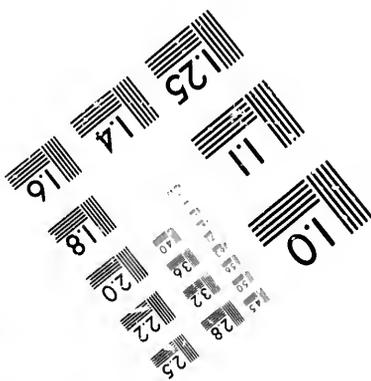
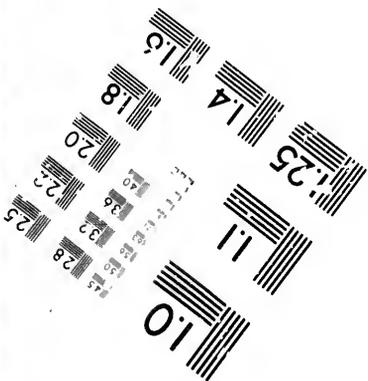
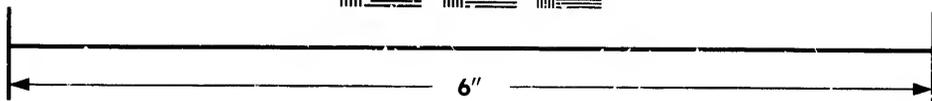
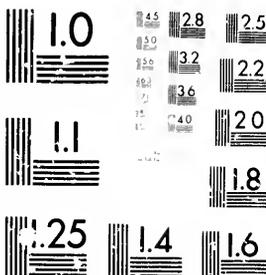


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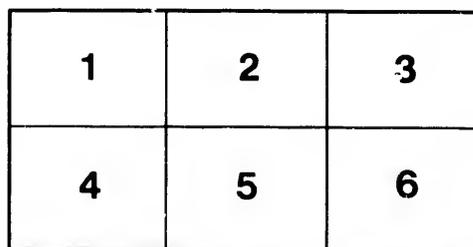
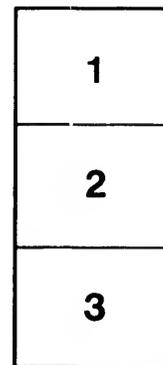
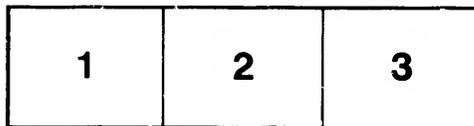
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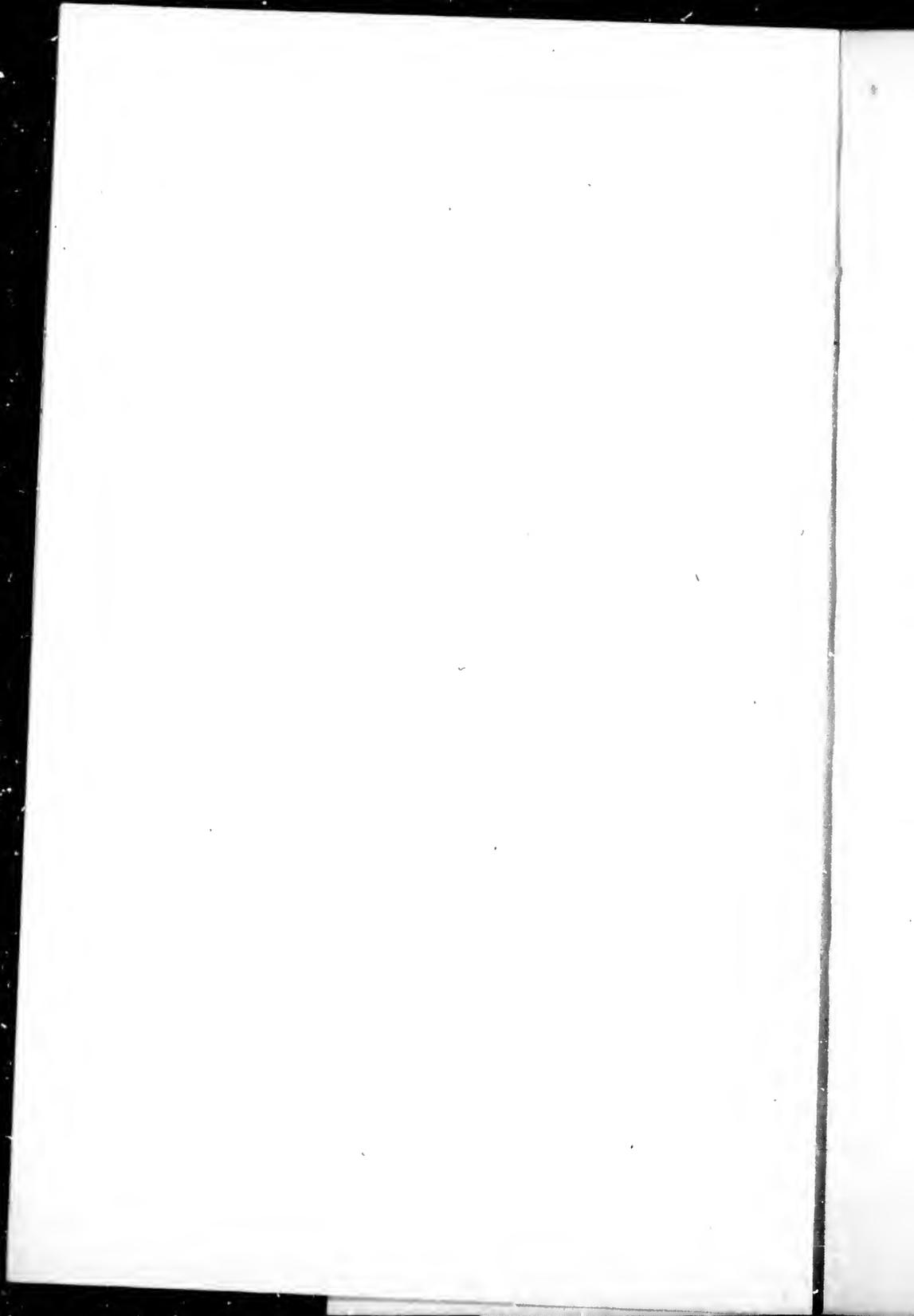
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DISPOSAL OF THE DEAD :
BY LAND, BY WATER, OR BY FIRE;
WHICH?

BEING THE LAST LECTURE OF THE COURSE

ON

HYGIENE AND PUBLIC HEALTH

DELIVERED TO THE THEOLOGICAL CLASSES
IN THE SESSION OF 1874-75,

BY

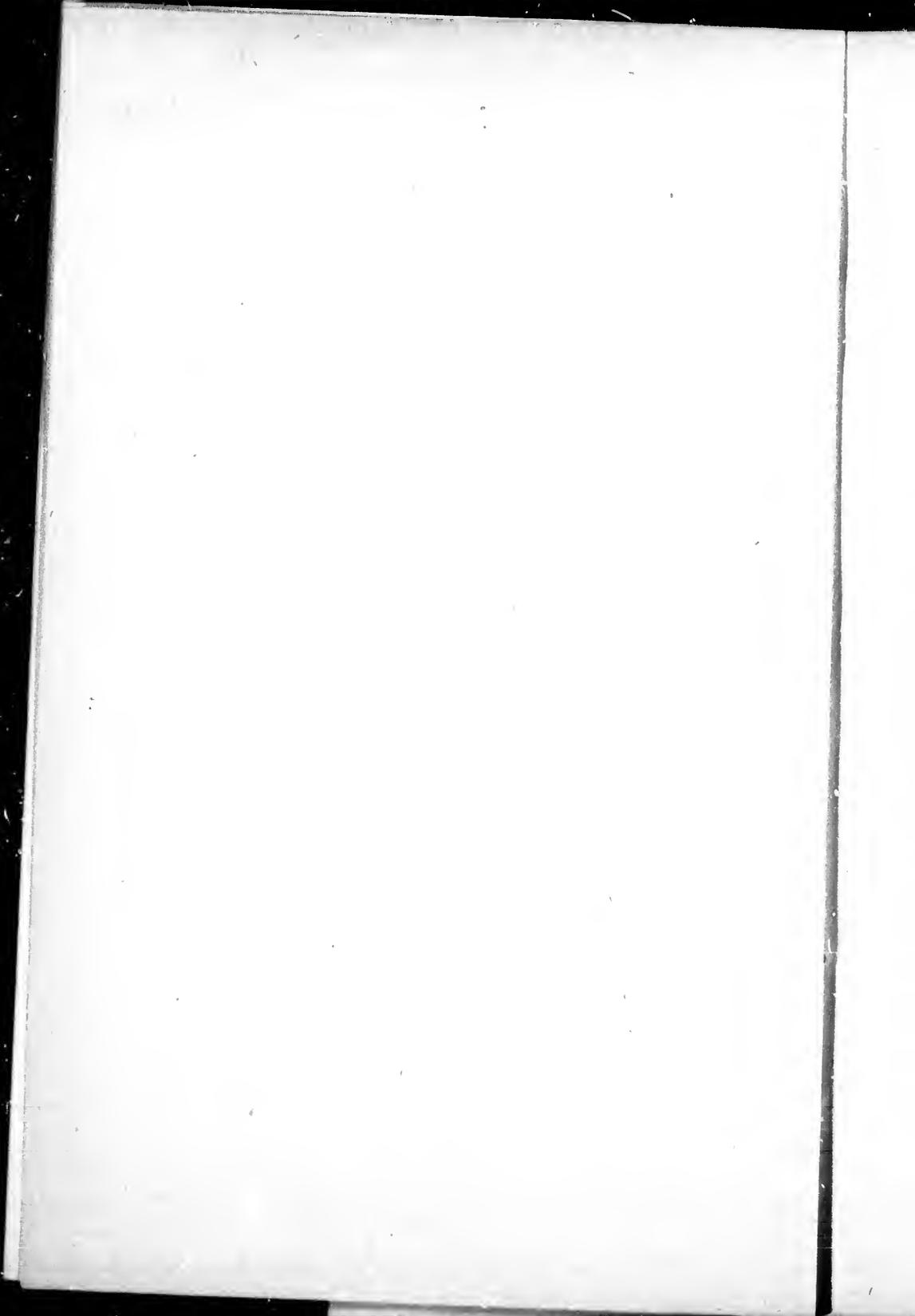
GEORGE A. BAYNES, M.D., C.M.,

MCGILL UNIVERSITY.

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TO HIS WORSHIP

W. H. HINGSTON, ESQUIRE, M.D., C.M.,
MAYOR OF THE CITY OF MONTREAL.

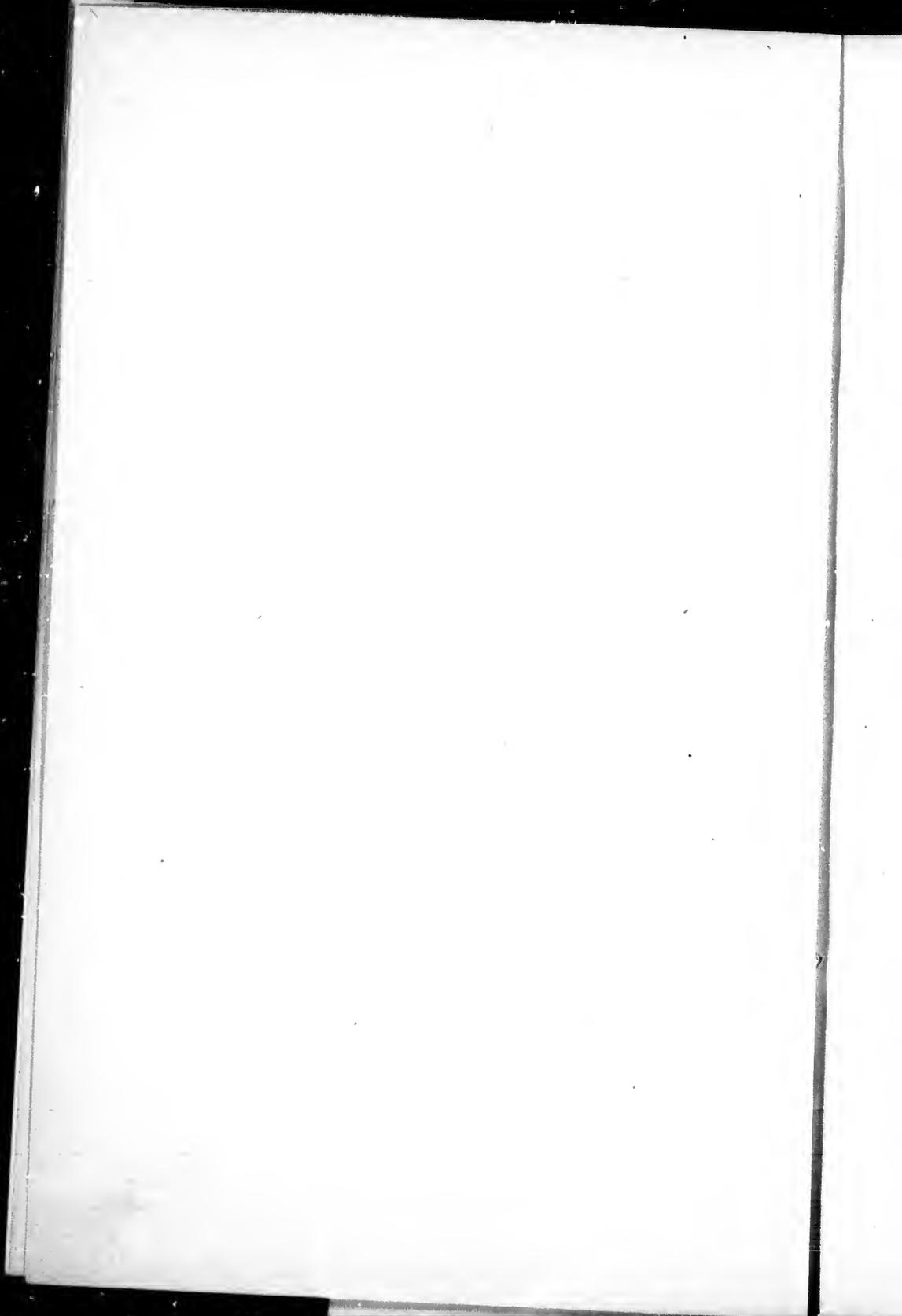
HONORED SIR,—

Having kindly given the sanction of your presence on the delivery of the following Lecture on the Disposal of the Dead, —and having graciously expressed your approval of the system herein advocated, it is with sincere pleasure that I avail myself of your permission to dedicate this to Your Worship, fully sensible of the favorable consideration it will receive from the Public, under the concurrence of so enlightened and able a Physician.

I have the honor to be,
With the highest esteem,
Your Worship's obedient Servant,

G. A. B.

686 Dorchester Street.
Montreal, April, 1875.



CREMATION.

GENTLEMEN,—

As I announced to you, this will be the last lecture of this course on Hygiene, and I may add, not the least in importance, as opening a question in which a great future in the sanitary efforts of mankind is involved, and which, therefore, claims your honest and unprejudiced-consideration.

The subject of the evening is the discussion, from a sanitary point of view, of the three modes of sepulture or disposal of the Dead—by Earth—by Water, or by Fire. As the careful provision for the living has been one of the most absorbing thoughts of life, with its many anxieties, it is assuredly most natural that, what has claimed such incessant attention when alive, should be regarded with veneration and affection when dead. And as memory treasures up the ineffaceable record of the departed one, so love seems to dictate the last lavish exhibition of tenderness on all that remains of that long loved and cherished one. And who is bold enough, nay, who so dead to sympathy, as to encroach upon the silent and solemn farewell of the living and the dead?

The question before us is, the consideration how to unite these last rites of respect and regard with the least objectionable disposal of those that must be separated from us by the inexorable law of nature.

My subject begins when exhausted tenderness has poured out her last tear, and the laboring bosom uttered the last farewell. It begins after the words have gone forth "dust to dust, ashes to ashes," and all that remains is to lower this earthly tabernacle to its last resting place. But is it rest to which the motionless corpse is consigned when laid with its parent dust?

Is it the same calm sleep, undisturbed and quiet, which we witnessed, from the moment the spirit left to the day we parted from it?

The answer to this is, the consideration of the results that flow from the only three modes of sepulture—by Earth—by Water—and by Fire—for to the one or other of these great elements we must be consigned. It may be asked—why pry into

the action of these three agents upon the dead? Why disturb the accepted usage common among men? My answer is, that if a course of Hygiene is to be delivered, I should deem myself highly culpable, were I to omit the disastrous effects that are daily felt by the living from the present mode of the sepulture of the dead. It is now an accepted fact that intramural sepulture, that is, burial among the living, is high treason against life—a mine sprung under the citadel of health—a prolific source of insidious contagion. In thickly populated districts, where the earth, rising from her death of winter, emits her exhalations in resurrection to the genial sun, how are these exhalations charged? What does her thawed bosom pour forth for the living, but the deadly gases of buried disease. It is this fact, now universally confessed, that has made the demand for a burial place at a distance from the living. Large cities have their cemeteries some miles from the town. As this is the case, and wise legislation has introduced these needed sanitary precautions, it becomes us very carefully to enquire whether, *what has been done* effectually prevents now, and secures *in the future*, what all confess to have been the rife cause of a perennial or at least annual recurrence of infectious disease. While the disposal of the dead is the question before us, the real subject of consideration is the health and life of the living, and you will readily admit that the phases through which the dead are passing, touching their remains, are of small moment, save as they add to the ordeals through which the living have to fight their way, to reach the allotted goal of longevity, that all naturally expect to attain, and which not one in a thousand ever sees. To give, then, the fairest chance of life to all around, and to secure during its continuance the greatest amount of freedom from the calamities of disease, is the laudable end of the study of Hygiene. If then, gentlemen, we pretend to enter the lists of the benefactors of the human race, we must not be afraid to advocate laws that compel conformity to sanitary principles; nor be alarmed, if in doing so, we receive the abuse of prejudice and the insults of ignorance. We must be willing to bear all and suffer all, if we have the consciousness that permanent good will be effected, and our fellow creatures ultimately benefited. It was a wise remark of that sage philosopher, Lord Bacon, when he said, "It is good also not to try experiments in states, unless
" the necessity be urgent, and the utility evident—and to be well

“ aware that it is the reformation that draweth on the change, “ and not the desire of change that pretendeth to the reformation.” We cannot be too strongly imbued with this principle when entering on a theme that will array against us the formidable opposition of time-honored usage, and the deep-seated prejudices of ancestral custom, nor should I deem it at all wise, at this time, to do more than fairly discuss the question of the least innocuous mode of disposing of the dead, and the least repugnant to our natural feelings.

Some may say, According to your theory, has the necessity become urgent? And my answer is—I think so—on two grounds :

1st. The immense increase of population, and with it the large growth of disease ;

2ndly. The spread of infection, not alone from the actual prevalence of the disorder among the living, but from the remains of those who have fallen victims to it.

So rife with danger is every dead body, that nothing is more dreaded than any accident arising at *post mortem* examinations. In climates where decomposition instantly commences, the funeral of a deceased person takes place on the day he dies. The object in expeditious burial is to give the least possible chance to infect the air, as the well-known medium of contagion. In all instances of plagues, the most rigid laws are enforced as to instant burial, nor is it left to the individual action, the public authorities exact the delivery of the dead and undertake its disposal. If, therefore, when the scourge of some deadly disease threatens a community, law steps in to preserve the living, and individual feeling has to yield to the public good, why should there be objection to wise sanitary precautions and strict rules to be observed in the ordinary causes of epidemic diseases? I hesitate not to state, that the spread of such contagions as small-pox and typhoid fevers is due to the want of an energetic and prompt sanitary law. Vain is it to imagine that rules, however well enforced, for the removal of exposed nuisances, securing of proper drainage, and breaking up dens of congregated humanity, are sufficient to ward off the pestilential return of these scourges; they subserve a good end in removing inducing causes to disease; but how about the disease itself, first in its periodical return, and then in its obstinate continuance? Is this due to

drains? I think not. My firm conviction is that disease is latent, and needs only the inducing cause to re-appear. Re-appear where? say you. In the house where the infection is for a time dormant. Have we laws to enforce the thorough cleansing and purification of a house? None. In London, notice is left at every house of the rich and poor, that unless measures be taken for the perfect purification of a dwelling in which either the small-pox or typhoid fever has entered, and affected any inmate, the sanitary officers will on a certain day return, and enforce them at the owner's expense. Let us have a similar law. It has an ancient precedent in the Law of Moses, where houses were scraped and, *that failing*, were pulled down, to eradicate disease, as related in Leviticus, 14 ch., 41-43. The sanitary police should pass by no place where the air is evidently impure, but immediately discover the cause. Each person, as a duty towards his neighbor, should give notice of any known cause of offensive matter at the office of the sanitary police, by a postal card or otherwise. But I now come to the precautions necessary to check disease, when it has made its appearance, and when death has ensued. It is manifest, that where disease of any kind terminates in death, the most virulent form must probably have existed while living, and the corpse is an impregnated mass of contagion, only requiring the channel to engender the fatal malady. The opportunity is immediately granted, for without any precautionary disinfection, the nurse opens the window that the air without may relieve the fetidness within, and carry forth the pestilential vapor to contaminate the atmosphere, resulting, as it invariably does, in dragging fresh victims under the scourge. This outrage against common sense, and the first law of self-protection, is perpetrated without remonstrance, and endured by the community with the placidity of sheep going to the shambles. You reasonably would inquire what should be done? I return to the duty of the health-officer, or, what would be better, to the duties of a physician called in Paris the "Médecin-Vérificateur," without whose certificate no one can be buried, and whose duty it ought to be to *proscribe all houses where infectious disease has broken out, and to see that the inmates are well supplied with disinfecting chemicals*; and if death ensues, that orders are left for the application of the most powerful disinfectants to be plentifully used and for the removal of the body as quickly as possible to the place of interment. Further,

that a strict quarantine be put upon the house until it has undergone the prescribed cleansing, and the inmates have been pronounced free from infection. The delay in funerals, and the parading of the dead through our streets, are fraught with danger. Let me instance what a thoroughly trustworthy person stated last summer. A child that died of scarlet fever was being taken in an open child's hearse to the Roman Catholic Cemetery, along Sherbrooke Street. A little boy, attracted by the white pony, ran out of his house and followed the funeral, and came back with an account of the pony and the carriage; a few hours after, the boy was taken sick, and not many days after died of scarlet fever. Now, as that gentleman observed, there was not an instance of scarlet fever in the neighborhood, nor any trace of it in the surrounding streets. What was the cause of a healthy child's being thus suddenly seized with a contagious disease? Can any one doubt for a moment that the dead child slew the living. I believe it a wise precaution, nay, more, it should be a law, to have hearses always enclosed. It is proverbial, "caught his or her death at a funeral." On Sunday, the 28th of Feb., I heard one remark: "I have just been to poor Mrs. S.'s funeral; she was in perfect health when she went to her sister's funeral on the 9th of January, caught her death, and is now dead."

But to return to our subject. In what way can the progress of disease be arrested, and what can be done to eradicate contagion? I have dwelt somewhat on the sanitary precautions that should be adopted in the treatment of houses and their inmates. I now more especially enter on the subject of the disposal of the dead, not only as to the immediate treatment of the deceased, whose body should be carefully subjected to the action of disinfectives, but to the broad question of its final disposition. I have said, that to the action of one or other of the great elements of nature, we must, as far as the body goes, be consigned, and the only question that arises is, which of the three, earth, water or fire, is the least revolting to nature, and the most conducive to the benefit of the living? When a country is young, there is not the same urgency in the question as in thickly populated districts. The first movement in this direction, is the demand for extramural interment, and then, as the population increases, and the suburbs enlarge, the environs become gradually vast cemeteries. "A community," says Doctor Parkes, "must always dispose of its dead,

either by burial in land or water, or by burning, or chemical destruction (equivalent to burning, or by embalming and preserving." Accustomed as we are to land burial, there is something almost revolting, at first sight, in the idea of making the sea the sepulchre, or of burning the dead. Yet the eventual dispersion of our frames is the same in all cases; and it is probably a matter of mere custom, which makes us think that there is a want of affection, or of care, if the bodies of the dead are not suffered to repose in the earth that bore them. In reality, neither affection nor religion can be outraged by any manner of disposal of the dead, which is done with proper solemnity and respect to the earthly dwelling place of our friends. The question should be placed entirely on sanitary grounds, and we then shall judge it rightly. After death, the buried body returns to its elements, and gradually, and often by the means of other forms of life, which prey upon it, a large amount of it forms carbonic acid, ammonia, sulphuretted and carburetted hydrogen, nitrous and nitric acids, and various more complex gaseous products, many of which are very fetid, but which, however, are eventually all oxidised into the simpler combinations. The non-volatile substances, the salts, become constituents of the soil, pass into plants, or are carried away into the water percolating through the ground. The bones may remain in some soils for many centuries, and retain in measure a portion of their animal constituents. If, instead of being buried, the body is burned, the same process occurs more rapidly, and with different combinations: carbonic acid, nitrogen, or perhaps combinations of nitrogen, water, &c., are given off, and the mineral constituents, and a little carbon remain behind. The practice of embalming or mummifying the dead, has long become a matter of disuse nor is it at all probable that it will ever again become common. Men seem to agree on the uselessness of preserving the remains of the departed, at the best, for a few more years, and that only to be an object of indifference to future generations. The question lies between burial in the land or sea, and burning. Burying in the ground is certainly the most insanitary plan of the three methods, and could we see what is passing in the earth, "the glimpse of the reality," as Sir Henry Thompson says, "which we achieve by burial, would annihilate, in an instant, every sentiment for continuing that process. Nay more; it would arouse

a powerful repugnance to the horrible notion that we too must some day become so vile and offensive, and it may be, so dangerous;" but when we consider that this is the least matter of consideration, and that the real objection lies in the fact that this mass of corruption is capable of so infecting the atmosphere, that what a right-minded man would shrink from in life, viz: injuring his neighbor, he is innocently made the cause of in his sepulture. I am persuaded that if the choice were given to him, he would prefer that mode which would be least injurious to those he left behind. If we glance at the testimony given on all sides, as to the contaminated character of the air, at certain times, over cemeteries; and the fact of water rendered impure, both surface and underground, issuing from them, we at once recognize two most dangerous sources for the propagation of disease. The vicinity of graveyards cannot be otherwise than unhealthy, and the disturbance of graveyards has often given rise to disease, and where such is attempted the most stringent precautions against infection should be adopted. Dr. Parkes states that at the conclusion of the Franco-German war, in 1870, around Metz the graves of men and horses and cattle were disinfected with lime, charcoal, and sulphate of iron. Immense exertions were made to clean and disinfect the camps and battle-fields, and in the month of May, 1871, from 1,200 to 1,600 laborers were employed by the Germans. Wherever practicable, the ground was sown with oats or barley, or grass. The hillocks formed by the graves were planted with trees. In many cases, bodies were dug up by the Germans, when there was any fear of water courses being contaminated, or if houses were near. On account of the danger to the workmen, graves containing more than six bodies were left untouched, and the work was always done under the immediate superintendence of a physician. The earth was removed carefully, but not far enough to uncover the corpse; then one end of the corpse was uncovered, and as soon as the uniform or parts of the body were seen, chloride of lime and sawdust, or charcoal and carbolic acid, were put in; the whole earth round the body was thus treated, and the body at length laid bare, lifted and carried away. The second body was then treated in the same way. The Belgian experience at Sedan was in favor of employing chloride of lime, nitric acid, sulphate of iron, and chlorine gas—carbolic acid did not answer so well. The extreme caution and

care used where disinterment was necessary, and the means adopted to neutralize and absorb exhalations, go to prove the accepted fact of the danger arising from the decomposition of the dead, and the effects that may be dreaded should the air become charged with fetid gases. Nor is it right to suppose that the tainting of the atmosphere can only be temporary—the air when thoroughly impregnated with noxious vapor has a power of retention that exceeds belief. In the great plague that burst forth in the 15th year of the reign of Justinian, a plague that, appearing first in the neighborhood of Pelusium, A.D. 542, taking a double path from the eastern channel of the Nile, spread to the east over Syria, Persia, and the Indies, and penetrated to the west, along the coast of Africa and over the continent of Europe—a plague that left desolate tracks of country once full of a teeming population which *ten* centuries have not supplied; a plague that saw the fruits of the earth in many parts wither and waste upon its bosom, because there was none to harvest them; a plague that devastated populous cities, leaving neither record nor conjecture as to the numbers which perished,—so loaded was the atmosphere with the deadly malaria that the difference of seasons appeared neither to check nor alleviate it. In Constantinople, where it raged, the death rate during three months was as high as five thousand, and finally reached ten thousand per day. When in time its first malignity was abated and dispersed, the plague alternately languished and revived, but it was not till the end of a calamitous period of fifty-two years, as related by Gibbon, from A. D. 542 to 594, that mankind recovered their health, or the air resumed its pure and salubrious quality.

The plague of London, in 1665, that nearly desolated the city, commenced in May, which was an unusually hot and sultry month, and continued till the end of November, averaging 1,800 deaths per week, in the early part of its breaking out in May, and increasing, so that in July and August the rate was about 6,000 per week, and in September 10,000 per week. At first all burials took place at night, and strict orders were given for all persons who were well not to be out of their houses after sunset, and every effort was made to prevent the attendance at funerals, which was certain to affect those who followed them, but the mortality increased so rapidly that they were obliged to bury by day as well as night. Towards the end of November, what with the

immense reduction of the population by death, and the flight of those who could get away, the rate was reduced to 300 per week. The plague more or less hung round the city till the opening of the year 1666. On the 2nd of September of that year, the great fire of London broke out, which is vividly described in the Memoirs of John Evelyn, of Wotton near Dorking, who lived at that time, and writes as an eye witness of the destructive fire. After enumerating the streets on fire, he adds: "The conflagration was so universal, and the people so astonished, that from the beginning they hardly stirred to quench it, so that there was nothing heard or seen but crying out and lamentation, people running about like distracted creatures, without at all attempting to save even their goods, such a strange consternation there was upon them. It burned both in breadth and length, the churches, public halls, exchange, hospitals, monuments and ornaments, leaping after a prodigious manner from house to house, and street to street, at great distances one from the other; for the heat, with a long set of fair, warm weather, had even ignited the air and prepared the materials to conceive the fire which devoured after an incredible manner, houses, furniture and everything. O! the miserable and calamitous spectacle, such as happily the world had not seen the like of since the foundation of it, nor to be outdone till the universal conflagration. All the sky was of a fiery aspect like the top of a burning oven, the light seen above forty miles round about for many nights. God grant my eyes may never behold the like, now seeing above 10,000 houses all in one flame; the noise and cracking and thunder of the impetuous flames, the shrieking of women and children, the hurry of the people, the fall of towers, houses and churches, was like an hideous storm, and the air all about so hot and inflamed that at last one was not able to approach it, so that they were forced to stand still and let the flames burn on, which they did for near two miles in length and one in breadth. The clouds of smoke were dismal, and reached, upon computation, near fifty miles in length. Thus I left it, this afternoon, burning, a resemblance of Sodom, or the last day. London was, but is no more." I shall not extract more about the fire; language can hardly depict a more harrowing scene. There were 13,000 houses destroyed, but so thoroughly was the earth and atmosphere purified by the fire, that there has never been a recur-

ence of the plague since; and the metropolis became almost as famous for its salubrity as it had been before for its epidemics and recurrences of plague. Like the surgeon's knife that cuts off the diseased limb, this awful fire proved a sharp but most effectual extermination of this deadly plague which lay then buried in the midst of the city, within three feet of the surface of the ground, a circumstance well calculated to create suspicion of its outbreak again in the future. In Pepys's quaint Diary, under date 30th January, 1666, he says: "This is the first time that I have been in the church since I left London for the plague, and it frightened me indeed to go through the church more than I thought it could have done, to see so many graves lie so high upon the church-yards where people have been buried of the plague. I was much troubled at it, and do not think to go through it again a good while." The fire was God's mighty purifier, burning deep into the earth, and it consumed all that lay ten feet beneath its surface. "I saw," says Evelyn, "not many stones but what were calcined white as snow, vast iron chains of the city streets, hinges, bars and gates of prisons melted and reduced to cinders by the vehement heat;" and as it purified below, it vaulted upwards, and consumed every floating particle of malaria out of the loaded air.

It may be thought that I have been somewhat diffuse in thus so largely detailing the history of the plagues of the year 542 and that of 1665; but my object has been to shew you with what pertinacity disease clings to the atmosphere, and how difficult it is to disinfect the air when once contaminated. This is incontestably proved by the continuance of the same disease for years, where no relieving cause has intervened beyond the change of seasons; while, on the other hand, where a powerful interposing agent as fire has followed, the prevailing disease has been eradicated, and the contagion stopped. If this be established, it is evident that the greatest purifier that has been given for the use of man is fire. I maintain that in the two examples before us, there is an illustration, 1st, of the inability of nature to relieve itself by the common order of sequence of seasons, proved by a fifty-two year's continuance of the plague over regions where no disposing cause but the atmosphere could possibly have retained it; and, 2ndly, that in a town that had been visited by a recurrence of plague from time to time, and finally a very severe one, a fire of

unparalleled magnitude and intensity so charred everything that was buried, and so burnt up the floating malaria of the atmosphere that was charged by exuding gases, that from a place of dreaded contagion it passed into the healthiest city of the empire.

It is an old nursery adage, "fire is a very good servant, but a very bad master;" yet this may be said of every element; their use under certain conditions is beneficial, but let those conditions be violated and they are our destruction. No doubt then the desideratum to be obtained is, how to bring these great agents into their true beneficent channels, and in the use of them to seek as far as it lies in our power, neither to contaminate their purity nor to pervert their utility.

If it is beyond a doubt that the most ready medium for conveying disease is the air we breathe, of what paramount importance is it to secure its freedom from contamination. What effort can be deemed too stringent that can aid and assist in maintaining its purity, and counteracting its infection. It is quite clear that our efforts must be restricted to the line of prevention, and by using with limitation the great concurrent elements that will best enable us to assist, or at least not impede, nature in her normal condition of health.

The field now fairly opens before us.

Is it not the bounden duty of those who have each a life interest in the great stake of health to promote its security by all possible means, and to use every precaution by the adaptation of every instrument in our power, and by the free application of every agent needful, to defend her laws, and prohibit flagrant acts against her constitution?

The more population increases, the more mankind congregates. It is the law of affinity. "God made the country and man made the town," and the town is all very well in its way, if we can secure within it some of the main benefits that are the common heritage of the country,—fresh air and space. It is a pity we do not build towns after the fashion of Nineveh, "an exceeding great city of three days' journey." No doubt there were plenty of gardens, plenty of fountains, broad roads, public baths, athletic race-courses, and large well-ventilated houses. There would be an end then of the inconceivable nonsense of land-selling at a dollar an inch, as if the good God had only so many acres to divide between us, instead of His great big earth. But if we

must be condemned to live in contracted streets filled with human pens, filthy gutters and a close-tainted atmosphere, then, as preservation is the first law of nature, let us up and do something to save ourselves from the pestilence of small-pox, scarlet fever, typhus and typhoids, cholera, and every other plague. During the period when Montreal was passing through the trials of cholera, ship fever, or rather the plague, and an annual recurrence of small-pox, I took pains to find out whether these diseases ever made their way into the neighboring townships, and I could not trace a single instance of any one's having been attacked by either, unless shortly after having visited the city. I attribute this in large measure to the general custom during spring and autumn of clearing land by fires, which certainly rendered the air remarkably free of all impurities. Since the country has been cleared and towns have sprung up, small-pox continually appears, but confined generally to the village or town. Besides the sanitary regulations alluded to, as absolutely necessary in the treatment of those attacked and their dwellings, the disposal of the dead lies at the root of the whole matter. I advocate Cremation in sepulture in preference to disposal of the corpse, either in the deep sea or in the earth, and I do so entirely on sanitary principles, while I am also prepared to shew it is infinitely less repulsive to nature. There is only the choice between the three elements, and the fair discussion of each mode, as far as delicacy will permit, should not be shunned by any one. It is only false delicacy to do so. The common practice of restoring to the earth that out of which it was first formed, has been the prevailing usage for centuries. The most ancient record of burials, however, is not that of depositing the dead in the earth, but rather in caves and excavations in rocks. See Genesis 23, 19; Isaiah 22, 16; Matthew 27, 60; John 11, 38; and nothing testifies more fully to the vast antiquity of the old sites of cities now no more, than these lasting monuments of sepulchral remains, that stretch far into the hill sides. It is certain that after the usage of embalming declined, it was superseded by burning, and it was only subsequently that burial in the earth was resorted to. The vast monumental sepulchres whose colossal magnificence is the only relic of by-gone grandeur, still proclaim the purpose of the founders, whose object was rather the preservation of the dead, than the surrender of the body to corruption,—hence embalming was studied as an art and practiced most successfully.

When from one cause or another the usage became burdensome and Mausoleums too expensive, Cremation to avoid corruption became nearly universal, and is still practised in the East. Of this, instances both ancient and modern are mentioned in history. It will be interesting to hear the opinion on this subject of so celebrated a physician as Sir Thomas Browne, doctor of medicine of Leyden University and Oxford, who, for his great learning, was knighted by Charles the Second on his visit to Norwich in 1671. The fame of this great man not only drew forth the admiration of his contemporaries, but men of genius ever since have delighted to do him honor, as witness his biography by Dr. Johnson, and still later, Coleridge, Lamb, Hazlitt, Hallam and Bulwer, have put on record their estimate of his genius. He says, "But the practice of burning was also of great antiquity, and of no slender extent. Noble descriptions there are hereof, in the Grecian funerals of Homer, in the formal obsequies of Patroclus and Achilles, and somewhat older in the Theban war, and solemn combustion of Menecæus and Archemorus, contemporary unto Jair, the eighth judge of Israel. Confirmable also among the Trojans from the funeral pyre of Hector, burnt before the gates of Troy, and the burning of the Amazonian queen, Penthesilea, while as low as the reign of Julian, we find that the king of Chionia burnt the body of his son, and interred the ashes in a silver urn. The same practice extended also far west, and, besides Herulians and Thracians, was in use with most of the Celtiæ, Sarmatians, Germans, Gauls, Danes, Swedes, Norwegians, not to omit some use thereof among Carthaginians." There is also the case of Dido, daughter of Belus, King of Tyre, who was the widow of Sichoëus, Priest of Hercules, murdered for the sake of his riches by Pygmalion, the successor of Belus. She left Tyre with a number of Tyrians and founded Carthage; being threatened with war by Iarbas, king of Mauritania, because she had rejected his offer of marriage, she caused a large funeral pile to be erected, and in the presence of her subjects, she stabbed herself and was then consumed. B. C. 953.

Socrates was totally indifferent whether his friends burnt or buried him, so long as they would not assert that they had buried or burnt Socrates. He regarded only his soul, which was above either burning or burying. Diogenes, who was well satisfied his soul could not perish, expressed himself entirely indifferent about the disposal of his body.

In all instance the preservation of the ashes after cremation was common; the desire being, to preserve the only indistructible element of the body in a form the least repugnant and the most lasting.

Urns were of different material, size and form; the fair and larger ones contained the ashes of princes. The largest of these contained above a gallon, some not much more than half a gallon, nor all of one figure, wherein there is no strict conformity in the same or different countries. Many were made with handles, ears and long necks, but most imitate a circular figure, in a spherical and round composure; whether from any mystery, best duration or capacity, were but a conjecture. But the common form with necks was a proper figure, making our last bed like our first; not much unlike the urns of our nativity, while "we lay in the nether part of the earth." Ps. cxxxix., 15-16; and inward vault of our microcosm. Many urns are red, some of a black color, somewhat smooth, and dully sounding, which begat some doubt whether they were burnt, or only baked in oven or sand, according to the ancient way, in many bricks and tiles and pots, &c.

Trajanus, who lay in a golden urn eminently above the earth, was not likely to find the quiet of the more obscure. Many of these urns were broken by a vulgar discoverer in hope of enclosed treasure. The ashes of Marcellus were lost above ground upon the like account. When profit hath prompted, no age has wanted such miners.

How they made distinct separation of bones and ashes from fiery admixture, hath found no historical solution. Some provision they might make by fictile vessels, coverings, tiles and flat stones upon and about the body. The "*vasustrinum*, or vessel wherein they burnt the dead, found in the Esquiline field at Rome, might have afforded clearer solution. But their insatisfaction herein begat that remarkable invention in the funeral pyres of some princes, by incombustible sheets made with a texture of asbestos, incremable flax, or salamander's wool, which preserved their bones and ashes incommixed. How the bulk of man should sink into so few pounds of bones and ashes, may seem strange unto any who considers not its constitution, and how slender a mass will remain upon an open and urging fire of the carnal composition. Even bones themselves, reduced into ashes do abate a notable proportion; and consisting much of a volatile

salt, when that is fired out, make a light kind of cinders, and the *earth* almost only remaineth; but all flies or sinks before fire almost in all bodies. When the common ligament is dissolved, the attenuable parts ascend; the rest subside in coal, clax or ashes. To be knaved out of our graves, to have our skulls made drinking bowls, and our bones turned into pipes, to delight our enemies, are tragical abominations escaped in burning burials. Urnal interments and burnt relics lie not in fear of worms, or to be their heritage."

Of modern times I may brievly remark, that when the English Government interposed by law under the administration of Lord William Bentinck, Governor General of India, to prohibit the Suttee practice of burning the widow with the corpse of her deseased husband (which was declared illegal on the 17th December, 1829), no attempt mas made to interfere with the mode of disposal of the dead by Cremation. The laudable aim alone was to terminate the horribly repugnant usage of immolating a living being on the funeral pile of her dead husband; and that the natives appreciated the interference, was amply proved by their commemorating his lordship's administration in the erection of an equestrian statue to his honor. As I before remarked, it is not at all probable that in this practical age the fashion of embalming and its adjunct of sepulchres will ever again return. It is too expensive. The continuance of burial in the ground would not be so objectionable, if instead of the hundred pound of spices to preserve, that not being the object, a liberal supply of decomposing chemicals, and absorbing carbons were plentifully used, the end being to assist nature to return to its native element, "dust to dust," of which pure earth matter, there is only a certain proportion, and which is indestructible under any form. Dr. Parkes observes: "The admixture of quicklime has been advised; it absorbs some carbonic acid, and forms sulphuret of calcium, with the sulphur and sulphuretted hydrogen, but this itself soon decomposes, so that the expense of quicklime seems hardly commensurate with the result. Few can form any idea of what takes places immediately after death." As Sir Henry Thompson observes, "Rest! no, not for an instant. Never was "there greater activity than at this moment exists in that still "corpse. Activity, but of a different kind to that which was "before. Already a thousand changes have commenced. Forces

“innumerable have attacked the dead. The rapidity of the vulture, with its keen scent for animal decay, is nothing to that of nature’s ceaseless agents now at full work before us. That marvellous complex machine, but this moment the theatre of phenomena too subtle and too recondite to be comprehended, denotable only by phraseology, which stands for the unknown and incomputable—vital, because more than physical, more than chemical; is now consigned to the action of physical and chemical agencies alone. And these all operating in a direction the reverse of that which they held before death.”

“The problem which Nature sets herself to work in disposing of dead animal matter is always one and the same. The order of the universe requires its performance; no other end is possible. The problem may be slowly worked or quickly worked, the end is always one.

“It must be thus stated. The animal must be resolved into

a Carbonic Acid, water, and ammonia;

b Mineral constituents, more or less oxidized, elements of the Earth’s structure: Lime, Phosphorus, Iron, Sulphur, Magnesia, &c.

“The first group, gaseous in form, go into the atmosphere.

“The second group, ponderous and solid, remain where the body lies, until dissolved and washed into the earth by rain.

“The process of decomposition affecting an animal body, is one that has a disagreeable, injurious, often fatal, influence on the living man, if sufficiently exposed to it. Thousands of human lives have been cut short by the poison of slowly decaying and often diseased animal matter. And I need hardly add that in times of pestilence its continuance has been often due mainly to the poisonous influence of the buried victims.” With such able authorities before us, and the fact established that death, even by the common order of non-contagious disease, renders the body in its decay and corruption a certain medium for affecting both the air above and the water beneath, and that the most injurious effects are to be traced to no other cause than the mode now common among us of disposing of the dead, surely we may say, that the time is come, when “the necessity is urgent” to discover a more safe way of sepulture if only on the ground of sanitary precaution.

If the ultimate result is the same by any process, viz : That the human body must return to its affinities, whether by a slow or a rapid process—yet return it must,—and if in the slow process all manner of danger threatens the survivors, what possible argument can be raised against a more rapid and safe mode of arriving at the same end? Can anything commend itself more than to assist nature to return at once to her constituent elements? Water to water—sulphur and acids to be oxidized into other combinations, leaving the dust to return to dust, or be preserved in the urn that respect or regard may have prepared for it.—And thus in an hour effecting the work of a long process of dangerous transmutations for years in some cases, through a scene described by our Lord and Master in Matthew xxiii, 27, as “full of dead men’s bones and all uncleanness.”

But if the burial of the dead dying under ordinary causes is so rife with mischief to the living, what shall we say to the carefully husbanding in the earth of Plague, small-pox and a host of contagious fevers to send up their annual exhalations till exhausted, assisting Death to renew his battle with life, upon the patient survivors? Surely it may fairly be challenged whether our practice deserves a better name than ignorant homicide! If these recurring calamities are to be patiently endured, as if beyond our control, and, if, like the Turks, we are wedded to the doctrine of fatality, and shrug our shoulders and die, we richly deserve it. No generation hereafter will ever pity us. Was there ever a more daring outrage against common sense and every sanitary principle perpetrated than the ripping up of that Roman Catholic burial-ground on Dorchester street, with no more precaution than in removing furniture in May. Giving in charity old coffin-boards for fuel to be burned in dwellings and poisoning whole households! Is there any wonder that disease was spread from that wholesale rejection of all precautionary measures? The same thing is meditated in the Protestant burial-ground in Dorchester street, and no law is enforced as to the proper mode of exhumation.

I know one gentleman who very wisely observed the other day that he should be sorry to disturb his grandmother, who is buried there, for she died of cholera!

If it be necessary to get rid of the cemetery out of the city, let it be done under proper sanitary regulations; let us take a lesson

from the Prussians in removing the dead, and let the city pay where individuals cannot, for a sufficient quantity of deodorizing and disinfecting materials to neutralize the gases and effluvia that will arise from exhumation.

A few words upon burial in the deep sea. No doubt it is a safe and sanitary mode, but could only be adopted where proximity to the sea rendered it easy. That it had a hold on men's minds is clear from the preference given by islanders to the water over the earth as their last home. Carlyle says: "Old Norse Kings, about to die, had their body laid into a ship; the ship sent forth, with sails set and slow fire burning it; that, once out at sea, it might blaze up in flame, and in such manner bury worthily the old hero, at once in the sky and in the ocean! Silent with closed lips, as I fancy them, unconscious that they were specially brave, defying the wide ocean with its monsters, and all men and things."

If sentiment is to have a voice in the matter, I have heard of more natural repugnance to the sea as a burial place than to any other. The associations are unpleasant. Mariners that have taken many voyages to the East, will tell you that the scent of death will draw sharks after a vessel, which they never quit until the loaded corpse plunges into the deep below, pursued with lightning speed by the voracious monsters. As Dr. Parkes observes, "In the burial at sea, some of the body would go at once to support other forms of life more rapidly than in the case of land burial, and without the dangers of evolution of hurtful products, and in the vast abyss of the ocean the remains would rest until the trumpet shall sound, which shall order the sea to give up its dead."

We have considered as fully as delicacy will permit the alternatives that follow the disposing of the dead by land or by water. We have seen that while the ultimate result by each process is the same, the most dangerous to the living is unquestionably burying in the earth. There remains now for us to consider the only other alternative, that of Fire! This mode, as I shall endeavor to show you, has much that commends itself in every point of view. AS REGARDS THE LIVING, it is the only innocuous mode, not only securing you from the dire effects of decaying and putrescent matter in itself, but providing the most effectual means of checking the prevalence of contagion. AS REGARDS THE DEAD, it is the least painful to contemplate; it removes

from us that revolting thought, that the long process of decay and corruption is steadily but surely at work tearing down the citadel, and reducing all that once was the beauty of form and matter to (without any exception) the most revolting thing in creation. It is argued that fire is the representative and characteristic of judgment, and that to submit the body to the action of fire has that character. My answer is, that Death is judgment, and the wages of Sin—and that fire has a type of acceptance as well as judgment, which Death never has, far less corruption. Fire is the emblem of purification. Gold tried by fire is the figure of true faith coming out under trials. In its action it is represented as removing all impurities, and leaving nothing but the pure metal. And this is the action of Cremation on the human body,—every particle of impurity is passed off into its corresponding elements, and the white pure dust remains to be awakened at the voice of the Arch-angel, as the seed that shall be changed into a glorified body by “the power of Him who is able to subdue all things to himself.”

There is something remarkably noble in the request of Lady Dilke that Sir Charles should grant that she might be the first recognized instance of a return to the old and innocuous form of burial, that only requires to be fairly weighed and considered to at once commend itself to the departing one as well as to the survivors. Look fairly at the three subjects passing through the process of a return to their native elements. In the Earth? as the old ballad of the Fair Imogene sung,

“The worms they crept in and the worms they crept out
And sported her eyelids and temples about.”

So much for that !

Is the sea better? ask the devouring fishes all feeding on the passive corpse.

And for Cremation? Regard those pure white ashes gathered in that urn—that was my Lady Dilke! They will remain to the hour of Resurrection.

It may be asked. Suppose it granted—what would you propose? I would have at the expense of the town a chapel built immediately over the cremation furnace, and there I would have

recited over the dead whatever service each man's persuasion may require—a scene much like what I now present to you in this drawing, taken from the *Canadian Illustrated News* of Dec. 5th, 1874. Immediately underneath should be one of Doctor William Siemens's reverberating furnaces, in which is placed a cylindrical vessel about seven feet long by five or six in diameter. The inner surface of the cylinder is smooth, almost polished and no solid matter but that of the body is introduced into it. The product, therefore, can be nothing more than the ashes of the body. No foreign dust can be introduced, no coal or other solid combustible being near it; nothing but a heated hypocarbon in gaseous form and heated air. Nothing is visible in the cylinder before using it but a pure, almost white, interior, the lining having acquired a temperature of white heat. In this case, the gases given off from the body so abundantly at first, pass through a highly heated chamber among thousands of interstices made by intersecting fire bricks, laid throughout the entire chamber, lattice-fashion, in order to divide minutely and delay the current, and expose it to an immense area of heated surface. By this means they are rapidly oxidized and not a particle of smoke issued by the chimney; no second furnace therefore is necessary by this method to consume any noxious matters, since none escape. The process would be completed in fifty-five minutes, and the ashes removed with ease. This description is from Sir Henry Thompson—and receives only the body—if it was preferred that the body be received into the furnace in the shell or coffin, the only difference would be, that instead of the pure ash of the deceased alone, there would necessarily be the ash of the coffin and wrappings. I should prefer in all cases the lowering of the body in its coffin, as far less dangerous than removing it from its shell, leaving a tainted coffin to be got rid of, a highly objectionable feature, as the very end to be attained is to prevent as far as possible infection from the corpse. The thinner the substance of the shell or coffin the better, as not retarding the incineration, which, without it, may be perfectly performed in fifty-five minutes. I would have in a town of our size at least four furnaces, as a very great object to be attained is the removal of the body to as short a distance as possible to avoid infection. All cases of death by infectious disorders should be subjected to cremation within twenty-four hours, and precautions taken

from the moment of dissolution by a liberal use of disinfectives to check the possibility of infection. The expense of constructing one of Dr. Siemens furnaces is comparatively inconsiderable, so that no village need be without one.

When once it is a recognized fact that by the adoption of Cremation as the true means of innocuously disposing of the dead, the bill of health advances rapidly, and the frightful return of death perceptibly diminishes, it will go far to commend its universal adoption. Indeed I do not know what objections can be possibly raised against it. Some have suggested the often dreaded thought of the possibility of a body being burned while in a state of catalepsy. That *burial*, under such circumstances, has taken place, from a want of proper medical examination, cannot be denied; but it in no ways militates against cremation; but quite the contrary: for were it possible for any one in a state of catalepsy to be exposed to cremation, that is, to descend at once into a heat of 2,000 degrees of Fahrenheit, I need hardly say, this at once precludes the possibility of consciousness again, and surely this is better than to awake up in the silent grave to die again the most horrible of deaths.

But let us look at the question again as one to be decided by each for himself, and for example, let me ask whether in the case of the amputation of a limb, either from disease or accident, any one would care what became of the limb after it was cut off? would it excite anything more than a smile if he were told that an admirable lecture had been given on the nature of white swelling, and that after the instruction was over the leg had been burnt? And what, may I ask, is the difference between the cremation of one leg or two? or of two and the whole body, when we have left it?

No sensible person will regard the question in any other light than in a sanitary point of view; and I fearlessly take my stand on this ground, that it is impossible to calculate the immense revolution that would take place in the bill of mortality, by the change of the present dangerous and death-dealing mode of sepulture; and I would add to this a determination to deal stringently in all cases of contagious diseases and epidemics, by the supervision and care of sanitary physicians, whose duties I have hinted at in the former part of this lecture.

I have been warned of all manner of censure, if I presume to promulgate these views! all I can say is, gentlemen, let it come!

There is an eminent physician in this town, whom I strongly recommend to be consulted by all families—one who has greatly encouraged me in the uphill course of my profession, one whom I consult daily, and who strongly approves of what I have said in this matter—his name is COMMON SENSE.



