), he ought to die, and of a disease that expends its force on the apparatus of alimentation. I have no patience with people who tell me it is very hard to live on an abundance of the best meats, with bread and coffee, for six weeks—blessings that four out of five of the population of the world live and die without enjoying.

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