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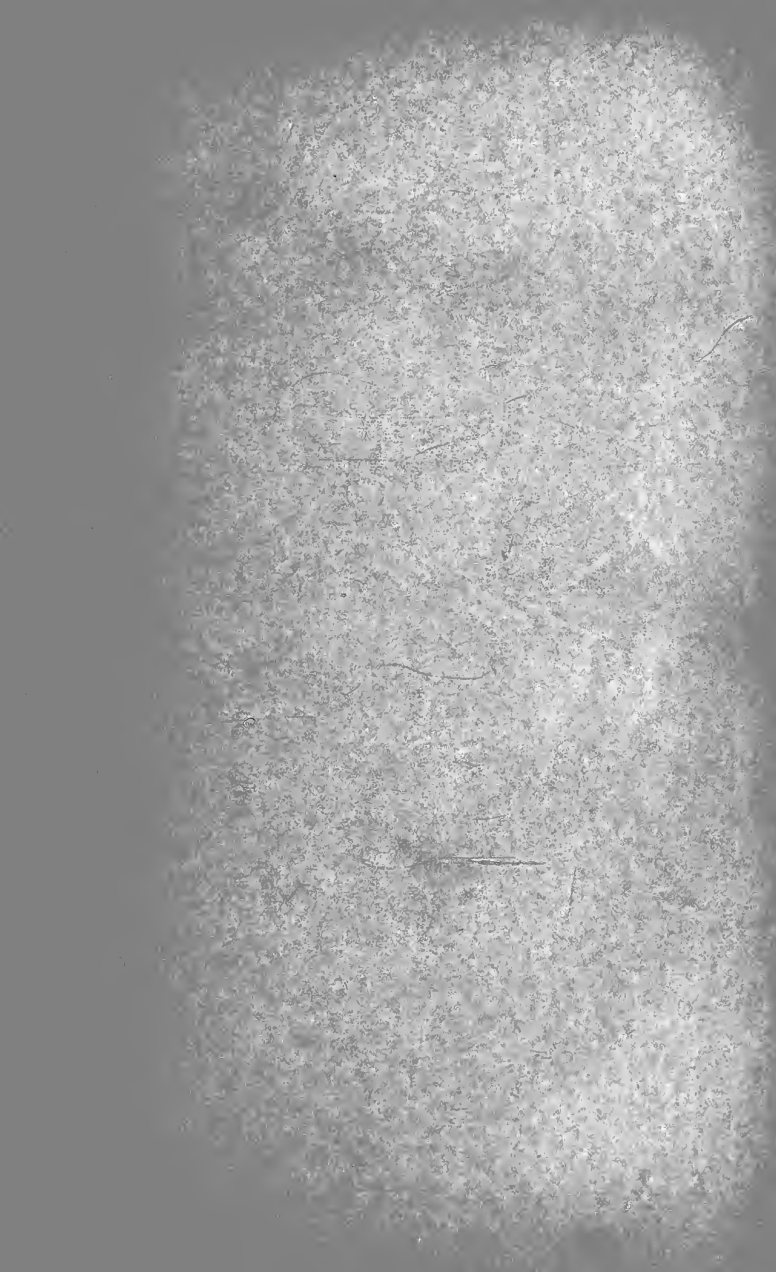
Fred'k B Shattuck

M.D.



32. J. 4







A MODERN CINERARY URN.
(Frontispiece.)

THE
CREMATION OF THE DEAD

CONSIDERED

FROM AN ÆSTHETIC, SANITARY, RELIGIOUS, HISTORICAL,
MEDICO-LEGAL, AND ECONOMICAL
STANDPOINT

BY

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With an Introductory Note

BY

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LATE PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND;
SURGEON TO THE QUEEN'S HOUSEHOLD; ETC.

ILLUSTRATED

Delenda est inhumatio!

DETROIT

D. O. HAYNES & COMPANY

1887

487

“Why should we seek to clothe death with unnecessary terror, and spread horror round the tomb of those we love? The grave should be surrounded with everything that might ensure tenderness and veneration.”
—WASHINGTON IRVING.

“Die Leichenverbrennung verdient die Achtung, welche ihr um ihres hohen Werthes willen im klassischen Alterthum gezollt wurde, auch heute noch, da sie die einzige Art der Todtenbestattung ist, die vor den schrecklichen Folgen der Verwesungsduenste sichert und das bei der Leichenbeerdigung so oft vorgekommene Wiedererwachen im Grabe verhuetet.”
—J. P. TRUSEN.

“Si nous sommes une statue
Sculptée à l'image de Dieu;
Quand cette image est abattue,
Jetons-en les débris au feu!

Toi, forme immortelle, remonte
Dans la flamme, aux sources du Beau,
Sans que ton argile ait la honte
Et les misères du tombeau!”

—THÉOPHILE GAUTIER.

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BY HUGO ERICHSEN.

TO
WILLIAM EASSIE, C.E., F.L.S.,
Honorary Secretary of the Cremation Society of England,
and
DR. PROSPER DE PIETRA-SANTA,
of Paris,

THIS VOLUME IS DEDICATED

as a mark of high esteem, and in recognition of their untiring
labor in behalf of that greatest of all sanitary
reforms, cremation, by their
sincere admirer,

THE AUTHOR.



PREFACE.

IT is hardly necessary to explain the purpose of this work. It is an appeal to the general public; a plea for the burning of the dead. The period of fierce and fanatic opposition to cremation has passed, and made way for a calm consideration of the subject. In 1874 a Persian gentleman, then a resident of one of the Eastern States of our own free and great republic, who wanted to have his wife cremated, was compelled by an ignorant mob to resort to interment. Happily we are over that now.

It is astonishing that the cremation question has not been taken hold of by the literarians of our country; there is hardly a subject that rewards its student so well as cremation, and future writers on incineration, not hampered by the literary inexperience under which I have labored, will reap a rich harvest indeed when they devote their talent and time to the reform.

I would counsel those who are in favor of cremation to immediately put in writing their desire to have their body committed to the flames after death instead of having it consigned to "dirt and darkness." Such written requests should be preserved in places where they can be easily found after decease; for instance, in the writing-desk. If every individual promotor of the reform, male or female, considering the uncertainty of life, would follow this advice, cremation would speedily prevail.

I am sensible of the many defects of this book, but I trust that it will be found to furnish some useful information which cannot well be obtained elsewhere, besides proving an assistance to those who are desirous of studying the question more fully.

I desire to express my indebtedness to crematists in all parts of the world for the valuable assistance I received from them in the preparation of this volume.

For all who like cleanliness, for all who love true sentiment, for all friends of economy, for all who venerate their dead, and for all who are not afraid of reform, the following pages were written.

It only remains to express the thanks due the following gentlemen for permission to use illustrations without which this book would have been decidedly incomplete: Messrs. Dodd, Mead & Co., Cyrus K. Remington, Augustus Cobb, Albert Meininger, and Dr. M. L. Davis.

H. E.

DETROIT, Feb. 28, 1887.

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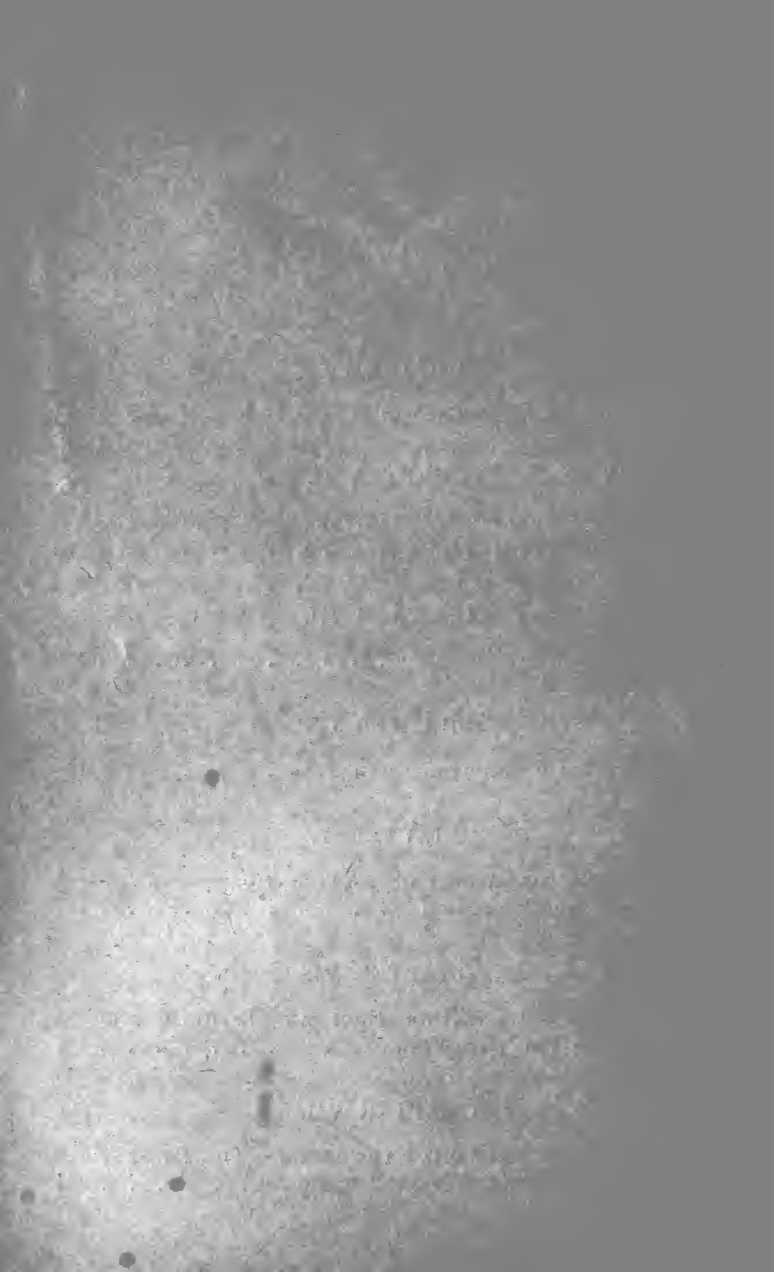
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INTRODUCTION.

DR. H. ERICHSEN :

Dear Sir, — In reply to your request that I should write an introduction to a work which you are about to compose on cremation, I am placed in the great difficulty of knowing nothing of your book, not even having seen its title-page or table of contents. It is quite impossible, therefore, for me to say how far your views and my own may accord. But, as I suppose your object is to bring before the people of America proof of the evil effects to the living inseparable from the present mode of disposal of the dead by burying them in the earth, as well as to show how these evils may be avoided by burning dead bodies, — in a word, by the substitution of cremation for burial, of purification for putrefaction, — I have great pleasure in doing the little that is in my power to assist in bringing a very important question of sanitary reform before a thoughtful, intelligent, and advancing nation.

I do not know how far I am right in supposing that with you in the West, as with us in the East, a knowledge of sanitary science, of the conditions which are necessary for the health of mankind, is still confined to the comparatively few who may be called the well educated class. Nor do I know how far this knowledge has been diffused among the classes of your population who have received but little education. But I do know

that with us it is the highest classes, in the sense of the best educated classes, who are the most earnest in their efforts to disseminate that branch of knowledge or science which, in the words of *Parkes*, aims at rendering "youth most perfect, decay less rapid, life more vigorous, and death more remote." *Parkes* is dead, but he still speaks to us by his book, and he says: —

"The disposal of the dead is always a question of difficulty. If the dead are buried, so great at last is the accumulation of bodies that the whole country round a great city becomes gradually a vast cemetery. After death, the buried body returns to its elements. If, instead of being buried, the body is burned, the same process occurs more rapidly. A community 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 or preserving. The eventual dispersion of our frame is the same in all cases. 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-places of our friends. The question should be entirely placed on sanitary grounds. Burying in the ground appears certainly to be the most insanitary plan."

Parkes died before we had learned how perfectly and cheaply, how rapidly and inoffensively cremation could be carried on; and he favored burying in the sea rather than in the earth, whenever the distance was not too great for transport. He knew well how impossible it is to prevent graveyards within towns, or suburban cemeteries, from becoming sooner or later a source of danger or nuisance to the living, how difficult it is to

find a suitable site and soil, sufficient space, and to secure proper regulations and management. These difficulties may not be so great amid your unlimited space as with us; but they must be an increasing evil in and around your large cities. I trust, therefore, that your work may assist in the more rapid progress of cremation as a substitute for burial.

With us the legal objection has ceased. It is now acknowledged by the government, and has been decided by three judges that if cremation is so performed as to create no nuisance, and incite to no breach of the peace, it is not illegal.

The religious objection has been answered by the *Bishop of Manchester*, by *Canon Liddon*, and by the *Earl of Shaftesbury*. The bishop said: "No intelligent faith can suppose that any Christian doctrine is affected by the manner in which this mortal body of ours crumbles into dust and sees corruption."

Canon Liddon said, in a sermon at St. Paul's Cathedral:—

"The resurrection of a body from its ashes is not a greater miracle than the resurrection of an unburnt body; each must be purely miraculous."

Lord Shaftesbury said to me that any doubt as to the resurrection of a body because it had been burnt was an "audacious limitation of the Almighty"; and he asked, "What, then, has become of the blessed martyrs who were burned at the stake in ancient and modern persecution?"

The medico-legal objection that murdered or poisoned persons if burned could not be exhumed, as is sometimes done if suspicion of foul play arise after burial, is answered by the strict observance of proper regulations

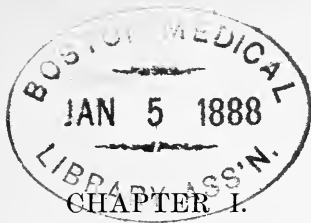
before cremation. Much more complete medical certificates as to the cause of death are required by the cremation society of England than by any cemetery company; and in some cases, a post-mortem examination is insisted on. In this way, cremation becomes a security to the public against secret poisoning or any form of murder.

The sentimental objection is that which can only be overcome by time and education. When the people know how great are the evils dependent on burial in the earth, even when this is done under the most favorable conditions, how seldom these conditions can be secured, and, when the knowledge becomes general that when a human body which would require five, ten, or twenty years to slowly putrefy in any soil can in one hour be cheaply and inoffensively converted into a white ash, public sentiment must favor cremation in place of corruption, and for putrefaction substitute purification. The same religious ceremonial might accompany either mode of disposal of the dead. The ashes might be dispersed to the winds, harmlessly buried, or preserved in urns near monuments or memorial tablets in our cemeteries, or beneath or around any place of worship, or in any family mausoleum, or in some park, public garden, or any ornamental open space near a great city, as the wishes of the dead or of the surviving relations and friends may prefer.

Here, we hope the city of London will be the first municipal body in the Kingdom to set the example in this sanitary reform. But, perhaps, the impetus may be given by our American cousins and brothers.

I am, dear sir, faithfully yours,

T. SPENCER WELLS.



THE HISTORY OF CREMATION.

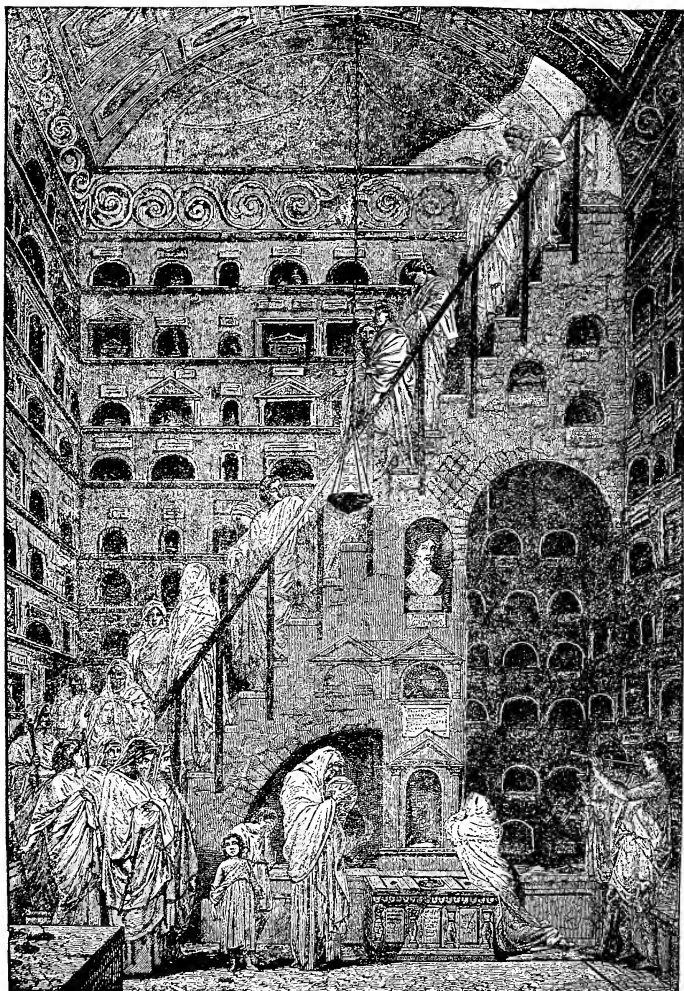
Ye in the age gone by,
Who ruled the world — a world how lovely then
And guided still the steps of happy men
In the light leading-strings of careless joy!
Before the bed of death
No ghastly spectre stood — but from the porch
Of life, the lip — one kiss inhaled the breath,
And the mute, graceful genius lowered a torch!

SCHILLER: *The Gods of Greece.*

PRIMEVAL man most likely disposed of his dead by carrying them into the woods or leaving them anywhere above ground, a prey to animals of all kinds. But soon the organs of sight and smell took offense at the mutilated and decayed corpses, and they were buried. With the increase of population it became necessary to render the dead innocuous to the living, and then, perhaps, cremation was originally resorted to as a means of protecting the living from the effects of corruption.

In the early stages of the world's history, when there was plenty of available land, interment was of course a very cheap process, and therefore often resorted to by the poorer classes, but persons of intelligence and education always preferred incineration as the better method of disposing of dead bodies.

In the gradual growth among scientists of the belief



A ROMAN COLUMBARIUM.

that cremation is preferable to the present system of inhumation, is seen another instance of modern civilization borrowing the ideas of the far-distant past.

The pendulum by which the world's age is measured swings in an immense arc. Now, after thousands of years, the views of the leaders of human thought are swinging back to that expressed by some of the earliest peoples.

Incineration is a most ancient practice. It has always been a matter of difficulty to ascertain the origin of ancient customs. In the case of cremation the historians have not been able to discover the date when it was first practiced. The history of ancient cremation, however, can be traced to nearly 2000 years before Christ. Incineration is regarded by some authors as the outcome of the sun-worship of the Phœnicians. Their solar god (Helios) — the Melikertes of the Greeks — was represented by them as burning himself, whereby they wanted to indicate the ever-returning solar year. Among the ancient nations, the sun was especially revered and worshipped by the Persians, Egyptians, and the Sabian Arabs. At Heliopolis, Phœnicia, and Palmyra, Syria, there were celebrated temples consecrated to the sun. In some of the countries mentioned, horses which were, on account of their celerity, regarded as symbols of the sun were sacrificed to this celestial body.

Some authors ascribe the origin of cremation to the self-immolation of Hercules. Dr. Le Moyne, the founder of the first crematorium erected in the United States, asserted that the first authenticated case of burning the dead was the proposed incineration of Isaac, and that, although it was not consummated, it was fully authorized by the Deity. In consequence he

argues that cremationists stand in the shadow of the Lord, and that any one who opposes them commits a sacrilege.

I do not believe that incineration, as some of its antagonists have imputed, had its origin in a heathen religion, but I am quite certain, from existing evidence, that it was originally resorted to upon sanitary grounds, and as a means to protect the living against corruption.

It may be possible that incineration owes its origin to the ancient nomadic tribes that burnt their dead and carried the ashes with them. Among agricultural peoples, those who died in war, and while hunting, were sometimes consigned to the flames, either because the grave would not protect them from wild animals, or because it was desired to return the ashes to the relatives, who would keep them sacred.

The origin of incineration, as appears from what I have said, is surrounded with a great deal of obscurity. It is, however, an established fact that the Orient was the birthplace of cremation.

The Egyptians first buried their dead, then embalmed them, and, according to Walker, at a period not stated, abolished embalming and substituted burning. They performed incineration by placing the corpse in an amiantus receptacle, which, remaining intact, kept the bones apart from the fuel.

The tombs of the Assyrians, discovered on the banks of the Tigris and Euphrates, furnish us with unmistakable evidence of the fact that the burning of the dead was not unknown to them. The same applies to the Babylonians. The tombs of both peoples when explored were found to contain urns holding human bones and ashes; these urns were often very large, being some-

times of sufficient size to admit the body of an adult. The Persians either burned their dead or dissolved them in aqua fortis. Yet they also practiced burial in deep sepulchres that had niches in which the bodies were deposited upon slabs.

The Hebrews commonly interred their deceased, but incineration was likewise practiced. The Mosaic code prescribed that those who transgressed the laws of wedlock and chastity should be put to death by fire. In I. Moses xxxviii. 24, we find the first evidence of this. The third book of Moses, xx. 14 and xxi. 9, also bears testimony to this fact. Thus we see that cineration was looked upon by this people of antiquity in the early period of its history as a punishment for offenders against the married state and chastity. It is barely possible (deductions one may draw from certain passages in the books of Moses) that the ancient Jews first stoned these disobedients, then burned their bodies publicly, and finally erected a so-called mound of infamy over their remains.

But as we follow Hebrew history, we soon find that cremation was transformed from a humiliating act of punishment to the highest honor, to a distinction that was only accorded to royalty. The first king of Israel was cremated after the battle with the Philistines in Mount Gilboa, where he and his three sons fell. The Holy Bible relates how, when the inhabitants of Jabesh-gilead heard of that which the Philistines had done to Saul (I. Samuel xxxi. 12): "All the valiant men arose, and went all night, and took the bodies of Saul and the bodies of his sons from the wall of Beth-shan, and came to Jabesh and burnt them there."

And verse 13 of the same chapter informs us: "And

they took their bones (*ossilegio*) and buried them under a tree at Jabesh and fasted seven days."

Asa, king of Judah, was also consigned to the funeral pyre, as we glean from II. Chronicles xvi. 14: "And they buried him in his own sepulchres, which he had made for himself in the city of David, and laid him in the bed which was filled with sweet odors and divers kinds of spices prepared by the apothecaries' art; *and they made a very great burning of him.*" Of Asa's grandson, King Jehoram, it is said that his people cremated him not like his fathers, because he had furthered idolatry.

On the other hand, Isaiah xxx. 33 refers to a large pyre that was kept alight to consume the bodies of the deceased: "For Tophet is ordained of old; yea, for the king it is prepared; he hath made it deep and large; the pile thereof is fire and much wood; the breath of the Lord like a stream of brimstone doth kindle it."

Jeremiah (xxxiv. 5) prophesied of Zedekiah, another king of Judah, that he would be burned with the same honors that attended the cremation of his predecessors. And in Amos vi. 10, we find the following, which also points to incineration: "And a man's uncle shall take him up, and he that burneth him, to bring out the bones out of the house," etc.

The last passage cited and the one mentioning the Vale of Tophet, are construed by some writers as meaning that the ancient Jews had recourse to cremation in great plagues; *id est*, for hygienic reasons.

Now, although these quotations plainly show that the Israelites of old did execute incineration, we also learn from them that the practice was never general; at first confined to criminals, at last to kings.

It is impossible to determine when the custom of

burning the dead originated among the Hindoos. It was always connected with religious observances, and known to the people of India since the earliest times. It was restricted to certain classes or castes: mainly to brahmins and warriors. The merchants, mechanics, and the tillers of the soil were interred. Children under two years of age were barred from cremation, and had to be buried in the earth. Some religious sects, however, were an exception from this rule and executed cineration indiscriminately — for instance the believers in Vishnu. When a Hindoo died away from home, or when his body was lost and could not be found, his relatives instituted a symbolical ceremony. They gathered 360 leaves of a certain shrub and as many woolen threads. They were under the impression that the human body consisted of 360 parts. Of the threads and leaves they formed a figure, somewhat resembling the human form, which was wound round with a strip of the hide of a black antelope, which had also been previously wrapped closely round with woolen thread. This figure was then besmeared with barley-meal and water and burnt as an effigy of the missing body.

From India cremation extended to Europe, and was adopted by all Indo-Germanic peoples. This was proven by Prof. Jacob Grimm in an oration on the burning of the dead, delivered before the Royal Academy of Sciences at Berlin, in 1849, in which the famous scholar highly commended the ancient custom.

In old tombs on the island of Malta, urns of a kind of clay containing ashes, lachrymatories, several mortuary lamps (some of excellent workmanship), and the model of a mummy, formed of a green semi-transparent substance, were found. This discovery demonstrates

that the orientals who inhabited this isle of the Mediterranean in the earliest times were in the habit of cremating their deceased.

The Thracians were the next to embrace burial by fire. Of them *Herodotus* relates that they exhibited the corpse publicly for three days, brought many offerings, and bewailed the deceased. At the termination of the period stated, they cremated the body and then buried the ashes and bones. After they had erected a mound over the remains, they played gymnastic games.

From Asia, by way of Thrace, cremation reached Greece. Among the Greeks burial was originally exceedingly primitive, as we learn from a law that compelled passers-by to place a handful of earth upon the breast of every unburied corpse. Interment undoubtedly preceded cremation in Greece. *Heraclitus* advanced the theory that everything in existence was created from fire. Therefore he argued that all corpses must be burned to free the soul from all material matter, and to return it to its primitive elements. According to *Eustachius* Hercules burned the body of Argius, the son of Likymnios, 1500 years before Christ. He had promised the father to return the youth, but when the latter fell in mortal combat, nothing remained for him but to cremate Argius and to bring home with him the ashes to the sorrowful parent. Hercules was unquestionably the first to cremate himself. When he was tormented by the pangs of approaching death, he built a pyre and ordered his servant to ignite it. When the servant failed to set the wood afire, Hercules descended from the pyre, kindled it himself and again mounted it to await his fate.

Pliny was disposed to attribute the origin of incinera-

tion among the Greeks to their custom of burning the dead on the field of battle, to render them secure from the revenge of the enemy.

Be that as it may, certain it is that incineration never became the only mode by which the inhabitants of Hellas disposed of their deceased; except in Athens, where it was practiced exclusively for some time. Suicides, those who had been struck by lightning, and unteethed children were not cremated, for it was the prevailing opinion that the pure flames would have been defiled by them.

Homer, that incomparable Hellenic poet (There is, I know, a dispute whether the name Homer stands for one person or for a number of bards. As far as I am concerned, I believe that Homer was an individual, a poor mendicant perhaps, wandering all over Greece, singing or reciting his heroic epics, and living on the grace of an admiring public. No collection of bards could have possibly written the *Odyssey* and *Iliad*, which are so uniform in character throughout.), has preserved for us, in immortal verse, the records of the Trojan war, in which we find many instances of cremation chronicled. The recent explorations of Dr. Heinrich Schliemann on the site of Troy have demonstrated beyond a doubt that the poems of Homer rest on a basis of actual fact.



GREEK FUNERAL URN.

During the war that was fought for Helen the beautiful, it was customary among the Greeks and Trojans to reduce to ashes the bodies of those who had been

slain in battle. Line 69 of the first book of the Iliad proves that the Greeks burned their dead for sanitary reasons.

The bodies of cowards, criminals, and slaves were not incinerated, but left unburied, a prey for the beasts of the field and the birds of the air. Agamemnon, the king, addressing his warriors warns them (*vide* Pope's translation of the Iliad, B. II, L. 466) that, during battle:—

“ Who dares, inglorious, in his ships to stay,
 Who dares to tremble on this signal day,
 That wretch, too mean to fall by martial power,
 The birds shall mangle, and the dogs devour.”

Incineration was denied Ajax, one of the greatest Grecian heroes, because he had slain himself in a fit of indignation. Hector's defiance of the Greek princes (Iliad, B. VII, L. 85) shows that it was also the custom among the Trojans to burn the dead. There is further evidence of this in the truce, between Priam and Agamemnon (*vide* Iliad, B. VII, L. 398 and 450), for the purpose of burning the dead of both armies. Homer's narration of the burning of Patroclus, Achilles' friend, gives such an accurate description of the method then in use, that I will be pardoned for quoting it here. The passage to which I refer occurs in the twenty-third book of the Iliad, and is as follows:—

“ They who had the dead in charge
 Remained, and heaped the wood and built a pyre
 A hundred feet each way from side to side.
 With sorrowful hearts they raised and laid the corpse
 Upon the summit. Then they flayed and dressed
 Before it many fatlings of the flock,
 And oxen with curved feet and crooked horns.

From these magnanimous Achilles took
 The fat, and covered with it carefully
 The dead from head to foot. Beside the bier
 And leaning toward it, jars of honey and oil
 He placed, and flung, with many a deep-drawn sigh,
 Twelve high-necked steeds upon the pile.
 Nine hounds there were, which from the tables of the prince
 Were daily fed; of these Achilles struck
 The heads from two, and laid them on the wood,
 And after these, and last, twelve gallant sons
 Of the brave Trojans, butchered by the sword;
 For he was bent on evil. To the pile
 He put the iron violence of fire,
 And, wailing, called by name the friend he loved.

* * * * *

. . . They quenched with dark red wine
 The pyre, where'er the flames had spread, and where
 Lay the deep ashes: then, with many tears,
 Gathered the white bones of their gentle friend,
 And laid them in a golden vase, wrapped round
 With caul, a double fold. Within the tents
 They placed them softly, wrapped in delicate lawn;
 Then drew a circle for the sepulchre,
 And, laying its foundations to enclose
 The pyre, they heaped the earth, and, having reared
 A mound, withdrew."

These lines are from William Cullen Bryant's translation of the Iliad, and give one a very good idea of the cineration of a warrior. In times of peace the favorite animals of the deceased were placed with him on the funeral pile, and he was covered with costly robes and rugs. Not infrequently the pyre was decorated with an abundance of flowers, and rich folks had their trinkets and jewels thrown into the fire. The weapons of warriors were consumed with them. The extravagance at funerals finally became so great among

the Greeks that special laws had to be enacted to put a stop to it. Solon ordained, for instance, that no more than three robes and one bull should be placed upon the cremation pyre. After the bones were placed in an urn, the Greeks covered it with the fat of the animals that had been slaughtered at the funeral ceremonies, to protect it from the influence of the atmosphere. Many of the celebrated men of Greece were cremated: Solon, Alcibiades, Timoleon, Philopoemen, Plutarch, Pyrrhus, and many others.

According to Pindar (Ol. 6, 23, Nem. 9, 54), during the combat of the Seven against Thebes, funeral pyres were burning at each of the seven gates of the city, to consume those slain in battle. The heathens, as they are called, were not to be charged with any lack of respect to their departed dead. On the contrary, the most tender sentiments conceivable were attached to the practice of cremation. There was a Theban regulation that no one should build a house without a specific repository for the dead.

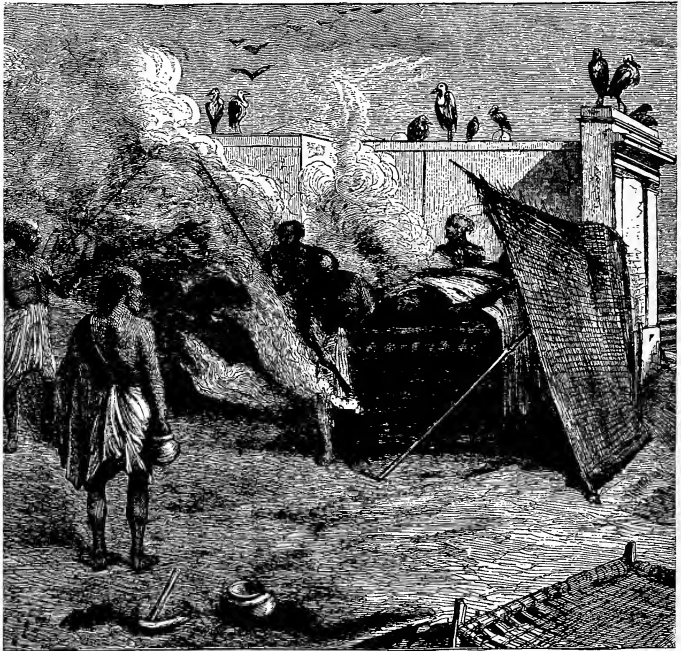
Æneas and the other Trojans, who escaped with him from the burning city of the hundred gates (as Priam's capital was sometimes called), introduced cremation (Virgil's *Æneid*, B. IV, 7) into Carthage, if it did not exist there previous to their arrival. It is possible that the inhabitants of Carthage, which was one of the Phœnician cities in Africa, derived the practice from the mother-country. At all events, the tragedy of love, in which Æneas was involved, ended with the suicide of Dido, who cremated herself.

The eleventh book of the *Æneis* gives a description of an incineration among the ancient inhabitants of Latium.

Self-cremation seems to have been one of the favorite means of disposing of one's self in ancient times, especially among the royalty and aristocracy. Both tradition and history report of many women, friends, and servants who, of their own free will, mounted the funeral pyre with the departed head of the family. Besides Hercules and Dido, already mentioned, Sardanapalus, the last king of the Assyrians, burned himself in the year 600 before Christ, because the Tigris had destroyed the fortifications of besieged Nineveh, and the following also mounted the pyre for the same purpose: Marpessa, Polydora, and Cleopatra (Vide Pausanias, 4, 2), three noble women of Messenia, and Euadne, the wife of Capaneus, who threw herself into the flames which consumed her husband. The pyre of Sardanapalus, we are told, was very large and contained many rooms, which were elegantly furnished, and in which the royal treasures were heaped up, before the king entered them with his women, while his servants set the pile on fire. It is well known that the widows of India, until very recently, perished of their own free will in the flames that consumed their husbands.

Herodotus states that the women of the Thracians, in Eastern Europe, who were probably of Germanic origin, frequently disputed among themselves as to which of them should be allowed to ascend the pyre together with the deceased husband. CEnone, the lawful wife of Paris, whom he had forsaken to live with Helen the beautiful, forgot all her grievances at the sight of his misfortune. When the man, whom she had formerly loved so ardently, wounded by the arrow of Philoctetes, fled to her into the Ida, she refused to cure him; but when the greedy flames, after death,

devoured his form, she voluntarily ascended the pyre to intermix her ashes with his. Thus are the ways of the world; the noble deed of the faithlessly deserted wife is hardly ever mentioned, but frivolous Helena was



CREMATION IN CALCUTTA.

made the subject of many works of art, and leads an immortal life in the songs and poems of man.

The ancient Etruscans practiced cremation, both before and after Etruria became a Roman province; they, no doubt, adopted it from the Greeks, who were first their rulers and afterward their close neighbors. The

tombs of Etruria were rich in art; the urns in which the ashes of the dead were kept were either of alabaster or baked clay, the latter often being decorated with tasty paintings.

The ancient Latins, in turn, borrowed the practice of incineration from the Etruscans. According to *Mazois*, some cinerary urns, found in the neighborhood of Alba Longa, prove that the custom of burning the dead was current among the original population of Latium long before any recorded epoch of Italian history, for the place in which those urns were detected was covered entirely over with dense layers of lava, which apparently came from the mountain Albanus, a volcano, the eruptions of which have long been buried in oblivion. The urns mentioned are especially noteworthy, because many of them bear pictures of the habitations of the earliest residents of Latium, which shows that cremation was known to them at that time. Such a hut of the aborigines of Latium was preserved for a long time in the capitol at Rome and was regarded with great reverence. It is but natural that the Latins, on becoming the founders of Rome, should have introduced incineration into their new home. Pliny asserts that the burning of the dead was not customary among the Romans of old, but Virgil describes it as a usage that existed long before the foundation of Rome, and Ovid affirms that the body of Remus was committed to the flames.

Cremation was not in general favor among the Romans until towards the termination of the republic. Pliny relates that Sylla (78 B.C.) was the first of the patrician Cornelians who wanted his body to be burned; most likely because he feared that his remains would be

dealt with as those of Marius had been treated, whose body was exhumed by the order of Sylla, and thrown into a glutted general grave. During the decline of the republic and the period of the empire, till the accession of the Christian emperors, incineration was very popular in Rome; it was not only general in the capital, but also in the provinces. Julius Cæsar, Antonius, Brutus, Pompejus, Octavius, Augustus, Tiberius, Caligula, Nero, and Plinius were cremated. The ashes of Tacitus, the model of historians, who was likewise consigned to the flames, were cast to the winds in the middle ages by Pope Pius the Fifth, in order to punish the heretic. Just think of it! a pontiff outraging a scholar's remains to punish him! Caligula and Tiberius were only partially burnt, because they had been tyrants.

At Nero's obsequies it was but with difficulty that the train achieved complete cremation. The Roman aristocracy looked upon partial cineration as a great disgrace, which adhered to the respective family a long time. Yet this infamy was often meted out to the poor and unfortunate, as we shall see later on.

During plagues cremation was compulsory in the city of Rome.

It is not my intention to describe in detail the funeral rites of the ancient Romans, because a description of cremation as practiced by them may be met with in every encyclopædia. Moreover, a very good account of incineration, as customary among the Romans of old, may be found in Lord Bulwer Lytton's "The Last Days of Pompeii."

It was the fashion at Rome to pour fragrant oils and balsams over the corpse before the pyre was ignited, and to cover it with cyprus boughs. Previous to crema-

tion, the corpse was enveloped in asbestos, to keep the ashes of the body separate from those of the funeral pile. At times locks of hair were sacrificed to the deceased. At last one finger of the defunct was amputated, to make certain that death had taken place. Everything being ready, the nearest relative present unclosed the eyes of the deceased, and then lit the pyre with averted face. While the flames rose to heaven, the favorite animals of him who was now being consumed—dogs, doves, and even horses—were flung into the fire. Costly robes and arms of the dead were consigned to the same fate. During the early period of Roman history, prisoners of war were also committed to the flames.

The amount of spices, oils, and balsams destroyed at incinerations was enormous. Pliny reports that Nero used up more myrrh, incense, and other aromatics at the cremation of Poppæa than could be produced by entire Arabia in one year.

While cremation was practiced in Rome, at the time of the empire, the mourning garments were white; but when incineration was displaced by interment, the raiment of the bereaved assumed a black hue, sombre as death itself.

The deceased poor of Rome (especially the women and slaves) were treated shamefully after death. Martial avers that invariably one pile had to serve for a large number. In times of pestilence, thousands were so disposed of. A cremation-ground was provided for the indigent in a wretched suburb upon the Esquiline Hill, which was inhabited by the outcasts of society, the lowest prostitutes, executioners, necromancers, and so forth. These localities were called *culinæ* by the peo-

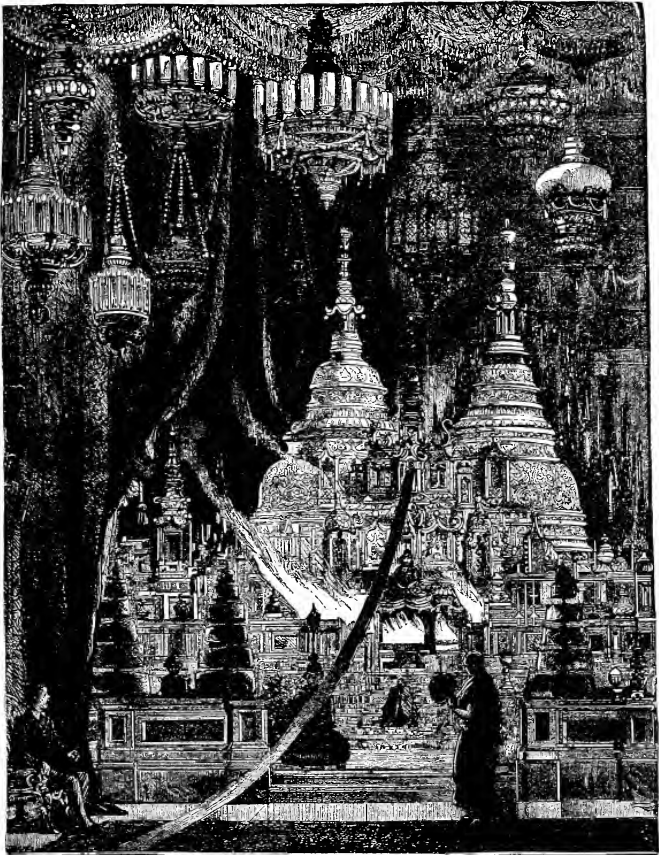
ple, the literal translation of which is "roast-places." The attendants were police-slaves, whose hair had been shaved off, and who wore a brand on the bare pate. These, hurrying to and fro, placed the emaciated dead poor upon one of the many funeral piles; hardly singed by the fire, they were taken from it and thrown into a universal ditch. To every ten male corpses one female body was added, which facilitated the cineration by means of the great quantity of adipose tissue which it contained. The funerals of the poor were generally held at night.

The urns of the rich were of marble, bronze, and sometimes of gold or silver; those of the poor were of baked clay or glass. Glass urns, enclosed in others of lead, were discovered at Pompeii. The urns were generally deposited in a tomb at the roadside or placed in the pigeon-hole of a columbarium.

These columbaria, surrounded by beautiful gardens, were situated on the Via Appia, Aurelia, Flaminia, and Lavicana. The Appian Way was a favorite resort of the fashionable Roman world; here, daily, ever-changing life was seen; here the traveller took leave from the remains of his ancestors; here, too, lovers met and unfortunates took refuge.

These columbaria were subterranean chambers which served (as I have already explained) to hold the ashes of the deceased, the urns being deposited in arched recesses, hewn out in the rock for the purpose. These niches resembled pigeon-holes; hence the name, columbarium. The rare beauty of these columbaria, which may yet be seen in the Eternal City, led Nathaniel Hawthorne, our great romancer, to exclaim that he

would not object to being decently pigeon-holed in a Roman tomb.



CREMATION IN SIAM.

The late queen and her little daughter on the pyre.

Campana discovered columbaria between the Porta Latina and the Porta San Sebastiana, which are memo-

rials of the time of Augustus. They contain not less than 400 inscriptions on marble, commemorative of the dead, and many urns of marble and terra cotta.

In the city of the Cæsars the ashes were placed in upright urns, while in Greece the urns lay horizontally on the ground, and were covered with rugs. In Greece the ashes were preserved in beautiful mortuary chambers in the houses, a custom that also obtained at Rome to a certain extent.

The great contrast between the cremation of the opulent and the poor finally led to the re-introduction of earth-burial, which, however, strangely enough, was coincident with the decline and fall of the once mighty empire.

The last Roman funeral piles expired in the fourth century, while the Indo-Germanic nations practiced cremation till late in mediæval times.

The Germanic tribes and the Celts (according to Tacitus and Diodorus of Sicily) burned their dead without exception. The testimony of these historians is confirmed by Ovid (*Met.*, Lib. III, v. 619-620), who adds that cremation was highly esteemed by these peoples.

Tacitus (*vide* *Germania*, Lib. 37), writing one hundred years before Christ, relates that the ancient Germans preferred a plain funeral to funereal pomp. Only the bodies of celebrated men were cinerated with some ostentation on pyres built of certain costly kinds of wood. They neither ornamented their funeral piles, nor did they use spices at cremations. The arms of every warrior, however, and sometimes the battle-horse, were burnt with him. An unadorned mound was raised over the ashes, and nothing was left to mark the

spot where one of their kin had been laid to rest. Criminals were not cremated, but put to death in various ways; traitors and deserters were hanged to convenient trees, and cowards drowned in swamps.

The Thuringians burned their dead as late as the seventh century; the Anglo-Saxons down to the end of the eighth century. The Swabians, Franks, Lombards, Ostrogoths, Alemanni, and Burgundians disposed of their deceased by fire till 740 A.D. Winfrid, or Boniface, the so-called apostle of the Germans, in a letter refers to the custom of fire-burial among the Saxons. Charlemagne, who brought about the conversion of the Saxons by fire and sword, made a special enactment against incineration. The custom of cremation was so deep-rooted among the Saxons, that the death-penalty had to be set upon its consummation in order to cause its abolishment.

The ancient Lithuanians and the forefathers of the present Prussians were wont to consign their dead to the flames. When the ancient Prussians were defeated by the knights of the Teutonic order in the year of our Lord 1249, their vanquishers caused them to promise in writing that they would henceforth, after cremating their deceased with horse, armor, and weapons, collect the remains and bury them within the churchyard, according to Christian usage. There is evidence to show that cineration of the dead was extant in Western Prussia until after 1300 A.D.

Cinerary urns, containing ashes, were discovered near Dantzic, Prussia, and in Silesia.

In the course of forming a vineyard in the neighborhood of Wasserbillig, near Trier, numerous graves were laid bare, in some of which urns were found with the

remains of cremated bodies; in others, skeletons. In the former case the cinerary urns (*vide Sanitary Record*) were surrounded by chalkstone slabs; one of the skeletons was contained in a sarcophagus composed of fourteen roof-tiles. Nine of them had the stamps of the manufacturer, the same names being given as those of the manufacturers who furnished material for the erection of the Roman church which forms the basis of the cathedral of Trier, and for the Roman thermal baths at St. Barbara. Judging from these circumstances, it is assumed that the tombs date from the middle of the third century. In one of the graves a small urn with the representation of a face was found.

In Trier itself, a large glass urn, with cover and handles, was recently unearthed. It is a relic of the Romans. When opened it was found to contain bones. Beside this urn five vases of baked clay and several ornamented lamps were found.

The ancient Swiss were in the habit of cremating their defunct, till the year 56 before Christ.

Julius Cæsar reports that the Gauls burned their dead with sumptuousness.

Several ancient glass urns, containing calcined bones, were recently found between two round stones, in the vicinity of Chatenet, France.

The Slavonians observed incineration from the earliest times to the end of the fifteenth century. When one of their kings died, everything he might need on awakening in paradise was placed with him on the pyre. Beside intoxicating drinks, weapons, horses, falcons, male and female servants, and his wives, his entire household — comprising the minister of state, secretary,

mate at drinking, and physician — was cremated with him.

The Slavonian woman was invariably burned with the corpse of her husband; but not *vice versa*, the husband with the remains of his wife. When a bachelor died, single women were substituted for spouses. The chronicles that have descended to us from the monks affirm that these women longed for such a death, because they hoped to secure eternal blessedness thereby.

Large mounds, called Kurgani, were erected over the ashes of the cremated. These mounds may be seen to-day in the boundless steppes of Russia, where they afford a rest for the eyes from the monotonous scenery.

Eckehardt relates that, when Germany was invaded by the Hungarians in 925 A.D., he witnessed the intruders cremate the bodies of the slain upon rack-wagons.

The Bohemians practiced cremation as late as 1000 A.D.

The Arab Ibn Forszlan, who was ambassador from his native land to the Russians in the year of our Lord 922, states that he attended the cineration of a man of rank, on the banks of the Volga River. — Previous to the cremation the deceased was interred, till the robes of state requisite for the ceremony were finished. Then the ship of the dead was drawn ashore, the defunct owner placed upon a bench, which had been covered with gorgeous rugs, and supplied with food, intoxicating beverages, and a number of slaughtered animals. Thereupon a young girl, who had voluntarily offered herself for incremation (probably to be the companion of the deceased in the other world), was led aboard and — after singing a long chant to the people and drinking

a goblet of mead — strangled and stabbed at the same time. Then the ship was deserted, and set afire by the nearest relative, who performed this sad office with averted face. Thereupon every one present threw a burning piece of wood upon the vessel, which was soon consumed. A mound was erected on the site on which the ship had stood, in the centre of which a plank was placed, bearing the name of the departed.

Old German chroniclers mention the cremation of Attila, the king of the Tartar Huns, who was burned while sitting — fully armed — upon his war-horse. It is still an undecided question whether incineration was general among the Huns, or only a royal honor.

The Scythians and Sarmatians of old reduced their dead to ashes, as also did the Kurds, till 1205 A.D.; and the Esthonians till 1225.

Cremation was likewise practiced by the ancient Scandinavians, — more especially by the Norwegians and Swedes than by the Danes. The national Scandinavian epic, the Edda, mentions the funeral piles of Sigurdh and Brynhilde.

The ancient Britons disposed of their dead by fire. Some workmen engaged in excavations in the bail within the boundaries of the old Roman city at Lincoln lately came across a crematorium and a sarcophagus. In the latter ten urns were found, which contained ashes and calcined bones. The urns were of different sizes and shapes, and were all provided with saucer-shaped covers. Only one of them, however, was extracted perfect. The interior of the sarcophagus was lined with long, thin bricks, that perished on being exposed to the air.

The Mexicans of antiquity also cinerated their deceased.

Incineration was practiced in India since the most remote ages, and is now as much in vogue in this country as it was in the earliest times. At Calcutta, Bombay, Madras,—in fact, all over India,—cremation is executed daily.

The Vishnavites burn their dead; the worshippers of Siva bury them, deliver them up to beasts of prey, or throw them into the holy river Ganges. Folks who are too poor to dispose of their deceased by burning, also consign them to the waves of the holy stream. This is done at night, since it is against the law. It is not unusual to see a whole procession of corpses float down the Ganges, while crows feed on the remains.

At Calcutta, cremation is performed within the “Burning Ghât,” outside the city, in a walled enclosure which is frequented by numberless vultures and other birds of prey, near the Hoogly, as the Ganges is thereabouts called. This place is seldom visited by the British inhabitants of Calcutta; for they regard this rude cineration (properly so) far too horrible to witness.

By order of the government, a cinerator was built on the banks of the Hoogly, which is used only by a part of the Hindoo population. The Hindoos are hard to wean from their old-fashioned method of cineration (which is substantially the same as that practiced by the ancient Romans and Greeks), and, therefore, seldom make use of a cinerator, as Mr. William Eassie was informed by the sanitary commissioner of Madras, where a cinerary apparatus had also been erected. The commissioner, however, was of the opinion that if the

CREMATION OF THE DEAD.



CREMATION AMONG THE TOLKOTINS OF OREGON.

Siemens principle of a furnace were exhibited before the educated Hindoos, they would very probably adopt it.

Thanks to the efforts of the British authorities in India, imperfect cremation is a thing of the past there.

Cicero already relates that the widows of the Hindoos allow themselves to be cinerated with the remains of their husbands. Self-cremation of Indian widows does not occur nowadays; the barbaric custom has been put down by the English.

It was not before 1831 that the English government in Hindostan attempted to abolish the practice of burning widows; and up to that time, as Max Mueller observes, "women were burned wholesale, even in the immediate neighborhood of Calcutta." But the custom was probably not exterminated before late in the sixties — 1868 or 69.

Cremation was practiced on the isle of Ceylon as late as 1841.

The people of Burmah cremate their rich dead, and inhume the poor or consign them to a stream. Persons of rank are embalmed before incineration, and placed on exhibition in a convent or temple for six weeks. At the funeral, the body is borne in a coffin on the shoulders of men, who are preceded by female mourners chanting an epicede. The corpse is followed by the relatives. When the slowly moving train arrives at the pyre, which is commonly six or eight feet high, the remains are placed upon it; the wood of the funeral pile is generally laid crosswise, to bring about a stronger draught of air. The pyre is set on fire by the attending priests, who pray before it until the body is destroyed; then the bones are collected and interred.

According to Mr. W. Eassie, when a Buddhist priest of rank dies in Burmah, the body is embalmed in honey, laid in state for a time, and then sometimes blown up with gunpowder, together with its hearse.

Miss Feudge asserts that the inhabitants of Pegu and Laos also cremate their dead.

In Siam, cremation has undoubtedly existed since primeval times. It is a universal custom, practiced both by the common people and the aristocracy; even the kings are incinerated. Crawford states that in Siam the ashes are sometimes interred in the grounds surrounding the temples, and a small pyramidal mound erected over them.

When one of the Dayakkese inhabitants of Borneo dies, the body is deposited in a coffin, and remains in the house till the son, the father, or the nearest of kin can procure or purchase a slave, who is beheaded at the time that the corpse is burned, in order that he may become the servant of the deceased in the next world. The ashes of the departed are then placed in an earthen urn, which is adorned with various figures; and the head of the slave is desiccated, and prepared in a peculiar manner with camphor and drugs, and placed near it. It is said that this practice induces the Dayakkese to buy a slave guilty of some capital crime, at five-fold his value, in order that they may be able to put him to death on such occasions.

Cremation is an established and time-honored usage in Japan, now the oldest empire in the world. Here all incineration establishments are under government control, and are to be found not only in all the chief cities, but also in the provinces. The Japanese government, with shrewd appreciation of the advantages of

sanitary laws, has of late years carefully fostered the practice. Since the earliest times, cremation is universal among the Japanese.

Before the introduction of Buddhism, the Shinto doctrine was the prevalent system of faith and worship in Japan. This religion held sacred, beside a small number of domestic gods, a long series of celebrated historical personages, who were worshipped after their decease. It taught that the mikado (emperor) descended from the gods, and he was its clerical superior. This doctrine, of course, was not favorable to cremation; and that accounts for the absence of the latter prior to the introduction of Buddhism. Beginning with the year of our Lord 552, attempts were made, with varying success, to establish Buddhism in Japan. In 624, Buddhism was officially recognized; the court bestowing the title of high-priest upon two priests who had come from Hakusai. The new doctrine spread through the medium of the Chinese literature that circulated in the country; and soon temples had to be built to accommodate the converts.

In 700 A.D., Dôsho, a high-priest of a temple at Nara, in the province Yamato, ordered his pupils to burn his body after death, and it was done. This was the first cremation in Japan.

Three years later, the corpse of the empress Jito was incinerated; her example was followed by 41 emperors and empresses, who occupied the throne from that period till the beginning of the seventeenth century. The last mikado whose body was burned, was Goyozei, who reigned from 1587 till 1610 A.D. At this time much attention was paid to the doctrines of Confucius,

which are as unfavorable to cineration as the Shinto doctrine.

In the ninth century Buddhism made considerable headway through the efforts of Kobo, a priest. Up to the fourteenth century, however, Buddhism remained the religion of the military and the aristocracy; the common people knew nothing of it. It owes its adoption among all classes of Japan, to the arduous labors of two missionaries, Shinran and Nichiren, who became the founders of great sects, and who had their corpses burned as an example for their pupils.

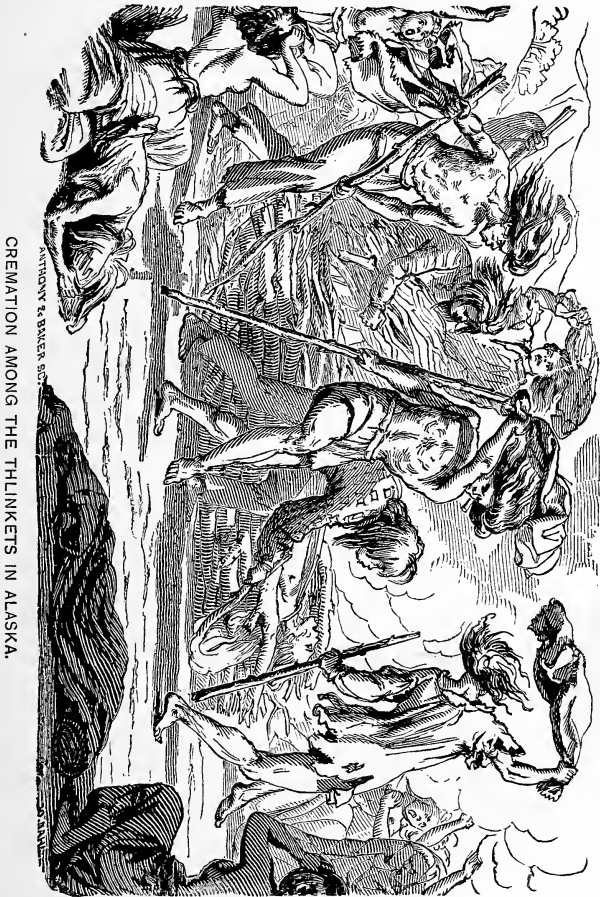
Cremation is fast becoming general in Japan, burial more and more obsolete. At the present time the number of bodies disposed of by incineration is very great.

The greatest number of believers in cremation are found among the Shin and Yoto sects, likewise among the Zen, Tendai, and Nichiren sects; the fewest, among the Shingon sect. Incineration is, however, not compulsory among these religious denominations. In 1868, when the shogun (commander-in-chief) was deposed by the revolutionists, when the mikado re-obtained his former authority and the power of the almost independent princes of the provinces was destroyed, the government attempted to re-establish the Shinto religion. Among other measures they prohibited incineration (July 23, 1873), claiming that it was contrary to the Shinto doctrine.

They soon discovered that it was impossible to carry out the interdiction, and, therefore, revoked it (May 23, 1875), granting thereby, as it were, religious freedom to Japan.

The young generation of the Japanese physicians and naturalists regard cineration from a sanitary standpoint,

and constantly urge the government to promote its interests on hygienic grounds.



It must be conceded that the Japanese mode of cremation is by far superior to the method of the Hindoos,

who still adhere to the ancient funeral-pile. The cost of incineration is small. The body is reduced to ashes completely though slowly, and the process takes place in clean, well-kept, closed buildings, in a manner which, as far as the simple arrangements permit, offends neither the eye nor the olfactories.

At Osaka cremation is carried on in stone furnaces, which are closed by iron sliding-doors. There are three large crematories, situated at the outskirts of the city; they are enclosed by high walls, and when seen from a distance, if it were not for the chimneys 60 feet high, one would take them to be temples. The principal crematory contains twenty large furnaces, each of which is capable of reducing three bodies; thus it is evident 60 bodies can be incinerated at the same time. The corpse is placed upon an iron grate, the fire being underneath, and covered with a straw mat, that has been previously saturated with salt water. Incineration under these circumstances is said to be entirely satisfactory. The cremations begin at 11 P.M., and are finished at 3 A.M.

At Tokio, and most of the other cities, a black earthenware urn is fashionable; but in the province Totomi the ashes are placed in an urn of red color.

When the Asiatic cholera raged in Japan in 1877, the people were compelled by the authorities to cremate its victims. But the sanitary measure met with no resistance, its wisdom being recognized even by the lower classes of the people. By the decree, making cremation obligatory in times of cholera, the Japanese government has given an example of sanitary legislation which should be imitated.

Most of the books on cremation inform us that incin-

eration was and is not practised in China. This is an error. Marco Polo repeatedly asserts (*Travels*. New York: Harper & Bros., 1845. pp. 153, 155, 158, 159, 160) that the Chinese wherever he travelled were in the habit of burning their dead.

On the other hand, Chinese historical works make no mention of the practice, and burial is the almost universal custom at present. The books in which the subject of cremation is treated only speak of it as being practised upon the bodies of Buddhist priests and lepers.

In the last issue of the Chinese imperial maritime customs medical reports, Dr. A. Henry contributes some remarks upon cremation in that country. In only one of the many Buddhist temples at the town where Dr. Henry is stationed, are the bodies of the inmates burned after death. The method of incineration is commendable as efficient, æsthetic, and inexpensive; but it is too slow except for Buddhist priests in China. In the grounds of the temple is a small dome-like edifice, the interior of which communicates with the open air by a small door only — a charcoal kiln, in fact. The dead priest is placed in a sitting posture inside the dome, and charcoal and firewood are piled around him; fire is applied, and the door is shut until combustion is complete. Children are sometimes burned, but for superstitious reasons only. When several young children of a family have died in succession, the body of one of them is burned, under the belief that the ceremony will insure the survival of the next child born to the family. In these cases the body is simply brought to an open field in a box, and placed upon firewood, which is ignited.

Although incineration is known in Corea, the most

usual way of disposing of the dead is by inhumation. Mr. Carles, in an official report of a journey into the central provinces of Corea, says:—

“At one village the remains of the body of an old woman who had been eaten by a tiger, were being burnt in a fire of brushwood lighted on the spot.”

Cremation in America is not a novelty. When I began to investigate the subject of cremation among North American Indians, I was at first quite disappointed; and well I might have been, for Schoolcraft (*History of the Indian Tribes of the United States*. Vol. I, p. 38) asserts:—

“The incineration of the bodies of the dead was not practiced on this continent, even in the tropics; and is a rite unknown to the tribes of the United States.”

Although slightly disheartened, I continued my search for information, and was in consequence speedily rewarded. John McIntosh (*The Origin of the North American Indians*. New York, 1853. p. 164) states:—

“The bodies of those who die in war are burned, and their ashes brought back to be laid in the burying-place of their fathers.”

My studies in this direction, however, received the greatest impetus through Dr. H. C. Yarrow's excellent “Introduction to the Study of Mortuary Customs among the North American Indians” (Washington Government Printing Office, 1880, pp. 49 to 59), which was kindly sent to me by the author, and from which I obtained much valuable information.

Dr. H. C. Yarrow affirms that cremation was performed to a considerable extent among North American Indians, especially those living on the northern slope of

the Rocky Mountains; but also (as indisputable evidence proves) among the more eastern ones.

The Nishinams of California, the Tolkotins of Oregon, the Se-nél of California, and the Cocopa tribe on the Colorado River, practice cremation.

The Unotello Indians of Oregon also cinerate their dead. On Oct. 9, 1884, several of them got drunk at Lastine, Ore., and engaged in a bloody fight. One was cut to death, and two others badly slashed. The Indians burned the body of their dead comrade, and held a war-dance while the body was slowly consumed.

Mr. George Gibbs avers that the Indians of Clear Lake, Cal., burn their dead upon scaffolds built over a hole, into which the ashes are thrown and covered.

The Digger Indians have a queer custom; they mix the ashes of the dead with gum, and smear them on the heads of the mourners.

The Comanches also burn their dead.

The Indian method of cremation is like that of the ancients; the corpse is burnt on a pyre six feet high, amidst exclamations of grief and sorrow, funeral songs and dances.

Incineration is current among some of the native tribes of Alaska, principally among the Thlinkets.

In the summer of 1884, I received a letter from a former fellow-student of mine, — Dr. Hugh S. Wyman, — who was then assistant surgeon in the United States Marine Hospital Service, and stationed at Sitka, Alaska. This missive contained the following: —

“The Thlinket Indians cremate their dead in every instance except one — that of the Indian doctor, whose body is never burned, but placed in a sort of ‘cache,’ constructed of timber, above ground. Carvings of

images, etc., representing the family history, are made on the grave, or a tall pole is erected by the side, with



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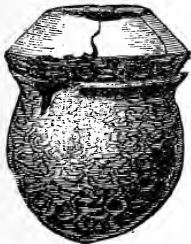
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INDIAN CINERARY URN.

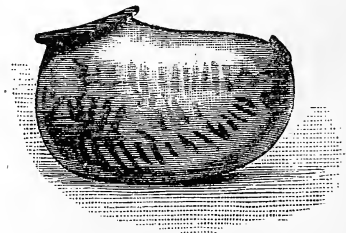
Found in Indiana.

a red flag. With the body of the doctor are placed all his personal effects. These are supposed to remain undisturbed; but the empty appearance of the caches and the skulless skeletons of the few graves I have visited, with a curiosity to look inside, have led me to believe that the effects and body do not always lie unmolested.



INDIAN CINERARY URN.

Found in Georgia.



INDIAN CINERARY URN.

Found at Lake Nicaragua.

“The cremation of a Thlinket takes place in open air. The body, after lying in state for a few days, is

taken out of the house through some opening made for the purpose, never through the regular entrance. It is placed on a pile of logs, which are ignited, and the corpse rolled about with long poles until thoroughly consumed.

“The ceremonies attending cremation vary very much, according to the standing of the deceased, age, sex, and so on.

“The only reason I have ever heard given by the Indians why they cremate was that if not burned, the body would always remain cold in the happy hunting-grounds.

“I was unable to find out why they do not burn doctors.

“I believe cremation among the civilized will necessarily become generally practiced in the future, and without ideas of horror, when people are more fully enlightened, especially in hygienic principles.”

In recent times, the missionaries are trying to put a stop to cremation in Alaska. This is a great mistake; and they will find it out before long. The missionaries should endeavor to do what the English in India have done and are doing still—attempt to substitute scientific incineration for the crude ancient method of burning the dead on pyres. And in this undertaking, I am sure, they would have the support of the most intelligent among the Indians. The natives of Alaska, no doubt, learned by some terrible, never-to-be-forgotten experience the dangers and evils of burial in the ground; and, although their method of obviating these dangers and evils is rude and barbaric, the principle which impelled them to adopt cremation is right.

The first Caucasian who was cremated in the United States was Colonel Henry Laurens, who was the president of the first Congress, which convened at Philadelphia in 1774; he was also a member of the military family of General Washington. Laurens was of Huguenot descent, born in Charleston, S. C., in 1724, and eminent as a statesman before and during the Revolutionary War. He was educated in one of the best universities of Europe, and although following the vocation of a merchant during many years, he achieved great distinction as a writer on political topics; his pamphlets on the public questions of the time received much consideration. Appointed minister to Holland, he was taken captive on the voyage thither by a British man-of-war, and was imprisoned for some time in the Tower as a rebel. Among his visitors there was a friend of other years, Edmund Burke, by whose influence he was finally set free. One of Laurens' daughters had, when a child, apparently died of small-pox, but, being placed near an open window, she revived. Since this occurrence, the colonel lived in constant fear of being buried alive, and therefore requested his daughters, by an injunction and detailed directions given in his will, to burn his body after death; his fervent wish was carried out in his garden at Charleston, S. C., in 1792.

The second to be burned was Mr. Henry Barry, who lived and was cinerated in the vicinity of Marion, S. C.

In the spring or winter of 1855, Count Pfeil, a German aristocrat, then proprietor of a farm in the neighborhood of Milwaukee, attempted to incinerate the corpse of his wife in accordance with her own request. He accordingly erected a funeral pile in his own yard,

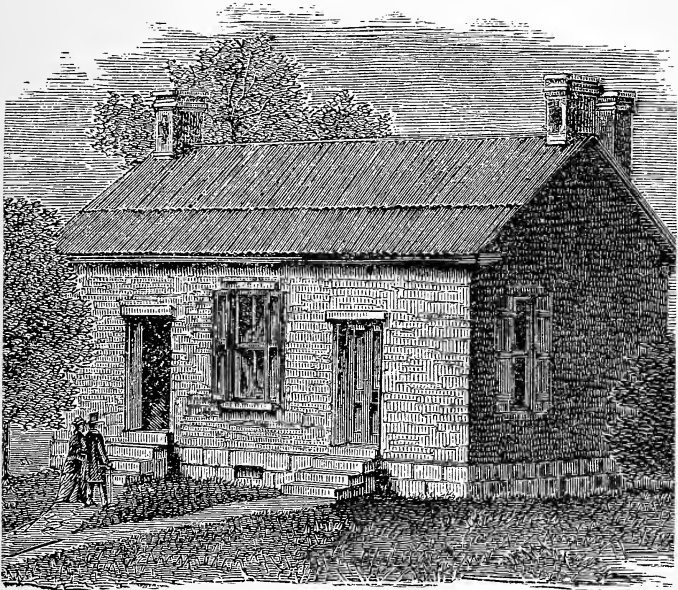
on the soil that he owned. When his intention to burn his wife became known among the farmers in the vicinity, there was a great uproar; they finally went so far as to march in a body to the residence of the count, and to declare that they would mob him if he would dare to execute the cremation. He then proposed, since the matter was creating a disturbance in the neighborhood, to transfer the incineration to the lake shore. But the prejudice of the farmers was so great that they would accept no compromise. They finally petitioned the governor, and were successful in obtaining a decree prohibiting the cremation. The count, disgusted at the lack of our boasted liberty, interred his wife, sold his estate, and departed for Europe.

The third reduced to ashes in the United States was the Baron de Palm, prince of the Holy Roman Empire, a native of Augsburg, Bavaria, who was incinerated in the Le Moyne crematory at Washington, Pa., on the 6th of December, 1876. The baron had died at the age of sixty-seven at New York, in May, 1875, and his body had been immediately embalmed and placed in the receiving vault of the Lutheran cemetery, where it was kept until the Le Moyne crematorium was finished.

On this day mentioned, many members of the secular press, and delegations from various scientific and sanitary societies, assembled at the crematory to witness the cineration of the defunct nobleman; many of the leading newspapers of this country, and also of France, Germany, and England, were represented. About 30 invitations had been issued, and many members of the prominent boards of health were present. The fires

had been started at two o'clock in the morning. On opening the casket it was found that the weight of the body had been reduced from 175 to 92 pounds. At 27 minutes past eight o'clock, everything being pronounced ready, the body, lying in the iron cradle and covered with a shroud (which had previously been soaked in an alum solution, to prevent its too rapid ignition), and decorated with flowers and evergreen, was consigned to the retort, which was instantly shut. The actual temperature of the retort could not be ascertained, as no pyrometer was at hand; it was, no doubt, a little over 2000° Fahrenheit. Through a small opening in the cast-iron door, which closed the retort, an occasional glimpse of the interior was obtained, and the effect of the heat upon the body observed. In about 15 minutes the aqueous vapor had all been expelled, leaving the shroud completely charred, but still retaining its form sufficiently to completely conceal the outlines of the body. In an hour the outlines of the prominent bones were plainly visible, and an hour later the incineration was complete, but it was deemed advisable to continue the heat for four hours from the time the body had been first placed in the furnace. When last seen, much of the form of the body had remained, owing to the exclusion of the atmospheric air. During the burning, the ordinary draft of the furnace was increased by means of a fan-blower. The body was not removed from the furnace until some 24 hours had elapsed, to allow the retort to cool. During the entire process there was no offensive odor, either at the top of the chimney or elsewhere. The cremation was entirely satisfactory, and nothing of an unpleasant nature occurred. The residue left, after the incineration was

completed, was three pints of ashes, which were carefully collected, and, after being sprinkled with perfume, were deposited in an antique vase, which was delivered to the officers of the Theosophical Society in attendance, of which the baron was a member.



CREMATORY AT WASHINGTON, PA.

Forty bushels of coke were consumed in burning Baron Palm, the whole cost of the operation being \$7.04.

In the afternoon a meeting was held at Washington, presided over by J. Lawson Judson, Esq., at which addresses were made by Colonel Olcott on the history of cremation; Rev. George P. Hayes (president of the

Washington and Jefferson College) on the bearing of the Bible and Christianity upon the subject of cremation; Dr. James King on incineration from a sanitary point of view; Dr. Le Moynes on the general advantages of cremation; Boyd Crumine, Esq., who spoke of the popular prejudices against this method of disposing of the dead; and Mr. Nicholas K. Wade, who alluded to the mechanical necessities of a perfect cremation.

It is to be regretted that so many of the persons who attended this incineration had a preconceived notion of the practice, which rendered them totally unfit to judge of it. Being prejudiced from the beginning, it is not at all surprising that they should have given unsatisfactory, highly sensational, and misrepresenting accounts of the affair to the world; but as Mr. W. Eassie pertinently remarks, the same thing has occurred in every case of modern cremation up to the present time, and will, no doubt, continue until the reform is more commonly practiced.

The fourth body that was cremated in the United States was Mrs. Jane Pitman, from Cincinnati, who was destroyed in the Le Moynes crematorium, Feb. 6, 1877. The fifth disposed of by fire in America was Dr. Winslow, of California, who was burned at Salt Lake City on the 31st of July, 1877, in a primitive furnace temporarily erected through his request by the administrators of his estate. The sixth was a child of Mr. Julius Kircher, who cremated it in his oven at New York City, in the fall of 1877.

The Le Moynes crematory was closed to the general public Aug. 1, 1884. After that date no bodies were received by the trustees of the crematorium, outside of

Washington County, for cremation. Bodies were admitted to the Le Moyne furnace for incineration from all parts of the country, only in order to carry out Dr. Le Moyne's view of reform — keeping the subject before the public. Since the interest manifested by the people of the United States in the subject of cremation is speedily growing, other crematories are building where the public will be accommodated; and as the business increased to such an extent that it occupied more time than the trustees could possibly devote to it, they were compelled to limit the use of the crematory. Hereafter, therefore, no body will be cremated in this furnace, who has not lived within the county in which Dr. Le Moyne lived and died. And whereas not one of the persons consumed in this crematorium (except the owner himself) hailed from Washington County, we may presume that this pioneer furnace of cremation in America has been closed forever.

Of all the cremations which took place in the Le Moyne furnace, that of Professor S. D. Gross, M.D., LL.D., attracted the greatest attention. It was in accordance with his expressed wish that he was committed to the flames. He more than once declared he had no desire that some "curious impertinent" should, a hundred years hence, hand around his jawbone for inspection and comment, and to avoid such a contingency he gave positive directions for the burning of his body. Cremation as a mode of decently disposing of the dead could receive approval from no higher source, and in no more conspicuous manner, than in the disposition of his remains by that means. Dr. Gross stood without a peer among his fellows; he was venerated not only by the medical profession of America, but

even by physicians of foreign lands. He was to the profession of medicine what Charles O'Connor was to the profession of law, and his deliberate choice of incineration in preference to burial attracted wide and respectful attention even in so conservative a class as doctors. Perhaps no man ever drew breath who was better qualified to express an opinion on this subject. Who is so well entitled to form a correct opinion as the man who for nearly three-quarters of a century had the closest possible relations with the dying and the dead? That his example gave a new impetus to incineration there is no room to doubt. He sought to be a teacher even after his death; he wanted to benefit his race even in his decease. Perhaps he believed that others might follow where he led, as they had done in life. Others will follow his example, and the work go on until the present custom shall give way to the better one. It may be long before that time comes, but come it will.

On its way to Washington, Pa., the body was accompanied by Mr. A. H. Gross and Dr. Horwitz. There were no ceremonies at the incineration, and the remains were reduced to ashes in two hours. The ashes weighed about seven pounds, were hermetically sealed in a tin box, and placed in the coffin in which the body was carried to Washington. On reaching Philadelphia the coffin was removed to the late residence of Dr. Gross, and subsequently the ashes were enclosed in a marble urn about three feet high, unornamented and without inscription, and placed beside the coffin of Dr. Gross' late wife in the family vault at Woodlawn Cemetery, where the Rev. Dr. Charles Currie read the Episcopal burial service.

Voltaire derided his contemporaries by declaring that they could not protect themselves from the fatal power of the dead. But when the great Revolution came along, overthrowing the then existing order of things, and performing a painful but necessary work, the same France that had listened to the voice of the great philosopher became aware of a means that shielded from the dangers of the burial-ground — cremation.

On the 28th of March, 1794 (28 Germinal, An II), the deceased republican Beauvais, physician at Montpellier and member of the National Assembly, was cremated in the Champ-de-Mars at Paris. The urn containing his ashes was deposited in the archives of the nation.

In the year V of the republic (1797), a motion by Daubermesnil, to introduce facultative incineration, providing that the act would take place outside of Paris, was rejected by the Council of the Five Hundred; but in 1799 (year VII of the republic), a law was passed by the Seine department in favor of cremation. Advantage was frequently taken of the permission granted. At this time the Institute of France offered a prize of 1500 francs for the best essay on the question whether interment or cineration is preferable. In consequence, 40 dissertations were sent in, and all of them demanded optional cremation. The prize was accorded to two essays: those of MM. Mulot and Amaury-Duval.

From 1856 to 1867, the French cremationists were led by M. Bonneau and Dr. Caffé; the latter has retained the leadership till the most recent times, and has done much, by his admirable expositions of the subject, to popularize cremation in France. One point was brought

out by him that is deserving of mention here, namely, that one tempted to stray from the path of honor and virtue may be restrained by the presence of ancestral urns.

Dr. Prosper de Pietra-Santa is to-day the foremost incinerationist in France, a position to which he does honor and which he well merits. His essays, first published in *L'Union Medicale*, are the chief contributions to modern French cremation literature. In 1873, he issued a complete manual of the subject, in which he deplored the absence of popular sympathy with incineration in France. But the time will come when France will recognize the value of the labors of this ardent reformer, whose name is destined to occupy a most prominent place on the roll of honor of his native country.

The cremation society of France, the proper designation of which is "La Societ e pour la propagation de la cremation," was founded in 1880, and incorporated on the 23d of December of the same year. The late Edmond About and Leon Gambetta — *L'illustre citoyen que la France a perdu* — were members of this association. At present the society numbers 570 members. Its principal object now is to obtain a law permitting cremation ; when this is secured, it will devote its funds to the erection of crematories and the purchase of inventions which tend to simplify the process.

According to Professor R. Beverly Cole, M.D., for many years past cremation is not infrequently practiced in Paris, the retorts of the gas factories being employed for the purpose.

The first and only incineration in Belgium took place in 1798 or 1799, when a certain M. Voidel, a resident

of Mons, cremated the body of his child in the yard of his house, and preserved the ashes in a golden urn.

The cremation society of Brussels was founded on the 28th of February, 1882, and numbers now over 600 members.

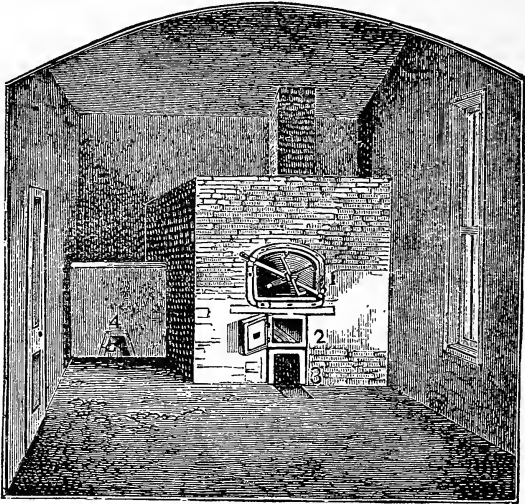
The cremation society of Holland, which boasts a very complete organization, extends over the entire kingdom by means of branch societies. It was founded on the 28th of December, 1874, and incorporated by the royal decree of Sept. 1, 1875. Over 1500 members belong to it. The branch societies are located at Amsterdam, Rotterdam, Nijmegen, Delft, Leyden, Shiedam, Zutphen, Dortrecht, and Harlem. Since 1876 a small periodical is published quarterly by the society of Holland, containing occasional communications concerning cremation, and detailing the proceedings of the society. The funds of the association are in good condition, being mostly invested in government stock.

The first cinerary furnace built in the German Empire was erected at Dresden, Saxony, and put in use in 1874, when bodies were cremated on the 9th of October and 6th of November; the wife of Sir Charles Dilke was one of them. No incineration occurred in this apparatus since that time, owing to a refusal of the Saxon government to permit the same.

On the 6th and 7th of June, 1876, an international cremation congress, which was attended by representatives from almost all countries of the globe, was held at Dresden, and did much to promote the interests of incineration in Germany. Many important resolutions were adopted, among others that of forming an international committee to establish a journal for the propagation of cremation. On June 7, the delegates witnessed

the cineration of several animals in a Siemens apparatus, which completely reduced the animals experimented upon in one hour and one-half.

Cremation is now most extensively practiced in Gotha, in the new crematory established by the municipal



INTERIOR OF WASHINGTON CREMATORY.

The accompanying wood-cut represents that part of the crematory at Washington, Pa., in which the incineration takes place. The numbers refer respectively to (1) the incinerator, closed; (2) the fire-box, open; (3) the ash-pit; and (4) coal-bin. The room, as will be seen, is needlessly plain, and might with slightly increased expense in building be made more attractive. An ornamental front concealing the brick-work and the coal-bin would serve greatly to improve its appearance. With a slightly different arrangement the fire-box and ash-pit might be kept continually out of sight. If the incinerator were turned end for end and made to open from the opposite side, nothing would be seen by the friends of the deceased but its open door and rosy light, which are most attractive to the eye.

council of that city, which was opened to the public on the 17th of November, 1878.

The first cremation at Gotha came off on the after-

noon of the 10th of December, 1878, when Mr. Stier, a civil engineer whose embalmed body had awaited the completion of the crematorium for some time, was consigned to the furnace. Since the establishment of the crematory, over 500 persons have been incinerated at Gotha, many of whom were from foreign lands,—Russia, England, France, America, etc.

Berlin is the center of the reform in Germany. The Berlin cremation society has an enormous membership, and counts among its members many persons of distinction. Altogether the society numbers 534 members, 45 of them being physicians.

Italy may be considered the pioneer of cremation in modern times; for there, for the first time, incineration was practiced in a systematic and improved manner, and in no land have the cremationists been so active and energetic in advocating the reform as in this.

From 1774 till 1874 cremation was advocated by Piattoli, Moleschott, Coletti, Morelli, Du Jardin, Bertain, Castiglione, Pini, and Polli.

Baron Albert Keller, who, though of German descent, was an Italian citizen and a resident of Milan, and above all an enthusiastic patron of cremation, deposited 10,000 lire for the cineration of his own body, and directed that after defraying the costs of his cremation, the remaining money should be used to form a fund for the erection of a building exclusively devoted to the burning of the dead. When this nobleman died in 1874, his last directions were carried out, and the cremation temple which bears his name became, in accordance with the testament of the deceased, the property of the city of Milan.

The Italian clergy opposed incineration but very

little. In the capital of Lombardy a distinguished prelate even declared that the burning of the dead is in no wise contrary to the dogma of the church; and here one also can witness how priests accompany the body to be incinerated to the *Tempio Crematorio*, where they say a last prayer: indeed a proof of tolerance and genuine Christianity.

The Fourth Medical Congress, held at Milan on the 5th of September, 1877, endorsed cremation, stating that it is a veritable scientific progress which has the advantage over inhumation in corresponding to the exigencies of hygiene. It also expressed its conviction that incineration in no way offends against the affection of families for their defunct, the respect and veneration for human remains, and the religious principles of the surviving.

The Milan cremation society was organized chiefly through the efforts of Drs. Pini and Cristoforis, the latter being elected president. As the Polli-Clericetti apparatus in the crematorium had not given general satisfaction, the gasometer behind the temple was removed, in 1880, and suitable wings were built. Two furnaces were then erected, one being built on the Gorini system, in which the ordinary cremations are performed, and the other on the Venini system, where cremation of the remains of persons who died from contagious diseases, and of strangers, takes place. The building also has three columbaria, one on each side of the crematorium, and an ordinary one in the vaults below.

Owing to the success of the Milan crematory, crematoria were built at Padua, Cremona, Varese, Lodi, Brescia, and Rome. A cinerary furnace was also speedily erected in the hospital at Spezzia, by order of

the Secretary of the Navy; this apparatus was principally used for the cremation of cholera victims.

The urns holding the ashes of the cremated cannot be removed from an Italian columbarium except by permission of the prefect of the province. The urns must be tightly closed, and must bear the name of the deceased and the date of his or her death. The ashes of only one body may be placed in an urn, the reverse being strictly forbidden. Every cremation is registered both by the board of trustees of the crematory and by the civil authorities.

Looking over the history of cremation in Italy, one needs must gain the firm conviction that Dr. Gaetano Pini of Milan is the most ardent cremationist in his native country. Whenever a cremation society was organized there, the indefatigable doctor was on hand, giving advice and delivering addresses, increasing the zeal of the advocates of the reform, and encouraging its timid friends. Really, the amount of labor performed by this gentleman is truly marvelous. Already the doctor is reaping the fruits of his philanthropic work. Incineration is steadily advancing in Italy, and is gaining popular favor rapidly, and Dr. Pini's name will be handed down to succeeding generations as that of a benefactor of his land and people.

Cremation societies now exist at Ancona, Asti, Bologna, Brescia, Capri, Codogno, Como, Cremona, Demodossola, Florence, Genoa, Intra, Livorno, Lodi, Milan, Modena, Novara, Padua, Parma, Pavia, Perugia, Piacenza, Pisa, Pistoga, San Remo, Siena, Turin, Undine, Varese, Venice, and Verona.

In Spain, where the body of Merino, the man who attempted the assassination of Queen Isabella, was burned

in 1852, cremation has made as yet but little progress, but even in this stronghold of Catholicism it can point to friends.

El Anfiteatro Anatomico Español of March 15, 1874, contains an admirable article on incineration by Don Federico Gilman. Two pamphlets on the subject also appeared, one by Enrico Salcedo at Valencia in 1876, the other by L. Gallardo at Madrid in 1878.

The Board of Public Health at Madrid resolved in 1884 to request the government to make cremation obligatory during epidemics, and to permit incineration in all cases where the family of a deceased wish to dispose of him so.

Dr. Cervera, member of the municipal chamber of Madrid, proposed the erection of a crematory temple in the new cemetery of that city.

At Lisbon, Portugal, cremation is not only optional, but the authorities of the city have even issued a decree making cremation compulsory in time of epidemics.

The cremation movement in Switzerland began in the spring of 1874. On the 20th of December, 1878, the municipal council of Zuerich granted leave to erect a crematorium on a ceded piece of ground in the new cemetery of that town. I am sorry to say that a crematory has as yet not been erected, owing to a lack of funds. This deplorable condition is due to a great extent to the ridiculously small membership-fee and annual dues of but two francs; yet, in spite of all this, success is sure to come in the end, for even this lagging fund grows yearly. The society at Zuerich now numbers nearly 400 members, and is (the fund dilemma excepted) in a prosperous condition. Wegmann-Ercolani is its recognized leader, and must be looked upon

as the foremost champion of incineration in Switzerland.

In Austria the outlook for cremation is not favorable, but one need not be surprised at that, for Austria is known to be one of the most conservative countries in the world.

In 1658, when several collections of cinerary urns were discovered in Old Walsingham, Norfolk, England, Sir Thomas Browne, a learned physician, came forward with a brilliant dissertation on cremation, which still holds its rank among standard English literature. This essay, conspicuous for the erudition displayed, was a singularly powerful and idiomatic plea for incineration. The next to take up the righteous cause of cremation in Great Britain was no less a person than Sir James Y. Simpson, the eminent surgeon of Edinburgh, Scotland. He demonstrated how easy it would be for his fellow-townsmen to maintain a fire constantly on the hill of the Hunter's Bog, near Edinburgh. But he, too, only had in view the ancient pyre; therefore it is not astonishing that his efforts were not crowned with success.

It appears that about the year 1844, the sanction of the authorities of the city of London was obtained for the cremation, within the City of London Gas Works, of the dead of Bridewell Hospital; an arrangement was also concluded with the city authorities for the incineration of bodies of dead prisoners, and of the condemned meat and offal of the markets. The project, however, met with so much opposition from certain churchmen that it fell into abeyance.

In modern times the gong of cineration was first struck by Sir Henry Thompson, who had become

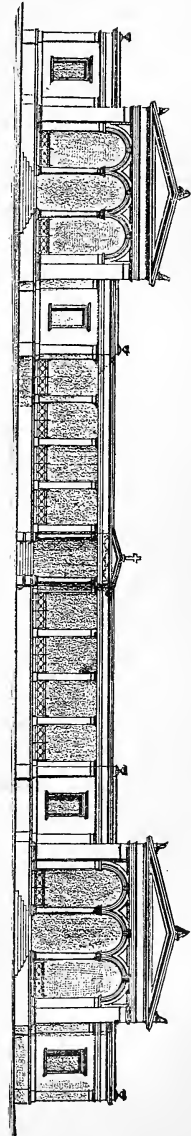
enamored with incineration at the Vienna Exposition, and who earnestly treated of cremation in a brilliant paper, "The Treatment of the Body after Death," in *The Contemporary Review* for January, 1874. This article, as might be expected, elicited great popular interest, much approval from all classes of the public, and some vigorous opposition. It was replied to, in the February issue of the same periodical, by Mr. Philip H. Holland, the Medical Inspector of Burials for England and Wales, whose statements and arguments, adroit though some of them were, were properly refuted in the succeeding number of the *Review*. Sir Henry fortified his arguments by citing some experiments with the bodies of lower animals, which he had burned, with little cost and no inconvenience, in a Siemens furnace.

For many years prior to 1874, Dr. Lord, health officer for Hampstead, continued to urge the practical necessity for the introduction of incineration.

The Cremation Society of England was founded on the 13th of January, 1874, and no sooner was it established than letters of encouragement poured in from all parts of Great Britain, and there was a great influx of new members and subscribers to its declaration. Every cremationist must feel proud to know that among those who, under Sir Henry Thompson's able presidency, founded the society, were such men of distinction as the late Shirley Brooks and Anthony Trollope, the well-known novelist. The English Cremation Society was founded for the propagation of the tenets of incineration, not for trading purposes, as may have been supposed by some incredulous, ill-disposed, or ignorant minds.

In 1878, the society purchased an acre of ground in a secluded part of St. John, Woking, in Surrey, especially adapted by position for the purpose, and erected thereon a building, with an apparatus of the most approved kind, for effecting cremation of the dead. After some deliberation, the system of Professor Gorini, of Lodi, in Italy, was adopted, since it was considered the best for the site, inasmuch as no supply of gas is required to insure combustion, but only coal or wood. It is to be regretted, that owing to a lack of funds, only the furnace could be built, which standing alone in spacious fields, must present rather a dreary aspect; must, I take it, appear far too realistic. It is to be hoped that the society will, by means of large bequests or sufficient contributions from the public, be placed in a position to roof over the furnace, and to erect a chapel or a hall in front of it, so as to accommodate the friends and mourners. The apparatus was next tested by an experiment, which consisted of the burning of a portion of the

THE CREMATORIUM AT GOTHA.



carcass of a horse weighing 140 pounds, that was consumed in two hours, at a cost of a very small quantity of fuel. The ashes resulting from the combustion were perfectly white, and weighed a little under six pounds; not the slightest odor could be detected in the closest neighborhood of the furnace, or even with the doors of the crematory chamber open; and there was, moreover, no escape of smoke from the chimney. The success of the system was established, and the possibility of cremation without offence completely demonstrated.

Since that time the place has been maintained in perfect order, but has not been used, owing to a doubt raised soon after the date referred to, as to the legality of adopting the process in England. A deputation of the cremation society waited upon the Home Secretary on the 20th of March, 1879, with a view of representing to the government their own wishes in respect to the crematory at Woking. The Home Secretary admitted that the proposed practice was unaffected by existing law, but he had been advised that inasmuch as the registration of deaths in her Majesty's country had always been associated with burial, he was constrained to conclude that cremation must first be approved by Parliament, and that if persisted in, he saw no other course open than to legislate against it. He further advised the council to introduce a short bill into the House of Lords, and not to rely upon the opinions of Queen's counsel which had been obtained by them affirming that it might be practiced. Thus the so-called Cameron bill originated. It is strange that England, so far advanced in political freedom, should yet be so deficient in intellectual liberty. Among the English there are doubtless as many unbiased investi-

gators as among any other nation, but both the representatives of the people and the government present the deplorable picture of solicitous embarrassment, and maintain an obstinate conservatism when any question involving religion or ecclesiastical rites comes up before them; any act that is not seconded by the Church of England is rejected through non-support; any abuse which the Established Church desires to retain cannot be removed. That this holds true is evinced by the repeated failure of the bill permitting a widower to marry his sister-in-law, notwithstanding that even the royal family desire to contract such a marriage. Finally the bill was accepted by the House of Commons, but has been since stubbornly rejected by the House of Lords.

Dr. Cameron's cremation bill — providing legal sanction for the adoption of cremation in Great Britain — was submitted to the House of Commons some time in 1884 — I do not remember the exact date. This bill, which asked but for permissive incineration, a privilege that is readily granted in all civilized countries of the globe, was rejected on the second reading by a vote of 149 to 79. It is a solace to know that the minority included the scientific men, men of such world-wide fame as Sir Lyon Playfair, Sir John Lubbock, and many others. Mr. Gladstone, zealous in his endeavors to serve the Church, brought the influence of the Government to bear against the bill, pleading in excuse that it was contrary to public opinion. Every well-balanced mind must conceive instantly that the Premier might have reserved the expression of the public will and opinion for Parliament, but that he wished to oblige the Church of England. That Englishmen regard

cremation from the same standpoint as other people is proven by the 79 favorable votes that were cast.

Mr. W. Eassie delivered excellent addresses on cremation before the first congress of the Sanitary Institute of Great Britain, held in 1877, at Leamington, and before the congress at Manchester, in 1879, when he exhibited the model of the Polli-Clericetti apparatus. In March, 1879, the question of cremation was also presented to the House of Lords, but without practical results.

In August, 1880, Sir T. Spencer Wells, late president of the Royal College of Surgeons of England, and Surgeon to the Queen's Household, read a masterly paper on incineration, entitled "Cremation or Burial," at the meeting of the British Medical Association, at Cambridge. At its conclusion a memorial was drawn up, addressed to the Home Secretary, and praying that permission be granted for the practice of cremation. The address was as follows:—

"We, the undersigned members of the British Medical Association, assembled at Cambridge, disapprove the present custom of burying the dead, and desire to substitute some mode which shall rapidly resolve the body into its component elements by a process which cannot offend the living, and may render the remains absolutely innocuous. Until some better mode is devised we desire to promote that usually known as cremation. As the process can now be carried out without anything approaching to nuisance, and as it is not illegal, we trust the government will not oppose the practice, when convinced that proper regulations are observed and ampler guarantees of death having occurred from natural causes are obtained than are now required for burial."

This memorial was signed by Sir T. Spencer Wells and many other prominent physicians and surgeons, altogether by over one hundred members of the association.

On Jan. 13, 1884, an incident occurred that speedily wrought a metamorphosis of the whole question regarding the legality of cineration in the United Kingdoms. There is an eccentric physician of South Wales, who is known as Dr. Price. He claims to be the nineteenth century representative of the ancient Druids. His costume is green trousers, white smock coat, and fox-skin head-covering. He is an educated physician and a member of the British Medical Association. The Druids of old burned their dead, and the child of Dr. Price having died, he determined to dispose of her remains by cremation. He retired at nightfall to a hill-top, where, placing the corpse in a cask of petroleum, he applied the torch. The burning aroused the populace, who, on nearing the spot, discovered its purpose. Amid much excitement the charred remains were rescued, and the Druid doctor placed under arrest. He was tried at the Glamorganshire Assizes, Cardiff, and acquitted. Sir James Stephen, the learned judge, when charging the grand jury at the trial, stated that Lord Justice Fry agreed in the views about to be expressed by him. He reviewed elaborately all the authorities bearing on the case, and, after discussing the methods of disposing of the dead in ancient Europe, failed to discover any law, ancient or modern, which forbids cremation, providing it be done in such a manner as to cause no nuisance.

This decision, of course, rendered the society free to act as it pleased. Advertisements were immediately put in the newspapers, to say that anybody could be

cremated who would adhere to the rules formulated by the society. Under these circumstances the cremation society felt it a duty to indicate, without delay, those safeguards which they deemed it essential to associate with the proceeding in order to prevent the destruction of a body which might have met death by unfair means. They were aware that the chief practical objection which can be urged against the employment of cremation consists in the opportunity which it offers, apart from such precautions, for removing the traces of poison or other injury which are retained by an undestroyed body, and therefore framed the sequent rules, which still hold good:—

“1. An application in writing must be made by the friends or executors of the deceased,—unless it has been made by the deceased person himself during life,—stating that it was the wish of the deceased to be cremated after death. 2. A certificate must be sent in by one qualified medical man at least, who attended the deceased until the time of death, unhesitatingly stating that the cause of death was natural, and what the cause was. 3. If no medical man attended during the illness, autopsy must be made by a medical officer appointed by the society, or no cremation can take place. These conditions being complied with, the council of the society reserve the right in all cases of refusing permission for the performance of the cremation, and, in the event of permitting it, will offer every facility for its accomplishment in the best manner.”

The Cremation Society of England owes much to its indefatigable honorary secretary, Mr. William Eassie, C.E., whose propaganda for incineration is not confined to the British Isles, but extends all over the world.

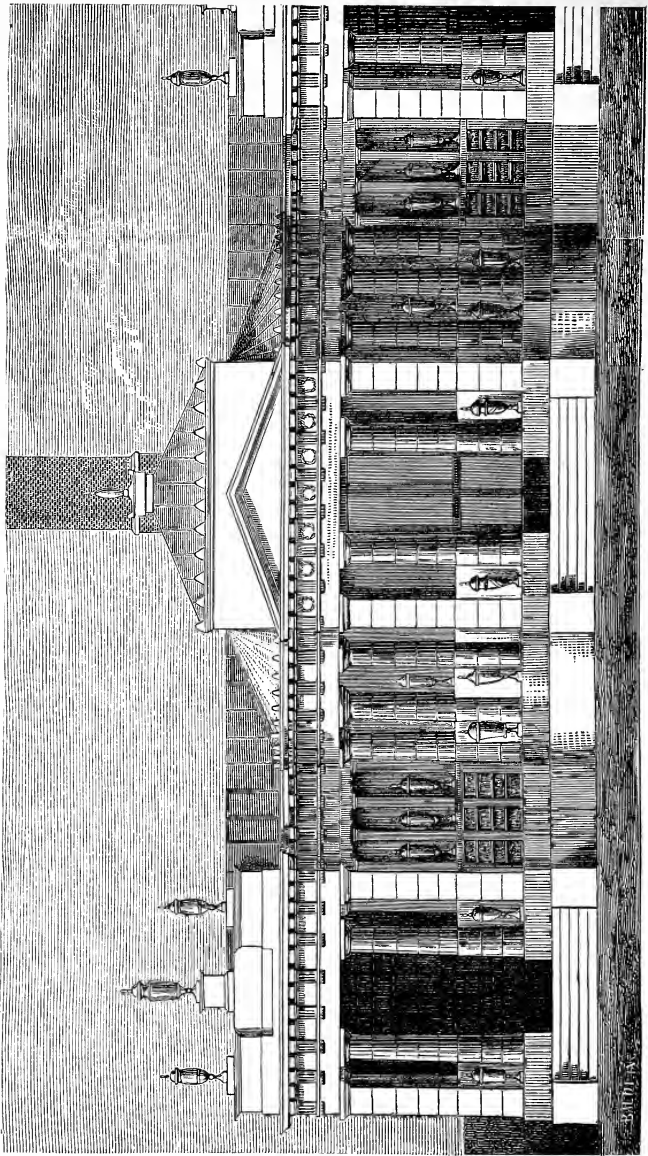
I am sure that his name will always head the list of those who have promoted cremation in the country of Shakespeare, and in this respect even place him over and above that illustrious surgeon and physicist, Sir Henry Thompson. I would not, I am certain, experience the least astonishment should I hear that Mr. Eassie sent some of his valuable essays on cineration to some savage in Africa, for instance the king of Dahomey, and that the royal negro, pleased with the idea, instantly had several hundred of his subjects cremated before him, which, being a complete success in every respect, led his dusky majesty to swear by all the holy idols with which he is familiar that he too should be reduced to ashes after death.

Public sentiment reflected in the press of the United Kingdoms has been almost unanimously in favor of cremation. Journals of all classes, religious, fashionable, popular, Whig, Radical, or Tory, from the *Court Circular* to the *Rock*, from the *Times* to *Lloyd's Weekly Newspaper*, have by a vast majority pronounced in its favor.

The Metropolitan Commissioners of Sewers have appointed a committee with the view of considering the propriety of erecting a crematorium at Ilford.

The oldest case of cremation on record in Great Britain was that of a widow, Mrs. Pratt, of George Street, Hanover Square, London. The lady was burned, in obedience to directions given in her testament, in the new graveyard adjoining Tyburn turnpike, on the 26th of September, 1769.

On the 8th and 9th of October, 1882, the wife of Captain Hanham, and his mother, Lady Hanham, wife of the late Sir James Hanham, Bart., of Dean's Court,



THE CREMATORIUM AT MILAN. (From Dr. Pini's work.)

Dorset, were cremated in a cheap temporary crematory, devised by Mr. Richards of Wincanton. The furnace had been built under the supervision of Captain Hanham himself. The coffins were placed on iron plates, and fire bricks above the furnace, a chimney 22 feet high furnishing the draught. The process lasted two hours, and was successful in every respect.

A year later, on the 7th of December, 1883, the captain, Thomas C. Hanham, was reduced to ashes in the same apparatus at his residence in Manstone, Dorsetshire. The incineration was public, and in conformity with the last testamentary dispositions of the deceased. The cremation was accomplished in 9 hours and 40 minutes. The ashes were deposited in the family mausoleum.

The Danish Cremation Society at Copenhagen was founded in 1881, and is in a flourishing condition. It has several branch societies in the provinces. Soon after its organization it numbered 1500 members; it now counts 1800 members, among them 120 physicians. Several attempts were made in Denmark to legalize incineration, but in vain: as there is, however, no law prohibiting the act, the society is determined to imitate the example of England, to execute incineration at their own risk, and await further legislation.

Mr. Per Lindell, a civil engineer, did much to popularize cremation in Sweden. For many years he treated of the subject in the columns of the *Norden*, a journal edited by him. It was through his influence that the Swedish Cremation Society was established on the 31st of May, 1882, at Stockholm, under the presidency of Colonel E. Klingenstierna. At present the society numbers from 700 to 800 members. There is no law

forbidding incineration; the prospects are therefore very good. As soon as sufficient money is on hand a crematory will be erected and put in use. A society, affiliated with the central one, was recently organized at Gothenburg.

In the neighborhood of the new cemetery, St. Francisco Xavier, at Rio de Janeiro, Brazil, a large space of ground has been assigned for the erection of a crematory temple. Incineration will be practiced there in order to lessen, if possible, the alarming rate of mortality in that unhealthy place. Dr. A. Vinelli deserves great credit for his admirable articles in support of cremation in the *Revista Medica de Rio de Janeiro* of 1878.

In the Argentine Republic, Mexico, and Uruguay, a steady movement is on foot in favor of the reform. The authorities in Mexico have already granted permission for the construction of a crematorium on the Gorini pattern.

It is said that the government of Venezuela has also decided to erect a crematory, wherein to reduce to innocuous ashes the bodies of persons deceased of yellow fever.

The idea to propagate cremation at Valparaiso, Chili, originated with the Lessing Lodge of Free Masons, which, on the 6th of August, 1881, directed a circular to the other Masonic lodges of the city, requesting them to send representatives to a preliminary meeting. This meeting came off on the 3d of December of the same year. Cremation was freely discussed from every standpoint, but on the whole the meeting was not followed by any practical result.

On the last of December, 1881, a proclamation to

organize a cremation society was published in the journal *Il Mercurio* by the committee having the matter in charge. On the 20th of May, 1882, the Cremation Society of Chili was formed under the presidency of Señor O. Malvini. This society is in a flourishing condition, and now numbers over 200 members.

Towards the end of 1883 a committee to organize a cremation society at Alexandria, Egypt, was formed by M. Lumel, who, unfortunately, died in the same year. The committee, however, is still in existence, and is at present occupied in realizing the ideas of M. Lumel. At Cairo Messrs. Titus Figari and Cesare Praga labor to found a cremation society.

CHAPTER II.

THE EVILS OF BURIAL; THE SANITARY ASPECT OF INCINERATION.

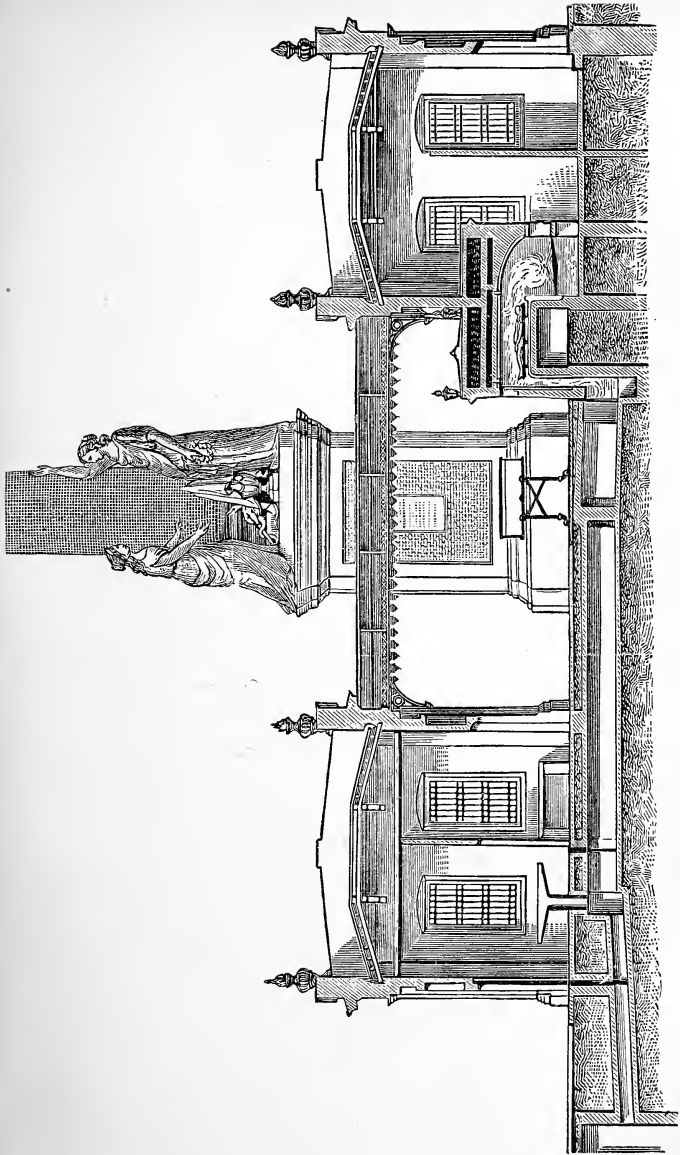
THE grave, hallowed by religion and the queen of arts, poetry, has become to us the emblem of eternal rest—something that is beautiful; something in which we may sleep long and well. The weeping-willow droops its slender branches over it, sweet, fragrant flowers thrive upon its soil, and the little birds perch there to sing their song.

The rays of the sun often play upon the small earth elevation, and lend additional beauty to the green foliage of the trees, the bright color of the many flowers.

But verily, we are like the sunshine—superficial. It is the great fault of mankind to be satisfied with a film-like knowledge of things. To go deeper, to dive below the superstratum, would mean to meet, perhaps, with matters not at all pleasant; to become cognizant of facts never before dreamt of. Consequently, the majority of men is content to remain on the surface; content to know a little, but not all.

Thank God, there are happily individuals left who descend to the bottom of every question, scientific or social, and who daily enrich all departments of learning.

As regards the grave, let us first of all listen to him who has held generations of folk spellbound; let us bow reverently before the opinion of one of the masters among English novelists—Charles Dickens.



THE CREMATORIUM AT CREMONA. (From Dr. Pini's work.)

It is he who tells us in measured words that the grave is naught but —

“ Brave lodgings for one, brave lodgings for one,
A few feet of cold earth, when life is done;
A stone at the head, a stone at the feet,
A rich, juicy meal for the worms to eat;
Rank grass overhead, and damp clay around,
Brave lodgings for one, these, in holy ground !”

The late Prof. Samuel D. Gross, M.D., one of the greatest surgeons the world ever possessed, called burial a horrible practice, and maintained that : —

“ If people could see the human body after the process of decomposition sets in, which is as soon as the vital spark ceases to exist, they would not want to be buried ; they would be in favor of cremation. If they could go into a dissecting-room and see the horrid sights of the dissecting-table, they would not wish to be buried. Burying the human body, I think, is a horrible thing. If more was known about the human frame while undergoing decomposition, people would turn with horror from the custom of burying their dead. It takes a human body 50, 60, 80 years — yes, longer than that — to decay. Think of it ! The remains of a friend lying under six feet of ground, or less, for that length of time, going through the slow stages of decay, and other bodies all this time being buried around these remains. Infants grow up, and pass into manhood or womanhood ; grow old, and get near the door of death ; and during all that time the body which was buried in their infancy lies a few feet under ground in this sickening state, undergoing the slow process of decay. Think of thousands of such bodies crowded into a few acres of ground, and then reflect that these

graves, or many of them, in time fill with water, and that water percolates through the ground and mixes with the springs and rivers from which we drink.

“People turn with dread from the subject of cremation. Why, if they knew what physicians know,— what they have learned in the dissecting-room,— they would look upon burning the human body as a beautiful art in comparison with burying it. There is something eminently repulsive to me about the idea of lying a few feet under ground for a century, or perhaps two centuries, going through the process of decomposition. When I die, I want my body to be burned.

“Any unprejudiced mind needs but little time to reflect in forming a conclusion as to which is the better method of disposing of the body. Common sense and reason proclaim in favor of cremation. There is no reason for keeping up the burial custom, but many against it; some of the most practical of which are but too recently developed to need mention. There is nothing repulsive in the idea of cremation. People’s prejudice is the only opponent it has. If they could be awakened to a sense of the horror of crowding thousands of bodies under the ground, to pollute in many instances the air we breathe and the water we drink, their prejudice would be overcome; cremation would be taken for what it truly is—a beautiful method of disposing of the body. The friends of the departed can do as they please with the remains. Take the ashes of a wife or daughter and put them in an urn; place it on your mantelpiece, or in as private a place as you please. Strew them on the ground if you like, and let them assist in bringing forth a blade of grass. This

would be an advantage over the burial method, where human bodies only cumber the ground."

This was said by a man who not only showed considerable ability as an operator, and writer on topics of medicine, but who also was honored by the famous universities of Cambridge and Oxford, receiving from them academical titles never conferred except upon the most distinguished.

We will take a spade (only metaphorically, of course) and investigate the narrow pit which serves to hold all that is mortal of man after the spark of life has extinguished. Now we remove the plants, the clinging vines, the blooming flowrets. We throw the earth aside and finally lay bare a coffin. A coffin? Something that must have been one in the remote past. A sickening odor greets us. We step back to draw a breath of pure air. At last we muster up sufficient courage to return to the grave. A touch of the spade causes the top-board of the box to fall to pieces, and there is revealed to the sight a spectacle that is horrible. The ground around the body has been moist and non-porous; what has remained of the corpse is only a mass of foul flesh in a state of putrefaction. Is there anything more disgusting than such a sight?

Shakespeare says in "As You Like It":—

"And so, from hour to hour, we ripe and ripe,
And then, from hour to hour, we rot and rot;
And thereby hangs a tale."

True! The tale that hangs thereby is illustrative of the carelessness and ignorance of man alike. The grave has been at all times a kind of box of Pandora, with this difference,—it did not require unclosing: unopened, the grave sent forth its children—pestilence

and death—to decimate the ranks of the population of the globe. But all calamities caused by burial have been endured by people with perfect indifference, and it was not until modern times that any reforms were attempted at all. But in spite of these so-called reforms, the murder of the living by the dead has continued. The reforms I mentioned generally resulted in the removal of cemeteries to the suburbs of cities. In this way the evil effects of interment were deferred for some time, till the city enlarged, and the population closed in around the burial-grounds.

What is burial? For what purpose do we place the bodies of our dead in the earth? It is the beginning of a chemical process—a process which ends finally in the total dissolution of the corpse. The chemical constituents of our body are returned to nature. Burial and cremation are in a sense the same; in either case the body oxydates. The great distinction between the two lies in the fact, that the burning in the grave requires years for its completion, and is fraught with danger to the living, whilst in case of incineration the body is reduced to its primitive elements in the brief space of a few hours, and is unaccompanied by anything that may do harm.

Dr. A. B. Prescott, Professor of Chemistry in the University of Michigan, has determined what elements of the human body are destroyed or dissipated by cremation, and what remain in the ashes. In a letter to the *Detroit Post* he states:—

“Of the 70 chemical elements or ultimate simples, known to man, 15 are found in the human body. Of these, four—carbon, hydrogen, nitrogen, and oxygen—are derived from the air, and in combustion, as in

decay, they return to the air again. These four in their various compounds make up by far the greater part of the animal tissues. Of the remaining 11 chemical elements, six are metals,—potassium, sodium, calcium, magnesium, iron, and manganese; and five are non-metals,—sulphur, phosphorus, chlorine, fluorine, and silicon. When combustion of the tissues is completed, the six metals, in combination with the five non-metals last named, are left behind in the ash. These were drawn from the earth. There are about 19 chemical compounds in the ash so left, compounds such as phosphate of lime, carbonate of lime, sulphate of potash, chloride of sodium, etc. The greater number of the ultimate elements contained in the living body are left behind in the ash, but the proportional quantity made up by all these elements is, of course, very small. In the first place, about two-thirds of the tissues consist of water. The proportion of the ‘ash’ to the tissues varies from two per cent in muscle and seven-tenths per cent in blood, to 66 per cent in bone. The ‘ash’ left by combustion is very nearly the same, in kind and in quantity, as the ‘dust’ left after the final completion of decay.”

What is decomposition? How does it take place normally? Decomposition is the decay of an organic substance, which is completely destroyed through the influence of the atmospheric oxygen. Decomposition is facilitated by moisture. The organic mass undergoing such change assumes a different color and consistency and gives up carbonic acid, ammonia, and water; the same products originate in the rapid destruction of an organic substance by means of fire.

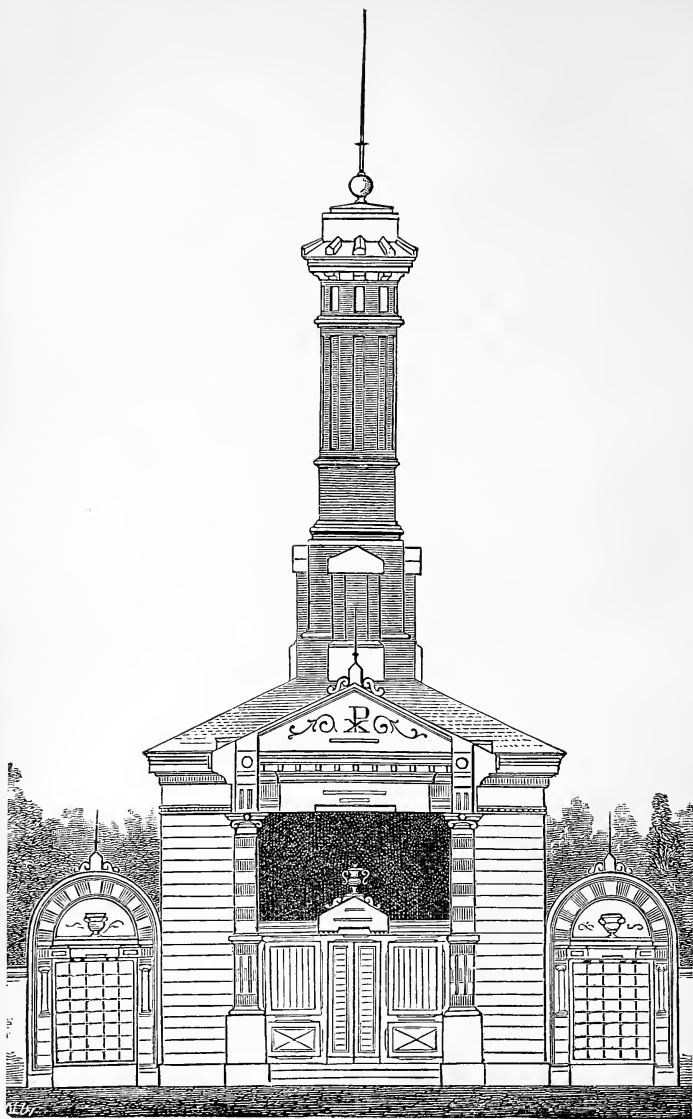
Only those parts of the body (the bones) that can

best resist the influence of the air remain secure from decay a longer time ; at last they also crumble into dust and mingle with the rest.

Wetness accelerates decay. When we hear the rain fall in the silent night, we are compelled to think, shuddering, how the horrible process of destruction begins in the grave of some beloved one whom we have recently buried.

The same stench that assails our nostrils when we approach a corpse that has lain a long time above ground, meets us when we open a grave ; the same poisonous gases are evolved under ground from a decaying corpus as upon the surface of the earth. It makes no difference whether the grave we explore be that of a prime minister, upon which a magnificent monument rears its costly shaft high into the air, or that of a common criminal who tried to enjoy existence by spending three-quarters of his lifetime in prison ; the result remains the same : in each we find the disgusting and sickening evidence of slow destruction, — a formless, putrid mass of flesh, and sometimes numberless revelling worms.

The conditions under which decomposition can take place are a certain degree of moisture and a constant supply of air. When a corpse is embedded in a soil that is very wet, a curious change takes place. There is no decay, but instead a fatty metamorphosis, giving the body a waxy appearance and preserving its original form. The result of this transformation is called adipocere. The process by which the body is changed into this stearine-like mass is entitled saponification, and is not very well understood as yet by the scientists.



THE CREMATORIUM AT VARESE. (From Dr. Pini's work.)

Such preserved bodies were found in the burial-grounds at Paris, Brussels, London, and many other cities.

In 1874, the cemetery board of the burial-ground at Zuerich, Switzerland, discovered that the bodies interred in the graveyard since 1849 had not undergone decomposition, but had turned into adipocere. This horrible discovery materially assisted the progress of incineration in Switzerland.

Tripp relates that when eight bodies were taken up in a cemetery near Worcester, England, the soil of which was composed chiefly of gravel and clay that was always very moist and at times so wet that the water had to be pumped out of the graves, the undecayed body of a nineteen-year-old girl was found which had been buried 51 years and had undergone saponification; the other corpses were decomposed, also the coffins, while the casket which had contained the saponified body was preserved.

I have seen but one saponified corpse. It was at the museum of the New York College of Physicians and Surgeons; I have forgotten whether it was a man or woman. But I still remember how I shuddered at the sight and how I walked close up to the glass case to make sure that the waxy mass within was a human being.

It is superfluous to point out here that cremation puts a stop to saponification. One need not be a chemist to know that a body cannot turn into adipocere after it has been reduced to ashes.

Whenever the earth of a graveyard yet contains enough oxygen for the corpses deposited there, the dangers are very few; but whenever this is not the case, the bodies of the dead undergo a horrible metamorphosis,

known as putrefaction, and become dangerous to the living on account of the poisonous gases and other effluvia generated.

We observe the same phenomenon in our stoves. When but very little air is admitted into them, the combustion of even very inflammable material remains incomplete; and stifling gases (for instance, carbonic oxide gas) are produced.

It is evident that a porous soil facilitates decomposition, the products of which it absorbs and retains till they have entered into some harmless combination. There is, however, a limit to its efficiency. When it becomes overcharged with the products of decomposition, it can only hold a small quantity of them; the rest are delivered to the water, which permeates it and the air which passes over it. On the other hand, it is clear that a very damp, non-porous soil into which the air cannot enter favors putrefaction.

A state of saturation is produced in the course of time in the best of cemeteries by a continued system of overcrowding.

Although overcrowding of cemeteries is confined almost entirely to the countries of Europe, yet there are many American burial-grounds in which this condition exists; and, what is worse, they are annually multiplying. Some of these overcrowded graveyards are situated in large cities, in the centre of a dense population. In these churchyards it is impossible to dig a single grave without the disinterring of the bones of one previously buried there. Imagine the consequences of such a state! Isn't it far better to remove the possibility of future disease and danger at once than to allow it to grow by degrees, till it assumes a terrible

and fatal dimension? Isn't it better to refrain from the use of cemeteries entirely, and resort instead to the clean, pure, and undangerous system of incineration? Consider! Does it agree with our ideas of right and wrong to endanger the lives of our great-grandchildren or their offspring by our methods of disposing of the dead? For, by the time they appear on the stage of this world, the burial-ground now sanitary will have become a breeding-place of disease from overuse.

When we remove burial-grounds to a distance, we only postpone the evil. We insure our own safety, it is true, by so doing; but we encumber the ground with most virulent seeds, and leave to future generations—to those who come after us—a terrible crop of pollution, disease germs, and death. Our own security from harm should not actuate us in this matter. We should be wise enough to prevent the evil while we have the power, so that our offspring will not justly reproach us for entailing upon them such a terrible legacy.

Among American cities there is none that needs a change of method in the disposal of its dead as greatly as New Orleans, in Louisiana.

Those that are mowed down by the grim rider of the white horse cannot be buried there, owing to the excessive moisture of the ground which surrounds the city and the proximity of the water to the surface. It is impossible to dig two feet under ground without coming to water. At all times the dead have been disposed of in a very careless manner in New Orleans. It is related that during the yellow-fever epidemic of 1853, when New Orleans had a population of 150,000 inhabitants, those that had died of the dread disease were thrown into trenches not over 18 inches or two feet

deep, and covered with very little earth; so little, indeed, that the first rain that came along washed it away. In a graveyard situated in the central part of the city, were buried in this manner 400 bodies, recent victims of yellow fever, and contaminating the air with poisonous exhalations. The mayor of the city was asked to remove the dangerous condition of the burial-ground. He replied, "That's not my business!" And the commissioner of streets, who was next approached, answered in a like spirit. The state of affairs grew worse and worse; and at last, even the negroes refused to act as grave-diggers.

At present, they have a system of entombment in the Crescent City. These tombs are in the municipal cemeteries, 35 of which are within the city limits, giving them the appearance of a collection of bakers' ovens. The tombs are almost universally made of brick, and whitewashed. They vary in size from 3 × 6 feet to 10 × 10 feet or 10 × 20 feet; there is a post in the centre, which is surrounded by shelves, on which the body—that is, the coffin—is deposited. There the dead rests for about a year, when it becomes necessary to use the tomb for another corpse; then the remains of the preceding occupant of the vault are rudely taken from the casket and dashed head over heels into a pit, where they are left to breed disease. • What wonder, exclaims Kate Field, that yellow fever runs riot in New Orleans, when the air reeks with the festering corruption of 35 plague spots, exposed for six months of the year to a tropical sun! Think how the death-rate of New Orleans might be reduced by abolition of earth-burials! What better field for missionary work than our own "Sunny South"?

The unhealthfulness of these vaults is apparent to all, but, owing to prejudice, no other disposition of the dead has been adopted. But sooner or later the inhabitants of New Orleans must have recourse to cremation, and burn their dead, as they were forced to do once during a cholera epidemic, when 135 corpses were consigned to the devouring element.

For 300 years English churchyards have been so full that, like the one in Hamlet, Yorick's bones have had to be dug out in order to put Ophelia's in. From time to time the attention of the British authorities was directed to the shameful state of the cemeteries of the metropolis and other places. In that case the matter was brought before Parliament, the government ordered an investigation, a committee was appointed to examine the grievances, the committee returned a report with the testimony of witnesses, and the report was ordered printed. The report commonly made a very large volume, which looked exceedingly pretty on the shelf on which it was placed, but became dusty in a comparatively short time from non-use. The excitement had quieted down, public opinion and the press were pacified, Parliament was satisfied, and the condition of the burial-grounds remained the same as before.

The cemeteries of Paris, France, are in no better condition; the mould in the old Cimetière des Innocents is literally saturated with corpses; Montmartre and Mont Parnasse are overcrowded. As for Père la Chaise, — the burial-place that has been praised in poetry and prose (the resting-place of Racine and Molière), that has been adjudged the most beautiful cemetery in the world, — Père la Chaise is packed with decaying bodies. A cable dispatch dated Dec. 27, 1883, reported that the

municipal council of the city of Paris had resolved upon leaving those that fell during the reign of bloodthirsty La Commune at Père la Chaise for a period of 25 years. Ordinary cadavers must be dug up after five years, to make room for their ghastly successors.

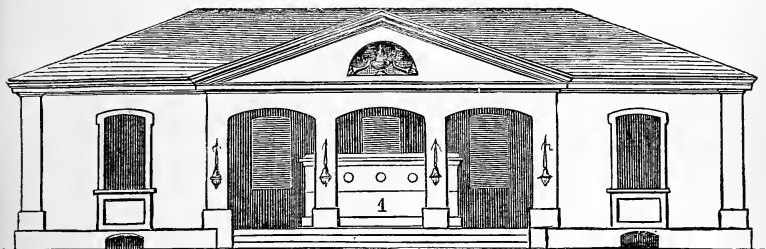
In Portugal the soil has become so packed with corpses that an effort was made to enact a law that after five years all interred bodies should be dug up and subjected to cremation. This means that after the dead have saturated the ground with disease-producing emanations, and have exhaled nearly all their virulent effluvia into the atmosphere, sacrificing the welfare of the living to superstition and prejudice, a later incineration shall take place to save space.

Of American cemeteries, I only need mention Potersfield of New York, the name of which is not spoken or heard by an American without an involuntary shudder. Our graveyards are, of course, not like the cemeteries of the Old World, where the exhumation of bones takes place daily to make room for the recently deceased, but they will become so unless the damaging prejudices are laid aside and something is done to prevent such a poisonous and dangerous situation. In some of the old cemeteries in our cities it has become impossible to dig another grave.

Rev. John D. Beugless, D.D., thus describes the burial-grounds of New York City: "Of the great cemeteries about New York, there is not one, not even Woodland or Greenwood, in the public lots of which three or more bodies are not put in one grave, — that of John Doe, who died from 'a bare bodkin,' being sandwiched between those of Richard Roe and James Low, who were victims respectively of small-pox and yellow-fever,

In the public or poor quarter of Calvary Cemetery a far worse state of things obtains—more appalling than even the *fosse commune* of Paris, for it is the *fosse commune sans chaux*. A trench is dug, seven feet wide, ten to twelve feet deep, and of indefinite length, in which the coffins are stowed, tier upon tier, making a flight of steps, five or more deep, and with not enough earth to hide one from the next. And this is our vaunted ‘Christian burial’ in this new country, with its myriads of broad acres! What shall our children

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THE CREMATORIUM AT BRESCIA. (From Dr. Pini's work.)

say of us, when they come, perforce, from stress of space, to build their dwellings upon these beds of pestilence?"

That is the way we, "the Christian nation par excellence," treat friendless paupers and criminals. Shame! shame! A dog is more decently interred.

The cemeteries of the city of Brooklyn occupy nearly 2000 acres of land. A thoughtful eminent physician gives it as his opinion that the prevailing southwest wind, blowing over these corruption festering plague spots, carries to Flatbush the germs of typhoid fever and diphtheria, and swells the death-rate of that city to its present alarming magnitude.

The more one considers cremation, the more one finds himself wondering how it has come to pass that we practice interment, with its many faults and dangers, and do not burn our dead.

It is clear that overcrowding of burial-grounds must lead to evil consequences. A ground that is saturated with putrefying material can emit naught but poisonous odors, cannot fail to contaminate the purest and clearest water, must vitiate any atmosphere.

Incineration deserves the respect to-day which the ancients paid to it, and is the only way of disposing of the dead so as to avoid the terrible consequences of the mephitic graveyard gases, of the dangers with which the ordinary mode of burial threatens us.

The truth was taught us by the Tuscans some three hundred years ago. At that time a whale was cast upon the shore of Tuscany. The inhabitants of the surrounding country hastened to the spot, and removed the ribs of the large fish, to hang them in the churches as a memento of the rare occurrence. The flesh was left to rot in the scorching southern sun. An epidemic of typhoid fever was the result; and when, ten years later, another whale happened to strand in the same locality, the people, having become wise by its previous experience, destroyed the monster by chopping it to pieces, and burning these, one after another.

There are many lurking dangers, ready to destroy the living, in the burial-grounds of the present day. The mephitic vapors increase in quantity as decomposition advances, and become far more poisonous than either arsenic or prussic acid, if these were uncombined in their natural state.

These dangerous graveyard gases can spread to quite

a distance, and therefore can communicate the most malignant maladies at all times. Dr. Ayr claims that they extend to a distance of a hundred meters; some authorities assert that they reach sometimes twice the distance. This occurs generally when the grave is airtight above, and the surface layer of the cemetery soil is imporous. Then the gas escapes where it finds the least resistance,—at the sides,—and burrows along under the earth until it strikes a cavity, and bursts into it, or diffuses into the air. When the grave offers no resistance above, the gas enters the atmosphere directly. Burial-grounds best fitted for cemetery purposes should be feared most, for it is evident that dryness and porousness are qualities which, although conducive to the rapid decay of a body, very much facilitate the escape of gases.

The danger is not obviated by deep burials. In that case the morbid matter is diffused through the subsoil. If the inhumations are so deep as to impede escapes at the surface, there is only the greater danger of escape by deep drainage, and the pollution of springs and wells. Dr. Reid detected the escape of deleterious miasma from graves more than twenty feet deep.

The danger from inhaling graveyard gases is great.

Ramazzini relates how an avaricious grave-digger, by the name of Pisto, met with instantaneous death on descending into a vault to steal the shoes of a corpse; he was found dead upon the body.

Lancisius (*De noxiis palud. effluv.* II, Ep. 1, c. 2, p. 152) states that several grave-diggers died in a like manner after entering a newly opened vault, which had been set under water by an inundation of the Tiber,

and in which the stagnant water had regenerated the virulent gases.

Unger gives an account of a case similar to that of Haguenot, reported further on. A vault was reopened in a convent at Madrid, for the purpose of depositing therein a fresh corpse. When the grave-digger was about to descend into it, he fell down dead. Two other persons, who tried to save him, shared his fate.

Fortunatus Licetus (De annull. antiquitt. c. 23) relates that three men, who went into a vault that was full of semi-decomposed bodies with the intention of robbing, lost their lives. When the bodies were extracted, they were found to be swollen and black.

Th. Bartholini (Historiar. anat. rarior. C. IV, obs. 32, p. 296) made experiments in Denmark which confirm these reports concerning the lethal action of graveyard gases, and prove the especial danger from the gases of the dead long pent up in vaults. He affirms that these noxious gases often prove fatal, death being preceded by dizziness and fainting.

The gases of Francis I operated with fatal effect upon the vandals who broke open his coffin, in the time of the French Revolution, to rob it of its treasures.

Books on hygiene teem with examples of the lethal properties of an atmosphere containing carbonic acid in excess. A familiar instance is that of the passengers of the ship *Londonderry*, in 1848, 150 of whom were shut up by the captain during a storm, in the steerage 18 × 11 × 7 feet. Seventy of them died in an incredibly short space of time, with convulsions and bleeding at the eyes and ears.

Haguenot reports that, in 1744, the corpse of a monk of the Penitent Order, who had been buried in a vault

under the church, was exhumed in the church of Notre Dame, at Montpellier, France. A man descended into the vault to remove the cadaver, but, before he got quite down, he was taken with convulsions, and fell unconscious into the vault, where he died of suffocation. A monk went down to rescue him, but he too was taken sick, and, on having been pulled out immediately, succumbed quickly. A third, who had the courage to follow his example, fell dead without being able to retire. The same fate was reserved for a fourth victim,—a brother of the first. The bodies were pulled out with hooks; the stench of their clothing was unbearable. Lights held near the opening of the vault extinguished; dogs, cats, and birds, on being brought in contact with the poisonous gases, died, with all symptoms of a severe convulsion, in a few minutes. Some of the mephitic gas was bottled; but when experimented with after two and one-half months, it still had all of its dangerous qualities.

In 1749, when new vaults and graves were made in the St. Eustachius Church at Paris, France, cadavers were dug up and placed temporarily in an old vault of the church, which had remained locked a long time. Children coming to church to prepare for confirmation, and even adults, fainted on entering the sacred edifice, and some had serious attacks of illness. The same took place in St. Sebastian Church at Madrid, Spain, in 1786; three times a grave burst open, in which, but a short time before, a very corpulent lady had been buried. The horrible smell that arose from this grave prevented the reading of the holy mass at the high altar during a period of eight days. At one time the Parish Church of Metz was so infected by the gases of

a female corpse that it had to be abandoned, and the divine service removed to another church.

In 1841 two men who had some work to do in a grave in St. Botolph's Churchyard, Aldgate, England, died almost instantly on entering it.

In the churchyard at Cobham, in Surrey, England, on account of some changes in the church, some bodies had to be raised. The work of the navvies was horrible beyond description, and dangerous beside. It was performed very early in the morning, and was beset with difficulties. Repeated doses of gin had to be given to the men to keep them at a kind of work which they could only do under the influence of alcohol. Three men perished in 1852, at Paris, from inhaling the gas that escaped from coffins.

Fourcroy affirms that grave-digging is an unhealthy and dangerous occupation, and that all grave-diggers he examined showed symptoms of slow poisoning.

George A. Walker declared that no grave-digger ever wholly escaped the influence of graveyard gases. Some of the men employed in this way have noticed the peculiar smell of the gases on beginning to dig.

Monsieur Patissier reports several deaths due to grave-digging; and Mr. Chadwick asserts that the vocation of a sexton shortens life one-third. Usually grave-diggers are heavy drinkers; they take to drinking to resist the malignant influence of the vapors which arise slowly but surely out of the cemetery soil, and to do away with any "maudlin sentimentality" that may still linger in their hearts, and that might interfere with their horrible work.

On March 1, 1886, Marke Thornton, of Washington, Ga., met with a singular death. His decease resulted

from inhaling poisonous gas which seeped through into a grave he was digging by the side of another. The other men at work with him left the grave as soon as they detected the gas, but Thornton, thinking there was no danger in it, remained and died.

The action of cemetery gases on the human body manifests itself in a variety of ways. Sir T. Spencer Wells states that decomposing human remains so pollute earth, air, and water as to diminish the general health and average duration of life.

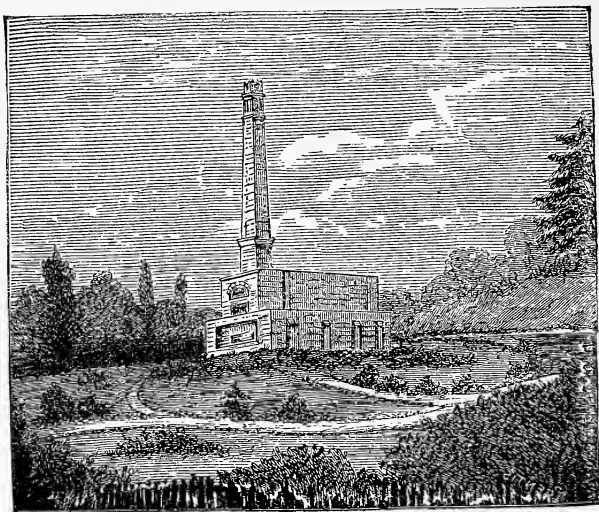
Dr. Lyon Playfair affirms that the inspiration of graveyard gases does not always cause one form of decay or putrefaction, but that it depends entirely upon the organs attacked. Entering the blood, it produces fever; communicated to the viscera, it gives origin to diarrhoea, and may, Dr. Playfair thinks, even be the source of consumption. When the irrespirable gas enters the respiratory tract, Dr. Southwood Smith claims that it is conveyed into the system through the thin and delicate walls of the air-vesicles of the lungs in the act of respiration. He states that turpentine, for instance, if only inhaled when passing through a room that was recently painted, will exhibit its effects in some of the fluid excretions of the body even more rapidly than if it had been taken into the stomach. Dr. Riecke thinks that putrid emanations operate also through the olfactory nerves by powerful, penetrating, and offensive smells.

Cemeteries are breeding grounds as well as foci of disease and death.

Mr. Chadwick, in his "Report on the Practice of Interment in Towns" (London, 1843), writes:—

"The injurious effects of exhalations from the de-

composition in question on the health and life of man is proved by a sufficient number of trustworthy facts. The injurious influence is manifest in proportion to the concentration of the emanations. Sometimes it produces asphyxia and sudden death. In a less concentrated state the emanations produce fainting, nausea, headache, languor. If, however, they are often repeated,



THE CREMATORIUM AT WOKING, ENGLAND.

they produce nervous and other fevers, or impart to fevers arising from other causes a typhoid type. . . . As there appear to be no cases in which the emanations from decomposing human remains are not of a deleterious nature, so there is no case in which the liability to danger should be incurred by interment amidst the dwellings of the living, it being established as a general conclusion that all interments in towns

where bodies decompose, contribute to the mass of atmospheric impurity which is injurious to public health."

The Italian physician Felix Dell'Acqua gives it as his opinion (in his study on cremation), that graveyards infect the earth, the air, and the water, and constantly endanger public health during an epidemic. Dr. Polli proved that graves deteriorate the air we breathe and contaminate the water we drink, by loading them with organic matter.

Prof. Antonio Selmi, of Mantua, claims to have discovered organic germs in the air above graves, which he called septopneuma, and which, when injected under the skin of a pigeon, caused a typhus-like disease that ended in death within three days.

Specific germs may enter the atmosphere from the graves, which convey the deadliest of maladies, being carried very far by the wind. But the agent that makes cemetery gases so dangerous is carbonic acid.

Dr. Parkes (Practical Hygiene), the eminent English scientist, says:—

"The decomposition of bodies gives rise to a very large amount of carbonic acid. Ammonia and an offensive putrid vapor are also given off.—The air of most cemeteries is richer in carbonic acid, and the organic matter is perceptibly large, when tested by potassium permanganate."

It is a well-known fact that carbonic acid, when inhaled in an undiluted state, causes death; it is fatal to all forms of life. When inhaled diluted with air it interferes with the introduction of oxygen into the body, and causes the carbonic acid, which should be eliminated, to be retained. This, no doubt, prevents

the proper tissue changes, and must in time undermine the healthiest body by seriously affecting its nutrition.

Dr. E. J. Bermingham (Disposal of the Dead) says:—

“The effect of constantly breathing an atmosphere containing an excess of carbonic acid is not perfectly known. Dr. Angus Smith has attempted to determine the effect of carbonic acid *per se*—the influence of organic matter of respiration being eliminated. He found that three volumes per thousand caused great feebleness of the circulation, with diminished rapidity of the heart’s action; the respirations were, on the contrary, quickened, and were sometimes gasping. These effects were lessened when the amount of carbonic acid was smaller; but were perceptible when the amount was as low as one volume per thousand.”

According to Haberman, sensitive and nervous persons have been taken ill when walking by a cemetery.

P. Frazer, Jr., says: “A sexton and the son of a lady who died seven days before went down into the vault. Both were affected with sickness and nausea; one was affected for some years; the son had ulceration of the throat for two years.”

Mr. William Eassie affirms that, “according to a report of the French Academy of Medicine, the putrid emanations of Père la Chaise, Montmartre, and Mont-Parnasse have caused frightful diseases of the throat and lungs, to which numbers of both sexes fall victims every year. Thus a dreadful throat disease which baffles the skill of our most experienced medical men, and which carries off its victims in a few hours, is traced to the absorption of vitiated air into the windpipe, and has been observed to rage with the greatest violence in those quarters situated nearest to cemeteries.”

The most common diseases produced by graveyard gases are diphtheria, throat and pulmonary affections, severe diarrhœa, and dysentery. The number of cases reported is enormous. Many cases have been made public by Drs. Parkes and Tardieu.

Ramazzini (*Maladies des Artisans*, p. 71) asserts that sextons, whose business often compels them to enter places where there are putrefying bodies, are subject to malignant fevers, asphyxia, and suffocating catarrhs.

Fourcroy affirms that there are innumerable examples of the pernicious effects of cadaveric exhalations.

It has been stated that the carbonic acid generated by the decaying bodies is taken up by the plants, shrubbery, and trees abounding in cemeteries and their neighborhood. That excellent and well-edited newspaper *Iron* declares: "The consumption of vegetables whose roots had been nourished by the defunct members of a family would hardly be enjoyed by the survivors, unless, indeed, they possessed the philosophic mind and robust appetite of the French gentleman who declared that, with a certain sauce, '*on mangerait bien son père.*'"

I do not believe that very much carbonic acid is absorbed by the botanical burial-ground decorations; certainly not enough to prevent its toxic action and the vitiation of the air.

Many a time was premature exhumation followed by fatal consequences.

In the church of a village near Nantes, France, the remains of an aristocrat were buried in 1774. By accident some of the other graves were opened, among them one which contained the corpse of a man who had been

buried three months before. An unbearable odor immediately filled the church. Many persons who had attended at this burial were taken sick; fifteen died in a short time, the first to depart being the gravedigger who had opened the graves.

Vicq d'Azyr states that an epidemic was produced in Auvergne, by the opening of an old graveyard.

Norman Chevers (*European Soldiers in India*, p. 404) refers to the unhealthiness of the continent at Sukkur, India. Fevers of the most malignant type were abounding, owing to an ancient Mussulman burial-ground on which the station was placed.

Tardieu, the eminent French physician and scientist, relates (*Dict. d'Hygiene*, p. 517) that the excavation of an old cemetery of a convent in Paris caused illness in the occupants of the adjacent dwellings. Tardieu (*Ibid.*, p. 463) compiled a very considerable number of cases, not only of asphyxia, but of several febrile affections produced by exhumation and disturbance of bodies.

Bascom relates that when the parish church in Minchinhampton, England, was rebuilding in 1843, the black earth of the cemetery surrounding it, or what was superfluous, was disposed of for manure, being spread upon adjoining fields. The earth was removed to change the grade of the churchyard. The result was that an epidemic broke out in the neighborhood. Children on their way to school took it. Seventeen deaths occurred, and more than 200 children had measles, scarlet fever, and various eruptions.

It seems, however, as though the above figures are not quite correct, for Mr. Eassie, who has lately made personal inquiries upon the spot, insists that the mischief

which resulted has been even understated, and that the population was nearly decimated.

Dr. Adalbert Kuettlinger brings forward the sequent case to prove the deleterious action of cemetery gases. A very obese lady died during the month of July, 1854. Previous to death she had requested, as a special favor, that her remains be buried in the church to which she belonged. This was granted and promised her. After her demise she was interred in a vault of the church, and the next day the minister delivered the funeral oration. It was very warm that day; several months before the lady's departure there had been aridity, and not a drop of rain had fallen in a long time. The funeral sermon had been delivered on a Saturday; on the following Sunday the Protestant clergyman preached to an assemblage of nearly 900, who had come to attend the Lord's Supper. The warm weather still continued; many had to leave church during the service to keep from fainting; many swooned away before they could withdraw. In Germany people fast before they communicate. The sermon lasted nearly one hour and one quarter, after which the bread was consecrated and stood uncovered—according to custom—during the ceremony. There were 180 communicants. One quarter of an hour after the solemnity, before they had time to leave the church, more than 60 became ill; some died in severe convulsions; others, who had placed themselves immediately under medical treatment, recovered. The consternation among the whole congregation and citizens was great. There was a general belief that the wine used at the communion had been poisoned. The sexton and some other individuals who assisted at divine service were imprisoned. The next

Sunday the minister delivered a severe sermon, and pointed out several of his parishioners as participants in the conspiracy. This enthusiastic sermon was printed and widely circulated. The prisoners had to endure cruel treatment. They remained incarcerated a whole week, and some, it is said, were tortured; yet they always insisted upon their innocence. The second Sunday from the time of the fatal occurrence, the city authorities ordered that a chalice should stand uncovered on the altar one hour. The time had hardly passed when it was noticed that the wine was covered with thousands of little insects, which, by means of the sunbeams, were traced to the grave of the corpulent lady who had been buried fourteen days before. Four men were commissioned to open the vault and remove the coffin. When they attempted this, two of them died at once, and the others were only saved by the great efforts of the physician in attendance. The accused were liberated, and the city council and clergyman begged their pardon.

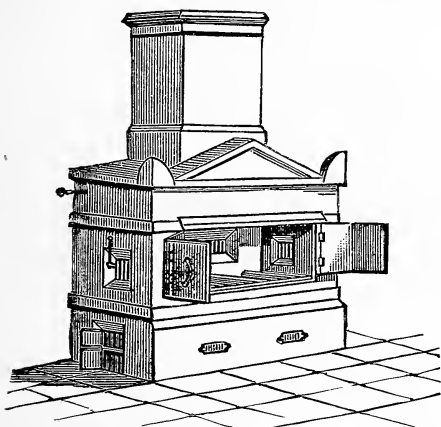
Rev. Dr. Render, in "A Tour through Germany," says:—

"Two of the crew of an American merchant ship went ashore near Canton, to dig a grave to bury a dead shipmate. The spade struck and penetrated a coffin of a man buried a few months before, and the discharge of gas struck down both the sailors, who, though taken back to the ship, died within five days."

I doubt that there is any one who will assert that it is delightful to drink an aqueous solution of one's own grandfather or great-grandmother, yet there are many who do so. The emanations from our ancestors may and do filter through the earth, and get into the water we drink. Think of that!

Wells, springs, and rivers are polluted by the infiltration of water highly charged with organic matter. Often such water has been the cause of fatal disease, yet nothing was done to guard against it.

Prof. Victor C. Vaughan, M.D., Ph.D., of the University of Michigan, in a paper on "Water Supply,"



THE DORCHESTERSHIRE CREMATION FURNACE.

read at a sanitary convention at Ypsilanti, Mich., July 1, 1885, states:—

“To show you the stupidity and recklessness of people, even in this enlightened century, which is manifested concerning the contamination of water, I must mention one other case. There is in the county of Kalamazoo, in this state, a nice little village by the name of Richland. It is situated in a most beautiful farming country. The farmers of that region have grown rich on account of the fertility of the soil and other special advantages. A few years ago the village

board desired to select a new site for a cemetery, and chose one within the village limits, and within 30 rods of a well owned by an old physician, Dr. Patchin. I always tell names in such cases, because they tell the truth, and any one can investigate them. The old doctor objected to the location of the cemetery so near his house and well, and as the result of his objection there was a lawsuit; and if you will pardon me, I will mention something of the condition of the land and some experiments that were made. There were some 18 inches of rich prairie land, then below this some two or three feet of hard-pan, below this there were 18 or 20 feet of gravel, such as we have all through the southern part of Michigan. In digging the graves the bodies would be put into this gravel. The gravel was so loose and so moist that in digging graves it was necessary to put in boxing to prevent the gravel from pouring in while the grave was being dug. Below the gravel, and about 30 feet below the surface, was an impervious bed of clay, with a slope from the cemetery towards the well. It became a question now as to whether there was a possibility of the contamination of this well from burying bodies in the proposed new cemetery. I was called, and after studying the geological formation, concluded that there was a possibility of such contamination. The well was pumped dry twice a day, and on an average fifteen barrels taken from it each pumping. To show how ridiculous some theories are that have been advanced upon that subject, I will state that I was met in court with this statement: that it would be impossible for any of the water or rain falling upon this cemetery, 30 rods distant, to reach the well, because, as was found in some old book, all the water that goes into

a well is that which falls upon a surface which will be enclosed in a circle whose center was the mouth of the well, and whose radius was the depth of the well. This statement was made independent of any lay of the land or the geological formation, and without any consideration whatever of the surrounding country. Fortunately this can be met very easily. Thirty barrels of water were pumped from the well each day. We know the amount of rainfall in Michigan per year, and we can calculate very easily the number of barrels that would fall upon this surface enclosed in a circle whose center was the mouth of the well, and whose radius was the depth of the well; and as the result of such a calculation we find that the amount of rain falling upon this surface during the year would not supply the well more than two or three days. Returning home and detailing the trip to Dr. Langley, he suggested that a direct experiment might be made to see whether matter would pass from the proposed cemetery to the well or not. He tested the water of the well for lithium, a substance easily detected, found it was absent, then had a salt of lithium sown over the proposed cemetery, and then examined the water of the well each day thereafter; and on the eighteenth day after the lithium was sown over the cemetery it was found in the water of the well, showing that the water did unquestionably penetrate the soil, pass down to the impervious bed of clay which was the watershed upon which the water in the well collected, and thence into the well. Notwithstanding proofs so positive as this, a learned judge in Michigan dismissed the case, and allowed the cemetery to be located there, with a possibility of poisoning a number of families. As a result, the families of the

neighborhood had to discontinue the use of their well-water."

Professor Vaughan holds that the popular belief that if water filters for any distance through the soil it is purified, is an erroneous belief, and cites a number of experiments made by himself, and numerous cases, in support of the assertion.

According to Dr. H. B. Baker, secretary of the Michigan State Board of Health (*vide* Report for 1874, p. 136), a terrible epidemic of cerebro-spinal meningitis, that wasted the village of Petersburg in the early part of 1874, was attributable to a spring five paces from a house and 15 paces from a cemetery, which is on ground from 12 to 15 feet higher than the level of the spring. About 18 paces from the spring was a recent grave.

Prof. R. C. Kedzie, of the Michigan State Agricultural College, to whom some of the water was sent for analysis, concluded his report as follows:—

"The presence in these waters of unusual quantities of chlorides, of ammonia, of albuminoid ammonia, of nitrates and nitrites, and finally of phosphates, shows these waters to be very unusual in their composition. We might account for the presence of all these substances if matters very rich in nitrogen and phosphorus, *e.g.*, flesh, were undergoing decomposition in their vicinity, and the results of this decomposition passed directly into this water. The fact that the spring is near and lies below the level of the graveyard, that the well is in the midst of an old Indian graveyard, gives much plausibility to this explanation. The fact that the first person attacked with cerebro-spinal meningitis in Petersburg used the water of this well, and that

others who used the spring water were attacked with the same disease, would very naturally attract very significant attention to the composition of these waters as having some possible connection with the epidemic.”

For several years many residents of Nyack, N.Y., have protested against the encroachment of the Oak Hill Cemetery property upon the thickly populated portions of the village, objections being principally made on sanitary grounds. Examination of the ponds and wells of the village has demonstrated that they are being constantly polluted by the emanations from the cemetery.

Not long ago the *Detroit Evening News* declared that the wells in the neighborhood of Woodmere Cemetery do not catch the rainwater until after it has been filtered through the thousands of graves in the cemetery, filled with decaying bodies, and that no water is obtained in the vicinity which is not discolored and has a brackish taste. After a heavy rain the impurities are most pronounced. The residents of Woodmere have long ago given over the use of water as a beverage. I do not blame them. I would not like to drink fluid extract of dead man myself.

The *New York Staats Zeitung*, a reliable German publication, of May 27, 1886, relates that a lawsuit of North Bergen Township, N.J., against the Weehawken Cemetery Company, was tried the preceding day before Vice-Chancellor Van Fleet, at Newark, N.J. The township demands that for sanitary reasons the cemetery shall be closed at once and no further burials permitted in the same. Several physicians testified to the fact that diphtheria and other infectious diseases are endemic in the township, and that they are due mainly to

the unhygienic state of the cemetery, which lies in the most populated part of the township. One physician gave it as his opinion that numerous cases of diphtheria that appeared among the little pupils of a school was caused by drinking water from a well in the proximity of the cemetery.

In an address on "Public Health, or Sanitary Science," read before the medical society of the state of West Virginia, May 24, 1882, Dr. T. S. Camden says:—

"The Board of Health report for 1879 gives the investigation of an outbreak of diphtheria in Northern Vermont, which occurred in May, 1879. In a school of 22 persons, 16 were prostrated in two days, one-half of whom died. Upon investigation the cause of the outbreak was found to be from the public drinking water from a brook into which had been thrown the carcasses of dead animals. Another outbreak of the disease of great virulence was caused by persons using water that was poisoned by the dead carcass of an animal that had been buried 75 feet distant from a spring. The grass in this instance showed by its luxuriance the trace to the spring. After the germs were once developed in many of these cases by drinking the polluted water, the disease was communicated to other persons far removed from the cause of the primary outbreak. One convalescent patient communicated the disease to six persons. Numerous illustrations of the importance of sanitary regulations are given in these epidemics."

Thus we have illustrations of the origin of diphtheria from putrid animal matter; and, after the germs were implanted in persons, fatal epidemics spread, and many lives were lost that could have been saved by proper hygienic measures.

Dr. Prosper de Pietra Santa, the most enthusiastic French cremationist, and a man who has investigated everything pertaining to incineration thoroughly, calls attention to the example of the villages of Rotondella and Bollita. The burial-grounds of these ill-starred villages were situated on the summit of hills that were beset with woods. They were at the lawful distance, and to all appearances in a most favorable location. Unfortunately, the springs from which the inhabitants were accustomed to derive their water supply emerged from the base of the hills which were surmounted by the woods. These springs were the result of collections of rain-water, which, percolating through the earth of the hills, became impregnated with the organic matter which the ground contained. In the course of time, the drinking-water of these two villages became so contaminated that it caused a frightful epidemic.

Prof. Dr. E. Reichardt, of Jena (*Gesundheit* I, No. 1), published a large number of cases in which drinking-water was polluted by cemetery emanations.

Many cases are on record where water contaminated by graveyard emanations, by poisonous fluids oozing through the soil, has proven harmful to health. Numerous cases of typhoid fever sprung from this source. Contagious diseases can also be communicated in this way. Riecke and Galtie have compiled statistics of cases of typhoid fever and other contagious maladies due to this cause that withstand the severest criticism.

“The rivers die into offensive pools,
And, charged with putrefaction, breathe a gross
And mortal nuisance into all the air.”

Kate Field, the well-known author and lecturer, says :

“These are times that are trying men’s and women’s bodies quite as much as their souls. The zymotic diseases breaking out in what were formerly healthy villages may set even the blindest to seek for causes; and



CREMATION IN THE CASEMATS OF PARIS DURING THE REIGN OF THE COMMUNE.

perhaps the most prejudiced may finally be forced to admit that one great source of water contamination is the existence of multitudinous graveyards contiguous to habitations. In my daily excursions on horseback, which cover about 15 miles, I count seven graveyards

perched on hills, the occupants of the adjacent towns preparing for speedy exit from this world by living below the dead and using well-water. Suggest to them that the prevailing 'malaria' may be due to drinking up the remains of their deceased ancestors, and a howl of 'sacrilege' rends the air."

And in an admirable essay on cremation in the *St. Louis Daily Globe-Democrat* of July 12, 1885, this graceful writer, deservedly noted, states:—

"New England villages, once so free from ills, are taking on the airs of invalids; and it is often a question whether families that remain in big towns during the summer are not better off than their wealthier neighbors, who hie to overcrowded so-called watering places, not unfrequently returning with germs of typhoid fever in their systems, that later breaks forth to their amazement, and for which they are at a loss to account. They forget how they drank well-water, the springs of which percolated through peaceful village graveyards. Man's worst enemies are his own superstition and ignorance.

"I learned by terrible experience when very young the horrors of earth burial. I now know its crime against the living."

Miss Field is not only converted to but convinced of incineration, convinced that it is preferable to any other method; the moment a cremation society was incorporated in New York, she became a member.

Col. R. E. Whitman, U. S. A., remarks: "People who wonder at the change that has come over our New England villages, the homes of a vigorous ancestry, and deplore the advent of this mysterious 'malaria,' the unseen vampire that sucks the red blood of the present

generation, would do well to look about them and see how the graveyards, old and new, have grown in two centuries, how the town has surrounded them; how the water supply is from the same old wells; how the town, never having arrived at a magnitude seeming to demand a sewerage system, allows the refuse of generations to mingle with the surface soil. It would be a theme worthy of the magic pen of Nathaniel Hawthorne. Imagine his description of water percolating through the grave of some despised Lazarus, feeding the well of his life enemy, Dives, and compelling him daily to quaff the poison his own cruel ignorance had distilled."

Undoubtedly many country towns whose cemeteries are in their midst are drinking daily, despite the acknowledged impurity of the water, disease and death. An English writer very pertinently remarks that "if the formation of a deep sewer will suffice to drain dry the wells near its line of march, then the sinking of a well near a burying-ground must help to drain the latter."

Much complaint was at one time made in England, concerning the pollution of wells by cemeteries. In Versailles, France, the water of the wells which lie below the churchyard of St. Louis, could not be used on account of its pollution.

Deep wells have been found to be infected more than 600 feet from the cemeteries. In France and in some parts of Germany, the opening of wells within 300 feet of a cemetery has been prohibited. The reports of the boards of health of Massachusetts and New Jersey give abundant evidence that country graveyards often contaminate the water supply when the wells are on a

lower level. The Michigan reports also contain a description of a case that occurred at Grand Rapids.

A hygienic council held some time ago at Brussels decided that wells could not be safely dug nearer than 400 yards to any graveyard, and that even at that distance absolute protection was not certain.

The constant prevalence of dysentery at Secunderabad, in the Deccan (India), seems to have been partly due to the water which filtered through an extensive burial-ground. One of the sources of water contained, by analysis, according to Dr. Parkes, 119 grains of solids per gallon; and in some instances there were 8, 11, and even 30 grains per gallon, of organic matter.

Sir J. McGrigor partly attributed the fatality of dysentery in the Peninsula, at Ciudad Roderigo, to the use of water percolating through a graveyard in which nearly 20,000 bodies had been hastily inhumed.

Medical Councilor, Dr. Kuechenmeister, who examined the wells of Dresden, Germany, discovered the water to be very impure, especially in the new parts of the city, and in the vicinity of the so-called "French" graves. The same results were arrived at in Zuerich, where it was demonstrated that the typhoid fever epidemic of Auszerbuehl was due to water rendered impure by cadaveric effluvia.

In Philadelphia, three cemeteries, containing 80,000 graves, are so situated as to be liable to drain into the Schuylkill, the drinking-water of 1,000,000 of people. The diarrhoea prevalent during the Centennial Exhibition in the Quaker City is said (by many eminent sanitarians) to have been caused by burial-ground water drunk by strangers unaccustomed to it.

The monumental cemetery at Milan, which is situated

upon a hill some 180 yards to the north of the city, was proved to have been the cause of serious illness in its neighborhood, produced by the contamination of the wells in the vicinity. The water of the well of the Place Garibaldi was analyzed by Professors Parvesi and Rotundi, who found it tainted by organic matter.

The *Atlanta Medical Journal* states that two young ladies who drank water from a spring situated on a hillside, near an old graveyard, became severely ill. One was seized with pyæmia and diarrhœa, the other with typhoid fever; both died. Cattle that drank of the water were also made sick.

Professor Pumpilly has made certain by recent experiments that sandy soil does not prevent bacterial infection from entering a well situated at a considerable distance from cesspools and cemeteries. Indeed, he claims further that "dry gravel and coarse sand do not prevent the entrance into houses built upon them of those micro-organisms which swarm in the ground-air, around leaky cesspools, near graveyards, and in the filthy made land of cities."

Anent the idea that the gases and organic matters which arise from the graves rapidly undergo changes by entering into new combinations when brought into contact with the earth, Dr. John O. Marble, of Worcester, Mass., says:—

"The monstrous delusion that the mere contact of the corpse with fresh earth renders it innocuous, and suffices for safe disinfection, is dissipated by overwhelming evidence. I distinctly remember my boyish scruples concerning the water of a well situated not fifty yards from graves in the churchyard adjoining my father's garden. This old 'God's acre' I have a hundred times

passed, in my timid boyhood, in the shades of night, with palpitating heart, and a pace rivalled only by that of Tam O' Shanter's steed from witch-haunted Kirk Alloway to the 'Keystone' of the 'Brig o' Doon.' My father overcame my scruples concerning the water by stating the belief then held, that the earth was a purifier and a safe depurator, and that no harm could come to that well, 30 feet deep, the pride and unfailing source of supply of the neighborhood. Yet I, that same autumn, suffered a severe and nearly fatal attack of typhoid fever, and another member of the family was similarly affected a year later. The fever occurred when the well was low, and I have no doubt, in the light of present knowledge of such dangers, that, repulsive as is the thought, I drank water filtered through the bones of my revered ancestors buried there, and that the polluted water caused that illness. To those who criticise the advocates of cremation for quoting ancient examples only, of harm from graves, this instance will appear sufficiently recent and intimate."

Opponents of incineration, who lay great stress upon the disinfecting powers of the earth, forget that the soil is easily saturated by the emanations from the dead. Professor Presscott, of the University of Michigan, says in regard to this matter:—

"The purifying power of ground, like that of the air above it, is limited and easily overcharged. If ground-air be loaded with more putrescent vapor than it can oxidize, then poison is carried through the porous earth."

Dr. William Porter, of St. Louis, Mo., has recorded the following case:—

"A young man died suddenly from diphtheria, and was buried in the village churchyard. At some little

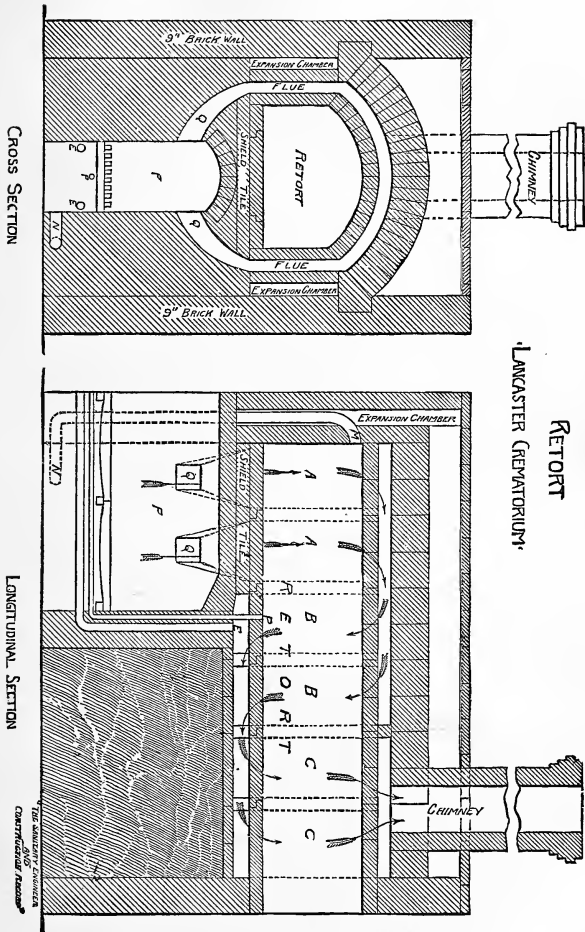
distance was a well, from which the good church-goers drank freely each Sunday. Finally the water of the well became foetid, for the supply was infiltrated by the horrible decomposition from this, the nearest grave. Was it not suggestive that 20 from that congregation died from diphtheria while this impure well was in use? These people lived in mountain homes, in a pure atmosphere, and though many of these cases were isolated, — far removed from others, — yet in all the disease was alike virulent and deadly.”

Churchyard emanations can penetrate almost anything; they have a remarkable force. The chairman and superintendent of sewers of Holborn and Finsbury division, London, claimed that putrid matter from cemeteries over 30 feet distant had penetrated the cement and brick of his drain.

Several years ago, when Mr. Holland, the English government inspector of burial-grounds, investigated the state of Tooting Cemetery, it transpired that the drainage provided for the burial-ground was insufficient; there was merely a system of surface drainage. In one case (admitted by the cemetery board) a coffin was placed in a grave that contained enough water to cover the head of it. The entire drainage of the burial-ground was conducted into a ditch near by, which ended in the river Wandle, from which the inhabitants obtained their drinking-water.

Lefort (in a monograph to the Paris Academy of Sciences) points to the possibility of well-contamination by neighboring cemeteries. In one instance he detected, by chemical analysis, that a well was polluted by a burial-ground 50 metres distant.

The Parisian scientist M. Duchamp detected a spring



that percolated entirely through graveyards, picking up organic matter on the way, and that tasted very strongly.

Not a few analyses of water tainted by graveyard emanations testify to the fact that it is harmful, nay, that it is extremely dangerous, to those who consume it. Nor is the danger always apparent. In 1874 the Broad Street pump at London, England, carried cholera to those who drank its water; yet the latter looked clean, had no perceptible taste, and was odorless.

“ The very witching time of night
When graveyards yawn, and hell itself breathes out
Contagion on this world.”

— SHAKESPEARE.

To the question, “Can an epidemic of any kind be caused by graveyard emanations?” there is but one reply; the facts on record compel us to answer in the affirmative.

Dr. Buck, in his excellent work on Hygiene, writes: “It is impossible for any one to say how long the *materies morbi* may continue to live underground. If organic matter can be boiled and frozen without losing its vitality, and seeds 3000 years old will sprout when planted, it would be hardihood to assert that the poison of cholera, or small-pox, or typhus may not for years lie dormant, but not dead, in the moist temperature of the grave.”

Dr. Wheelhouse, of Leeds, England, says: “Do we not shun, and that most wisely, the presence of those afflicted with infectious diseases as long as they remain amongst us; and yet, no sooner are they removed by death than we are content, with tender sympathy indeed, and most loving care, it is true (but with how much wisdom?) to lay them in the ground, that they

may slowly dissipate their terribly infectious gases through the soil, and saturating that, may thereby recharge the rains of heaven as they filter through it, with all their virulence and terrible power of reproduction in the systems of the living. I am not the thorough and entire believer in the disinfecting and depurating power of the soil that I once was, for terrible examples of its failure have, in my judgment, come under my notice."

Often the site of an old grave is used to make a new one, and in consequence earth is brought to light that is saturated with the effluvia of corpses of those who, perhaps, have died of some contagious or infectious disease. The crime that is committed by individuals when they bury persons deceased of such maladies is pithily expressed by that champion of modern cremation, Sir Henry Thompson, who says: "Is it not indeed a social sin of no small magnitude to sow the seeds of disease and death broadcast, caring only to be certain that they cannot do much harm to our own generation?" But such is selfish human nature!

The first to show the connection between epidemics and the process of decomposition was Professor Pettenkofer, of Munich, Bavaria. He demonstrated that the presence of putrefying organic bodies, air, moisture, and warmth, in a porous soil, are the potent factors which originate and develop pestilential germs.

The great mortality, the severity, that attended in former times the appearance of epidemics in cities where graveyards were situated in the center of a large population, illustrates the deadly influence which these "God's acres" have.

Saint Augustine pointed to the fact that epidemics are caused by decomposing organic bodies.

Forestus reported many cases of malignant fever caused by the emanations of cadavers.

Ambrose Paré, the renowned French surgeon, in 1562 demonstrated that a malignant (pestilential) fever, then raging in L'Aginois, was due to the putrid vapors arising from a neighboring well into which many dead bodies, soldiers fallen in battle, had been thrown.

Raulin (*Observ. de Med.*) relates how the section of a corpse at Leicturm, in the plain of Armagnac, caused a frightful epidemic.

A terrible pestilence, which decimated especially the lower classes, was originated in Riorno (Auvergne) by the digging up of the ground of an old cemetery, done to beautify the city.

Jean Wolf, who reported upon an epidemic of malignant fever in 1731, attributed it to putrefying animal remains.

In 1752 a man who had died of small-pox 30 years ago was dug up in Chelwood, a village near London, England. He had been buried in an oaken coffin which, when taken up, was yet entire and could have been so removed from the grave. But because the grave-digger could not handle it properly he got impatient and beat in the cover of the casket with his spade, whereupon immediately a mephitic smell arose that filled the air to some distance. The corpse, which was to be deposited in a vault, had been a person of consequence, and therefore not only the inhabitants of his native village attended the exhumation, but a good many people from neighboring places. But a few days after 14

persons contracted small-pox, and within a short time the entire village was infected, only two individuals enjoying immunity because they had had the disease. Although the epidemic was of a light character, two persons died of it. All those in the surrounding villages who had been at the exhumation were also attacked by small-pox.

Riecke adduces analogous cases, and relates that the opening of a vault which contained a victim of small-pox was followed by the death of a workman and the infection of another person.

Maret is authority for the following statement: A fever, complicated by gastric and catarrhal disorders, was prevalent in 1773 at Saulieu, Burgundy; but few of those it attacked died. This was in the latter part of February. On the 3d of March, a corpulent body, a victim of the disease, was buried in the cathedral, and on the 20th of April following, very near to the first, that of a woman who, in child-bed, had succumbed to the fever. Maret reports that when the coffin was lowered into the vault, the ropes slipped from the grasp of the men who held them; the coffin fell to the ground and broke; a putrid fluid, that filled the church with a most nauseating odor, oozed from it. Of 170 persons who remained in the church from the time that the grave was opened until the conclusion of the ceremony, 149 were attacked by a malignant putrid fever, which, bearing many of the characteristics of the prevalent fever, was undoubtedly the result of the vitiation of the church.

The city of Tacna, Peru, was yearly visited at certain times by a pernicious fever, which caused many deaths. The cemetery was in the center of the city. Finally,

the dead were buried outside of the city limits, and the fever disappeared.

During the month of March, 1781, and the half-year preceding it, an epidemic raged at Pasajes, Spain, which befell 127 persons, of which number 83 died. This epidemic was attributed to the poisonous vapors arising from the overcrowded vaults of the parish church.

Trousseau mentions the case of a grave-digger who was attacked by small-pox soon after opening the grave of an individual who had died of that malady many years ago.

Mr. Cooper charged an outbreak of small-pox in Eyam, Derbyshire, Eng., to the excavation of an old cemetery.

A dispatch from Montreal, dated Oct. 26, 1885, states that a grave-digger of St. Sulpice, named Robitaille, made a grave next to where a man who died from small-pox a month ago was buried. At the time there was no small-pox in the village; but Robitaille, some days after digging the grave, sickened and finally died of small-pox, making it evident that he contracted the disease from the body of a man who had been buried for a month.

Recent scientific discoveries confirm the opinion long held by persons endowed with common sense that the germs of many infectious and contagious diseases retain their vitality and the power to spread the respective malady in the grave and the layers of earth surrounding it. By means of these germs, yellow fever, cholera, small-pox, splenic fever, scarlet fever, diphtheria, and other diseases belonging to the same category, can be communicated from the dead to the living, even years after burial. Concerning splenic fever, which can be

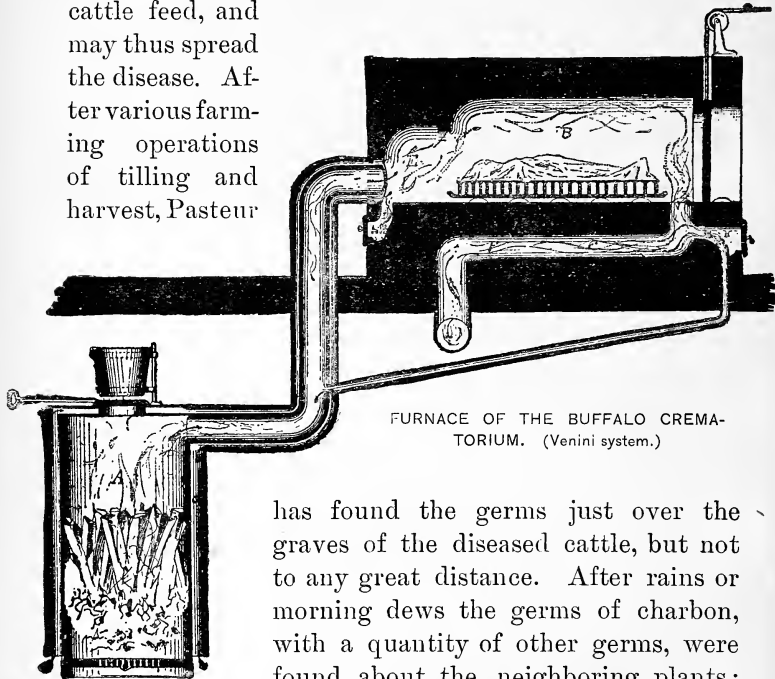
transmitted from animal to man, the great French investigator and pathologist, Louis Pasteur, says:—

“Recently, we discovered the characteristic germs in pits in which animals dead of splenic fever (charbon) had been buried for 12 years; and their culture was as virulent as that from the blood of an animal recently dead. Anthracoid germs in the earth of pits in which animals have been buried are brought to the surface by earthworms; and in this fact we may find the whole etiology of the disease, inasmuch as the animals swallow these germs with their food.”

The *British Medical Journal* in 1880 commented on Pasteur's great discovery as follows:—

“Pasteur's recent researches on the etiology of ‘charbon’ shows that this earth-mould positively contains the specific germs which propagate the disease, and that the same specific germs are found within the intestines of the worms. The parasitic organism, or *bacteridium*, which, inoculated from a diseased to a healthy animal, propagates the specific disease, may be destroyed by putrefaction after burial. But before this process has been completed, germs or spores may have been formed which will resist the putrefactive process for many years, and lie in a condition of latent life, like a grain of corn, or any flower-seed, ready to germinate and communicate the specific disease. In a field in the Jura, where a diseased cow had been buried two years before at a depth of nearly seven feet, the surface earth not having been disturbed in the interval, Pasteur found that the mould contained germs which, introduced by inoculation into a guinea-pig, produced charbon and death. Further, if a worm be taken from an infected spot, the earth in the alimentary canal of the

worm contains these spores or germs of charbon, which, inoculated, propagate the disease; and the mould deposited on the surface by the worm, when dried into dust, is blown over the grass and plants on which the cattle feed, and may thus spread the disease. After various farming operations of tilling and harvest, Pasteur



FURNACE OF THE BUFFALO CREMATOR-
TORIUM. (Venini system.)

has found the germs just over the graves of the diseased cattle, but not to any great distance. After rains or morning dews the germs of charbon, with a quantity of other germs, were found about the neighboring plants; and Pasteur says that in cemeteries it is very possible that germs capable of propagating specific diseases of different kinds quite harmless to the earthworm may be carried to the surface of the soil, ready to cause disease in the proper animals. The practical inferences in favor of cremation are so strong that, in Pasteur's words, they 'need not be enforced.'"

Sir T. Spencer Wells pointed out, in his paper read

before the British Medical Association, in August, 1880, that the observations of Darwin, "on the formation of mould," made more than 40 years ago, when he was a young man, are curiously confirmatory of the conclusions of Pasteur. In Darwin's paper, read at the Geological Society of London, in 1837, he proved that, in old pasture-land, every particle of the superficial layer of earth, overlying different kinds of subsoil, has passed through the intestines of earthworms. The worms swallowed earthy matter, and, after separating the digestible or serviceable portion, they eject the remainder in little coils or heaps at the mouths of their burrows. In dry weather the worm descends to a considerable depth, and brings up to the surface the particles which it ejects. This agency of earthworms is not so trivial as it might appear. By observation in different fields, Mr. Darwin proved, in one case, that a depth of more than three inches of this worm-mould had been accumulated in 15 years; and, in another, that the earthworms had covered a bed of marl with their mould, in 18 years, to an average depth of 13 inches.

Professor Klebs, of Prague, Bohemia, discovered the bacteria of malarial fever. They were called by him *bacilli malarie*. His discovery was verified by Prof. Tomassi Crudelli, of Rome, Italy.

Dr. Robert Koch, of the Imperial Sanitary Bureau at Berlin, Germany, detected the *bacillus tuberculosis*; there is no doubt, to my mind, but that consumption can possibly be spread by the upturning of the soil of a grave containing the victim of tuberculosis.

The same gentleman, now professor in Berlin University, discovered the *comma bacillus* of cholera. He

expressed his belief in its propagation in the grave, especially when the latter is moist.

Houlier and Feruel are responsible for the statement that, during the prevalence of the plague in Paris in the beginning of the 18th century, the disease lingered longest and was the most severe in the vicinity of the "cimetière de la Trinité."

The Detroit *Evening News*, of Sept. 23, 1886, reports the following case in which diphtheria was contracted from a corpse:—

"Blanche Hunt, a 12-year old girl, died at Albion of malignant diphtheria last week. Sophie Calkins, aged 13, died at Fair Haven, Vt., of the same disease, contracted the week before at Albion. There are no other cases in town, and these two girls are supposed to have taken the disease at the cemetery, where they went into the vault containing the remains of a woman sent there from abroad, who had died from what the physicians called black jaundice. It is believed her disease was really diphtheria."

As early as 1878, the Massachusetts State Board of Health—one of the best in the world—showed that diphtheria is originated and diffused by the emanations of victims of that disease.

In 1875 the same high authority had reached similar conclusions regarding typhoid fever.

There is much evidence to show that cholera was repeatedly caused by the excavation of the graves of those who had died of the disease, and that it raged with special violence in the vicinity of cemeteries.

Dr. Sutherland attested the fact that cholera was unusually prevalent in the immediate neighborhood of London graveyards. This, however, need not astonish

us, when we consider that the soil of churchyards in some of the poorer districts in London was raised two, three, or even four feet in a few years. The great prevalence of epidemic diseases in some parts of the city finally led to the formation of the Epidemiological Society of London, under the presidency of Dr. Babington.

When the cholera visited London in 1854, Mr. Simon asserted that if the soil of the cemeteries in which the plague-stricken of 1665 were buried would be upturned, it would make the prevailing scourge more virulent. It was done in spite of his warning, and his prediction was verified.

In 1826, when cholera made its appearance in Egypt, the French government sent out medical officers to discover, if possible, its origin. It was traced to an old and disused cemetery at Kelioub, a village near Cairo.

The outbreak of cholera at Modena, Italy, in 1828, was shown by Professor Bianchi to be due to the upturning of the ground of burial-yards in which victims of the plague had been inhumed 300 years before.

Nov. 12, 1836, Miaulis, the adjutant of Otto the First, of Greece, was attacked by cholera, of which he finally died. The body was given in charge of three men, who also assisted at the post-mortem examination. On the third day after the funeral of the adjutant, one of the men, Jacob Kuehnlein, 72 years of age, was taken ill, and died the following day. The autopsy proved the disease to be Asiatic cholera. Three days after Kuehnlein's burial, the second of the men who had guarded Miaulis' remains, J. Stroehlein by name, aged 48, was stricken down by the cholera, to which he succumbed within two days.

Schauenburg (Cholera, etc., Wuerzburg, 1874, p. 8) gives it as his opinion that decomposition is favorable to the development of cholera germs, which means the propagation of the *comma bacillus*.

The Italians do not only stand at the head of the cremation movement to-day, but they recognized the value of that sure and never-failing germicide — fire — as early as 1837; in that year thousands of the victims of the cholera epidemic, then raging in Italy, were burned on the seashore at Palermo.

The report of the London Board of Health for 1849 directs attention to the fact that the cholera was especially prevalent and fatal in the neighborhood of graveyards. This, however, need not cause any surprise, as the *London Athenæum*, to this day one of the most reliable journals of the United Kingdom, states in 1850 that, during the prevalence of the scourge, 500 bodies, dead of cholera, were daily interred, in addition to those of other diseases.

Professor Jaccoud, of the faculty of medicine of the University of Paris, claims, in his "Pathologie Interne," that there are three ways of transmission of cholera, of which the third is by corpses.

An employée of the French marine hospital at Therapia, near Constantinople, was present at the autopsy of Marshal Saint Armand, who had died of cholera, which was held in the amphitheatre of the institution. A few days after the man succumbed to a severe attack of *de choléra foudroyant*, which he had contracted at the post-mortem examination.

Dr. F. Bidlot, of Liege, Belgium, states that, in 1867, he was called to a robust cholera patient who, when asked about the cause of his illness, said that until

noon he had worked at the grave of a person, dead of cholera, who had been buried very superficially, since an exhumation was to take place: when the body was disinterred, he was seized by an illness which soon proved to be cholera.

The following case was also reported by Dr. Bidlot. A nun who had nursed cholera patients in a hospital died of the dread disease in the summer of 1860. At 10 A.M. in the latter part of October she was exhumed. At four o'clock in the forenoon of the same day Dr. Bidlot was called to Dr. Romi e, who had attended the disinterment. He was found to be suffering from cholera, and declared that his illness was owing to his exposure to the emanations of the body dug up.

Trinity Church graveyard, at New York, was the center of very fatal prevalence of cholera at every visit of that pest from 1832 to 1854.

Dr. Rauch relates (*Intra-Mural Interments in Populous Cities, Chicago, 1868*) how the cholera was spread in Burlington, Ia., in 1850. Not a single death took place in the vicinity of the cemetery of the city, until 20 persons, deceased of cholera, had been interred therein; then one case after another occurred, till the epidemic became truly alarming.

In 1865, when a cholera epidemic invaded Paris, France, it raged with great virulence in the old quarter of Montmartre; in that part of the metropolis there was a vast burial-ground, from which toxic vapors were continually escaping. Of 5000 victims of the epidemic, 1800 belonged to this ancient community. The great mortality in this quarter of the city was no doubt due to the presence of the over-crowded cemetery.

Dr. John Murray, inspector-general of hospitals in

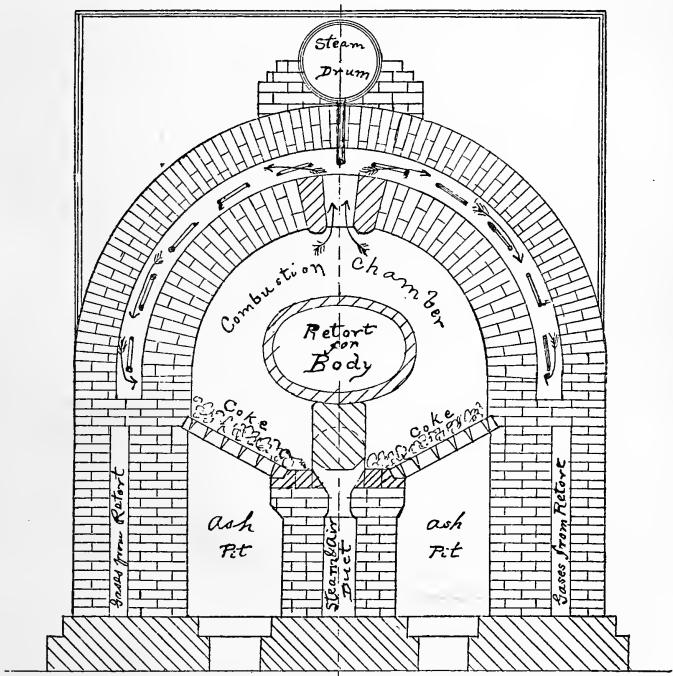
Bengal, India, wrote a book, in which he endeavored to determine whether or not cholera can be propagated by human remains. He declares emphatically (*Propagation of Cholera*, 1873, p. 216), that the body of a cholera patient, dead or alive, must be regarded as an agent of transmission of the disease; and adduces the sequent facts to prove his assertion. Several women, whose business it was to lay out corpses, had contracted cholera. In 1818 a man died of the dread disease; five fellow-men, who carried his body to the last resting-place, were taken down with cholera, and died in the night after the burial. Dr. Townsend reported that, in 1869, three men were commissioned by the police to carry a corpse to Dumwahi. The day following their arrival the cholera appeared in this city, and the first to die of the scourge were the three who had borne the corpse.

Cholera from time to time threatens to invade our peaceful land. When it comes, shall we, in view of what has just been shown, bury its victims, saturate the earth with its specific germs, which, if the grave should ever be disturbed, may breed a terrible pestilence, if not during our lifetime, yet surely during that of our descendants? There can be but one answer: To secure ourselves against a repetition of epidemics, we must burn our dead; it is a duty that cannot be evaded, that we owe to all mankind, that, when sinned against, as it has been in the past, is revenged by the resulting visitation.

When the cases above related are taken into consideration, even the most vehement anti-cremationist cannot deny that the specific germs of infectious and contagious diseases are propagated by earth-burial, and that the only sure medium for their destruction is fire,

for no disease germ can pass through the rosy heat of the crematory and survive to propagate its species.

The scientific world was lately startled by the glad-some news that Dr. Domingo Freire, a physician of Rio de Janeiro, Brazil, had discovered the peculiar



FURNACE OF THE CINCINNATI CREMATORIUM. (Designed by M. R. Conway.)

microbe of yellow fever. The blood of yellow fever patients swarms with these microbes (*cryptococci*), which, by inoculation, produce the disease in animals. Dr. Freire named the microbe *cryptococcus xanthogenicus*. He was aided in his labors, to detect the specific germ

of yellow fever, which included microscopic and spectroscopic examinations as well as experiments on animals, by his able assistant, Señor Menezes Doria.

Dr. Freire also examined some soil from the cemetery of Jurujuba, where victims of the yellow jack (as we call this fever sometimes) lie interred. Some of this earth was dried and then placed in a cage which contained a guinea pig. Previously to the introduction of the earth, the blood of the animal was examined microscopically, and found to contain no bacteria of any kind. The animal became ill, and died within five days. When its tissues were examined after death, they were found to present all the characteristic changes which yellow fever brings about. The blood was full of *cryptococci xanthogenici* in various degrees of development. The urine was highly albuminous. The brain and the intestines were stained yellow by the infiltration of the coloring matter of the *cryptococci*. After this discovery, the doctor recommended that all victims of yellow fever be destroyed by fire, to prevent general infection. The Brazilian government (one of the most enlightened in the world) immediately ordered that a cremation furnace be built at Jurujuba, in which all those that die of yellow fever there must be incinerated.

The *St. Louis Medical and Surgical Journal* makes this very sensible suggestion regarding the disposition of the remains of those dying of yellow fever in our own United States. It says:—

“From what we have learned from private sources, the resurrection of the bodies, during the winter months, of those who died of yellow fever, has done much to perpetuate this terrible disease in southern cities, until

the warm weather has set in. Cremation obviates all possible harm that can come from the dead, and duty to the living demands that everything be done to destroy the possibility of propagating this and all contagious diseases that run so malignant a course."

Dr. J. F. A. Adams says: —

"Dr. Joseph Akerly expressed the belief that Trinity Churchyard had been an active cause of the yellow fever in New York in 1822, aggravating the malignity of the epidemic in its vicinity. This church was built in 1698, and the ground had been receiving the dead for 124 years. Sometimes bodies were buried only 18 inches below the surface, and it was impossible to dig without disturbing the remains. During the Revolutionary War, this burial-ground had emitted pestilential odors, and in 1781 Hessian soldiers were employed to cover the ground with a layer of earth two or three feet in depth. The ground was unusually offensive in 1782, and annoyed passengers on the surrounding streets previous to the appearance of the yellow fever in July. During the epidemic, the condition of this churchyard, and the virulence of the disease in its vicinity, called for some active measures, and on the night of Sept. 22 Dr. Roosa covered the ground with 52 casks of quicklime, the stench being at the time so excessive as to cause several laborers to vomit. On the 25th and 26th of the same month St. Paul's Churchyard, and the vaults of the North Dutch Church in William Street, received the same treatment, these being likewise very offensive and foci of epidemics."

When the yellow fever raged in New Orleans in 1853, the death-rate in the Fourth District (in which there

were three large burial-grounds) was 452 per 1000 of the population.

Dr. Bryant, writing on yellow fever at Norfolk in 1855, regards cemeteries as a constant source of danger in an epidemic, and urges the total forbidding of intramural or even near-by suburban cemeteries.

Sir Spencer Wells related a fact recently at a meeting of the Health Exhibition in London, England, which has a strong bearing on the source of epidemics and their annihilation by cremation. Some persons who had died of scarlet fever were interred in a country graveyard. Thirty years afterward the cemetery was included in a neighboring garden, and the old graves dug up. Scarlet fever forthwith broke out in the rectory and parish, and no other probable source having been discovered, it is impossible to avoid the inference that the germs of scarlatinal infection can retain their vitality a third of a century.

In epidemics individuals should be forced to allow their dead (unless they succumb to some disease other than the prevailing scourge) to be cremated. To stamp out a contagious or infectious malady, or to arrest its progress, incineration must be made general; its benefits are *nil* when confined to isolated cases. The individual must stand back when the public health is in jeopardy.

Governments should not allow bodies to be introduced into their respective countries from an infected land, unless such bodies have been previously reduced to ashes.

Thousands of cases of malignant sickness, I have no doubt, could be prevented by the prompt introduction of cremation. Why not, then, introduce it? Simply

because there is an unreasonable prejudice against the custom? It is ridiculous! Should any mere prejudice stand in the way of a sanitary reform? I leave it to any sound mind to decide the question. I am not advocating obligatory incineration in times of peace except in cases of infectious and contagious disease. I would rejoice to see it generally introduced, but not by force. Cremation, moreover, needs not the aid of the sword or law; it will find its way unassisted.

Besides human and animal remains, I think all garbage should be destroyed by fire.

The idea of cremation which, carried by the wings of enthusiasm, traversed the whole civilized world in the spring of 1874, is really naught but a demand of hygiene in favor of our own health. Not only physicians, but also laymen, should enter the arena where the great fight between earth-burial and cremation is going on, and combat for glorious incineration.

The International Medical Congress which convened at Florence, Italy, in 1869 examined into the various methods of burial, and concluded by expressing its belief that cremation was necessary, and should be adopted in the interest of civilization and public health.

Dr. C. W. Purdy, of Chicago, Ill., says: "Burial-grounds are unquestionably ruinous to health, as both theory and facts amply demonstrate; many sections of population suffer annually disease and death which are exposed to their influences; all engaged in this unwholesome system suffer — the grave-diggers, the gardeners, the men who repair the vaults and tombstones, the friends who visit the graves, and the whole funeral procession are exposed directly. There is no redeeming

feature about this burial system, degrading to the dead and dangerous to the living.”

The celebrated medical author, Moleschott, even more vehemently condemns cemeteries. He claims that they emit a vapor which causes malignant fevers, and concludes his remarks by calling them “workshops and factories of the devil.”

Beyond a doubt, cremation soonest places the bodies of the dead in a condition where they can do the least harm to the living. Incineration destroys all disease germs and at once removes all possibility of the contamination of air and water by the dead.

Then why not introduce cremation and do away with all the evils described in this chapter? It is of no consequence to the dead, whether they rot in the earth and originate miasma, or are transformed by fire into pure white ashes. They feel as little of the process of decay as they do of the flame; their eye is surrounded by the same darkness, whether they are down in the deep grave or in the glowing light of the crematory furnace. But it is of the greatest consequence to us, the living; and the only way to protect ourselves from poisonous infection by our dead is to burn them.

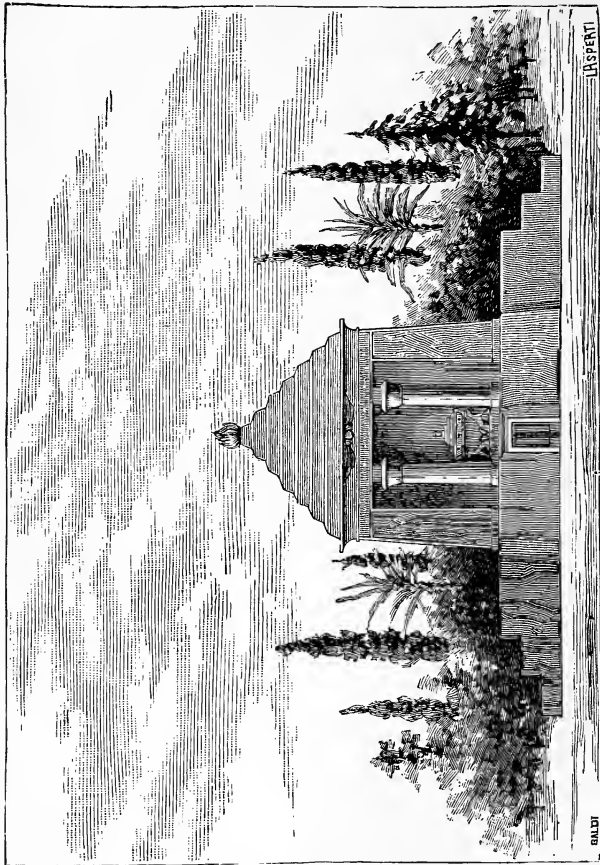
CHAPTER III.

CREMATION IN TIMES OF WAR.

AFTER a battle is over, the field of carnage is covered with the dead. I think it cannot be questioned that these are disposed of in a very careless manner in time of war; not only those who have been killed during an engagement, but also those who succumb to disease. After a great combat the slain are usually hastily interred in large trenches, in which they are arranged in tiers, or piled pell-mell upon each other, whereupon they are left to decompose. That no more calamity and sickness results from such a mode of burial, than is usually the case, is due, I believe, principally to the fact that great battles are generally fought on fields far from the habitations of man.

War, God knows, is bad enough, but far worse are the diseases that follow in its wake. The dead on the "field of honor," which is soon naught but a vast cemetery, are, as I have said above, inhumed as rapidly as possible. There is no time to lose. Hurriedly thousands of fallen braves are thrown into large pits, and barely covered with earth. The comrades who have rendered them this last service move onward to bury others, and leave them to vitiate the air and to form a terrible herd of infection. Thus it is that a country which has already been devastated by war is again brought to the verge of despair by the appearance of

typhus fever, dysentery, and other equally serious maladies. Unfortunately, these diseases do not confine



THE CREMATORIUM AT ROME.
(From Dr. Pini's Work.)

themselves to the country in which the war has been waged, but also invade the lands of the peaceful neighbors.

There is much evidence to prove that what I say is true. Immediately after the defeat of Darius, Alexander the Great was advised by the sage Aristoteles to leave Arbela, to secure himself and his army from the pestilential emanations of the dead.

When Syracuse was besieged by Haunibal, he decided to wound the feelings of the Syracusans by desecrating their dead, who had been buried, as was the custom in most ancient cities, outside of the city gates. He ordered his troops to dig up the ill-fated corpses, cut them to pieces, and strew them all over the field of battle, in full sight of their horror-stricken relatives and friends. But this barbarous act was followed by deserved punishment. Pestilence decimated the beleaguers, and scores upon scores of the soldiers fell victims to the fatal power that arose, slow but sure, from the outraged dead.

Lucan has furnished us with an account of the terrible scourge that befell the army of Pompey at Durazzo, because it had neglected to bury the cadavers of the horses killed in the battle. For the same reason the camp of Constantine the Great was once devastated by the plague.

Mr. William Eassie, the honorary secretary of the Cremation Society of England, states (*vide* his "Cremation of the Dead," page 19):—

"With the ancient Athenians, when soldiers fell in battle, it was the custom to collect them into tents, where they lay for a few days, to ensure recognition. Each tribe then conveyed their dead in cypress shells to the ceramicos, or places of public burning, an empty hearse following behind, in memory of the missing."

The first epidemic of spotted fever on record occurred

in Spain, in 1490, and was due to the emanations arising from the decaying bodies which had been left unburied on the battle-ground.

In 1796 (according to Desgenettes), a military surgeon by the name of Vaidy supervised the burial of the soldiers and horses that had been killed in a combat near Nuremberg. While the work was in progress, he was attacked by colic and nausea, and afterwards suffered for several days from a severe dysentery. His horse, after having been tortured by severe abdominal pains, died on the evening of the day when he was taken sick. Persons who were with Vaidy complained of the same symptoms as he.

During the campaign in Russia in 1812 many of the French soldiers who perished in the disastrous retreat were burned by the enemy.

After the battle of Waterloo 4000 bodies were reduced to ashes on funeral piles of resinous wood on the field of carnage.

The ravages of the typhus fever in the armies battling during the Crimean War are yet well remembered, and were too great to be easily forgotten.

An eye-witness (Trusen) of the siege of Sebastopol reported at the time that: "Those who were but lately our brave soldiers have become greater enemies of their successors in arms than the Russians themselves. Barely, and sometimes not at all, covered by earth, their bodies emit a pestilential miasma, which kills far better than powder and bullet, and is more reliable than a gun. A bishop has been sent out to consecrate the trenches in which the dead are piled up, yet the infection will resist consecration and holy water. Unfortunately, the danger does not come from our own troops alone. The

wind carries the emanations of the Russian dead into our intrenchments. We besiege Sebastopol, but pestilence besieges us. The same Frenchmen who came to our rescue with their sabres now poison us by their putrefaction. Animal remains also vitiate the air. The cadaver of the noble battle-horse that carried its rider bravely through the day of Balaklava now lies in the road, and threatens the victorious dragoon who rode upon it with an inevitable fate. Burial-ground and camp adjoin each other. Where the soldier fought and fell is his grave, which is seldom far from the tents of the surviving.”

During the expedition to Morea, the French made intrenchments in a cemetery outside of Patras. All those who were ordered into the trenches experienced first malarial symptoms, and were finally attacked by typhoid fever.

The cholera mowed down more soldiers in the war between Austria and Prussia, in 1866, than the missiles of either army.

The Franco-Prussian War of 1870-71 was accompanied by dysentery and typhus fever. After the battle of Gravelotte the German troops had to camp for weeks upon the graves of their comrades, subjected all the time to the most dangerous effluvia from the slain. The bodies of those that fell at Metz were in many instances dug up by the Germans and re-interred; since the hasty and superficial way in which they had been buried in the first place caused contamination of the water-courses near by, and pollution of the air.

The evils of earth burial were especially apparent in besieged forts, for instance in Metz and Paris, 1870-71.

The communists at Paris evaded the evils of inhumation by burning their dead in the casemates.

On July 14, 1877, during the war between Turkey and Russia, General Tergankassoff informed his government at St. Petersburg, by despatch, that the air in and about Bayazid was so contaminated by the decomposition of the dead, that it would not only be unwise, but also dangerous, to prolong the stay of the troops there.

On August 24 of the same year, the naval correspondent of the London *Times* stated that thousands of soldiers who fell in the Shipka Pass were so superficially inhumed that relics of the dead, such as arms and knees, protruded from the earth-heaps.

On the 14th of September following, the correspondent of the London *Daily Telegraph* declared that the stench of the villages around Hasankioe were unendurable; that the retreating invaders had cut off the water-supply by filling up the wells with corpses; and that in consequence the water had to be brought from a great distance. And on the seventeenth of the same month, the *Times* correspondent reported that fever had broken out at Kezanlik; and that, within 600 yards of his tent, some hundreds of uninhumed dead could be seen, relics of the battle which took place some weeks previously. In order to lessen the danger, the couriers passing along the Yemi Saghra road had actually to ride with camphor in their mouths. This state of things is not only deplorable, but pre-eminently shameful.

It is plain from the above that interment *en masse*, as it is practiced during war at the present time, is very unsatisfactory, and often leads to disastrous conse-

quences. Unfortunately, burial in single graves is impossible, for several reasons. In the first place, it would take up too much time; secondly, too much room; and, thirdly, it would remove too many men from the ranks of the combatants. Nothing remains to us, therefore, but to look about us for some other mode of disposing of the dead. The list of methods from which we may select one is not very large. Various schemes have been proposed. One erratic genius actually proposed to blow up the victims of human strife with dynamite. Of all the ways of disposing of the slain, none is so good and advantageous as cremation. History records many instances in which cremation was made use of to destroy the dead after a battle.

Mr. Wm. Eassie reports: "During the wars between the English and the Burgundians and the French,—the latter led by Joan of Arc,—the dead were on one occasion piled up outside the city of Paris, and consumed in one huge pyre."

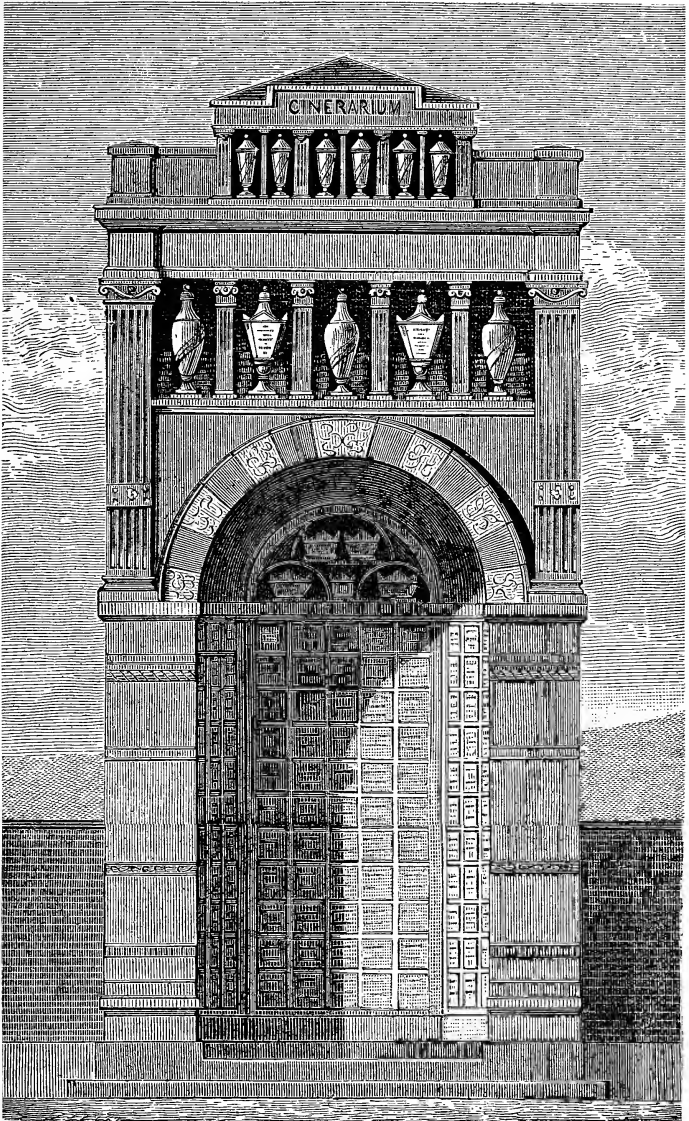
Twelve days after the battle of Paris, on the 30th of March, 1814, 4000 horses, killed during the combat, were burnt by the Germans in the environs of Paris, — the woods of Montfaucon.

In the battle at Rivas, Nicaragua, on the 28th of June, 1855, between government troops and Walker's Filibusters, the latter lost their commander, 12 officers, and 100 men, all of whom were cremated.

Many dead were reduced to ashes by the Carlists, after the battle of Cuenca.

More than 40,000 human and animal remains had been inhumed in a very superficial manner after the battle of Sedan, during the late Franco-Prussian War. In consequence, the Belgian villages in the neighbor-

hood were visited by epidemics and infectious diseases. The Belgian government was petitioned to remove the evil. It despatched Colonel Creteur to examine into the grievances, and, if possible, remove them. One's hair stands on end when one reads the report of the colonel on the condition of the Sedan battle-field. The only way to remedy the evil was to destroy the dangerous cadavers by cremation, which was a difficult task, under the circumstances, but which was nevertheless accomplished by the ingenious Creteur. The colonel's report is full of horrible facts. The bodies of German soldiers in a trench at Laid-Trou were covered so little by earth that carnivorous animals had already devoured part of the hands and faces. Rain-water had caused 30 large pits, containing the remains of Bavarians, to cave in, and had laid bare the bodies. Between Belan and Bazailles, the owners of a field had leveled the elevation of a Bavarian grave. Relics of the dead protruded from the ground. The bodies were covered only by a thin layer of earth, in which corn flourished luxuriantly. Wild bears, foxes, and dogs, relishing the human flesh, helped to scratch away the soil over the remains, as did the numerous crows upon the pit in which the horses had been buried. Dogs, having once feasted on this fare, would not eat anything else. Creteur at first could not obtain men to carry out his plans, as every one who attempted to open the trenches contracted *phlyctæna*, an eruption of the skin. Finally, by promising good pay, he enlisted 27 workmen, whom he endeavored to protect by saturating their clothing and moistening the graves with a solution of carbolic acid. But this only intensified the *phlyctæna*. He then determined to cover the graves with a



THE MILAN CINERARIUM.

layer of chloride of lime, and to pour diluted muriatic acid upon them subsequently. By this means he succeeded in laying bare the topmost layer of the corpses. He then had large quantities of coal tar poured into the pit, which trickled down among the bodies to the bottom, thoroughly covering the remains. He then had more chloride of lime heaped upon the corpses, and finally had bundles of hay, previously saturated with kerosene, thrown burning into the pit. Creteur declares that from 200 to 300 bodies were consumed within 50 to 60 minutes. The smoke, impregnated with the smell of the carbolic acid that was formed by the combination of the chloride of lime and coal tar, was not offensive, and proved entirely harmless to the workmen. About one-fourth of all the contents remained in the pits, consisting of calcined bones and a dry mass. These were again covered with chloride of lime, and then the trenches were closed. In this way, 45,855 human and equine bodies were disposed of.

Incineration in war-time should be obligatory — must be so in fact. At present, cremation in portable furnaces is out of the question, because it would take too long. Only the bodies of prominent officers might be thus cremated and sent to the rear, so that they might rest under a monument erected by the grateful people of the country that they served. Under the existing circumstances, I think Creteur's method would be the best. By this means, several hundred bodies could be destroyed at once. There ought to be a cremation corps in every division of an army. Better yet it would be to organize a neutral society, like the Red Cross Association, and call it the Society of the Black Cross.

The members might wear a black cross on their caps and on the left arm. After a battle, the various corps of this society would begin their work, gathering the dead and committing them to the flames. Thus we would protect our brave soldiers, who offer up their lives for their beloved country and our sake, from pestilence and disease.

CHAPTER IV.

THE PROCESSES OF MODERN CREMATION.

IN beginning the consideration of the various processes of cremation, I ought to speak of the ancient pyre first; but since it was fully described in a previous chapter, I deem it best to dismiss it with this passing notice. I will remark, however, that were the introduction of cremation attempted with a view to the use of this barbarous mode, that is, if there were no alternative but to burn the dead in the old-fashioned way, I would not be the advocate of incineration; for the method of antiquity was not only obnoxious to the senses, but almost as dangerous to the living as burial in the earth.

It would take up too much space and would, moreover, be entirely useless to describe in detail the numerous European cremation apparatuses, of which those of Siemens, Brunetti, and Gorini are best known. The trouble with these furnaces is, that (1) the apparatus costs too much; (2) the process of cremation, when they are employed, is too expensive.

Therefore I will confine myself to a description of the cremation furnaces used in America.

The crematory at Washington, Pa., is a small, plain, brick building, containing but two rooms, — furnace and reception room. The retort is exactly similar to the ones used in making gas, and, indeed, the whole process is the same.

The Washington crematory is one story high, 30 feet long, 20 feet wide. The reception room is 20 feet square, including walls, and the furnace room 20 feet by 10 feet, including walls. Cremation is performed in a fire-clay cylinder or retort, called the incinerator, which is three feet in diameter by seven feet long, and the walls of which are from one to two inches thick. The retort is like those used in the manufacture of illuminating gas, but somewhat of a different shape. It is heated to a red heat by a furnace fire which is built underneath and kept burning for 20 or 30 hours before the cremation is to take place. The body is placed in an iron crib made in the shape of a coffin, with small, round rods, with feet three or four inches long to keep it up off the bottom of the retort. These feet are inserted into a flat strip of iron two inches wide and a quarter inch thick, turned up at the ends so that the crib with the body will slide into the retort easily. In addition to the ordinary burial garments, the body is covered with a cloth wet with a saturated solution of sulphate of alum (common alum), which even when burned, retains its form and prevents any part of the corpse from being seen until the bony skeleton begins to crumble down. The incinerator receives to itself the intense heat of the fire below, but does not admit the flames. The consequence is that the corpse, when introduced into the retort, is not, in a proper sense of the word, burned. It is reduced to ashes by the chemical application of intense heat. Gases are driven off or absorbed, and, being carried down into the fire from the incinerator and led back and forth 25 feet through its flames, are utterly consumed. Even the smoke of the fire is consumed,

and nothing can be seen issuing from the chimney but the quiver of the heat. The process might be called, says an eye-witness of a cremation in this furnace, the spiritualization of the body, the etherealization or sublimation of its material parts. The time required to complete the operation is about two hours. A very small portion of the remains is ashes, but the mass is in the form of calcined bones in small fragments, very white, odorless, entirely deprived of all animal matter, and may be preserved any length of time without change.

There are four to seven pounds of these remains from various sized adult bodies, and can be placed for preservation in a marble or terra-cotta urn, into which a photograph of the deceased, with appropriate record, can be placed before introducing the remains. This urn can be placed in the columbarium of the crematory, kept among the cherished memorials of the family of the departed, or placed beside other remains previously buried in cemeteries or graveyards.

Dr. Le Moyne favored placing the remains of the dead in a one-gallon salt-mouthed druggist's bottle, with a large ground stopper. After his death, however, the bottle-urn idea proved impracticable, therefore the ashes were generally placed in a sealed tin box.

The furnace erected at Lancaster, Pa., is on a new system, which was devised by Dr. M. L. Davis. The cost of the crematorium was about \$5000. The building is beautifully located upon a bluff overlooking the Conestoga River. The grounds occupy two and one-half acres. The crematory is of gothic architecture, 48 × 32 feet, and contains four rooms,—the audience room or chapel, toilet, reception, and furnace room.

The chapel is used for religious services, the toilet room for the accommodation of relatives and friends accompanying the body, the reception room to receive the body and prepare it for incineration; all of the apparatus is located in the furnace room, except the retort doors, which face the auditorium. The firing is done in the rear of the furnace, where all tools and miscellaneous articles are kept. The floor of the auditorium is made of Portland cement; the other parts of the building are floored with brick. The audience room is furnished with chairs and a table for the use of ministers or the officers of societies having charge of the ceremonies at cremation; the walls are decorated with pictures and urns of various designs. The waiting or toilet room is provided with chairs, lounges, toilet-stand, etc., for the comfort of the waiting friends. The grounds consist of a plot of two acres, one-half of which is level—here the building is located; the other is a hillside of solid limestone rock—here the society intends erecting columbaria at an early day. The grounds around the building are beautified by roadways, walks, trees, shrubbery, etc.

The furnace invented by Dr. Davis is made of fire-bricks and tiles. The outside dimensions are 10 ft. 6 in. long, by 6 ft. 6 in. wide, with 9-in. walls of brick. The furnace rests on a foundation 10 ft. 6 in. by 7 ft. 6 in. and 2 ft. 6 in. deep, of good building stone, with mortar of sharp sand and quicklime or equally suitable material, finished level with the floor of the building. At the rear end the center is occupied by the fire chamber (F) 18 in. wide, 48 in. long, 3 ft. 9 in. high to arch, lined with fire-brick 9 inches thick and roofed with an arched fire-clay tile 4 in. thick, covered by 3-in. shield tile.

The iron doors (fire and ash) are furnished with frames, the fire-door is protected by a lining of asbestos and fire-clay; the grate-rest is 1 ft. 3 in. from the floor; beneath the grate are two iron pipes ($1\frac{1}{2}$ in.) at the sides, to carry heated air to supply oxygen to the flues (at O); a third iron pipe ($\frac{5}{8}$ in.) passing to the rear of the fire chamber and up through its back wall to the retort (at P); a fourth pipe (3-in. diameter) leading from the top of the rear end of the retort (at M) down through the rear wall and opening in the ash chamber under the grate-bars (at N), to carry off the surplus gases not consumed in the retort. The air-supply pipes are required to keep up rapid combustion by replacing the oxygen already used, and so to equalize the heat at both ends of the retort. The air-pipes leading into the retort so assists the disintegration of the body in the same way, supplying additional oxygen and making oxidation more rapid. The retort is 9 ft. 9 in. long, 3 ft. wide, and 2 ft. high in the clear; it is floored with 3-in. fire-clay tile in sections; the sides are of 3-in tile, also in sections; the roof is of the same material arched in sections. The retort is made in sections rather than in one single piece, in order to make allowance at the several joints for the great expansion and contraction incident to a heat of 2000 to 2500 degrees, thus avoiding the annoyance and expense of cracks and patching. The retort is supported by the arched roof of the fire chamber and its covering of shield tile, and back of the fire chamber by fire-clay pillars, and at the sides by projections of the tile partitions between the flues. Six pairs of flues surround the retort, 15 and $13\frac{1}{2}$ inches wide respectively, and 3 in. deep, separated by tile partitions 3 in. thick. The gases from the fire chamber

enter the first pair through curved openings (QQ) and pass up through AA down through BB (receiving additional oxygen at O), and up again through CC, and through the escape-flue S, into the chimney. The outside facing of the flues is 3-in. tile. Between the outside facing of the flues and the 9-in. brick wall is a space of 3 inches which is packed with asbestos to prevent radiation of heat and allow for lateral expansion and contraction of the outer casing of the flues, giving it much longer life. Above the fire space on the top of the retort, which is 4 inches deep, is an arch of 9-in. fire-brick, above which ashes and sand are filled in to the depth of 6 inches above the top of the arch, and floored over with red brick. The retort door is lined with asbestos and fire-clay; it is made of steel plate, closing against a flanged iron frame, and held to its place by a spider, upon which is screwed down an arm swinging with the door and fastening to the frame; the frame is held to its place by two horizontal bars, walled in at the ends. This arrangement secures a tight joint when the door is closed; the stay-bars hold the frame, the bar holds the door to the frame and gives the fulcrum for pressure on the spider, while swinging with the door it is out of the way when not in use. The whole structure is protected by three buckstays of T iron on each side, securely joined by $\frac{3}{4}$ -inch iron rods, furnished with nuts to allow tightening or loosening when necessary. The fire-brick escape-flue connects with the chimney; the dimensions are 16 \times 14 inches in the clear; the chimney rests on sills of T iron, supported by brick pillars, and is lined with fire-brick for 6 feet above the retort, and is carried up to a total height of 30 feet.

I have given so minute a description of this ap-

paratus because it is an invention of which not only Dr. M. L. Davis, but his countrymen with him, may feel justly proud. It is the first cremation furnace that possesses the two cardinal requirements of a good incinerator; namely, cheapness and usefulness. The price of this apparatus is from \$1200 to \$1500; the European furnaces cost \$3000 and more. The Davis furnace, moreover, uses less fuel than the European apparatus, whereby the expense of cremation is much decreased. Ordinarily, coke and hard or "steamboat" coal is used in this furnace, although (and this is an additional advantage) gas, oil, or any other heating material may be used. The quantity required varies somewhat, but the average amount necessary to heat the furnace and incinerate a body is 250 pounds of coke and 250 pounds of coal, or about one-fourth ton of fuel. The time occupied for complete incineration varies according to the condition of the body, but ranges from 45 minutes to one hour and a half. The furnace can be heated in six hours, but usually more time is occupied in heating, as there is less liability of injury to the furnace by rapid expansion.

When the Davis furnace is used, the process is as follows: The catafalque, bearing the crib which is covered with a cloth 15 feet long, wet with alum water, is placed by the side of the casket containing the body, the lid of which is removed and strips of muslin are passed under it. The ends of the bands are attached to an elevator, and the body is gently raised up and placed upon the alum-sheet-covered crib, the free end being covered over, thus entirely enveloping it. This procedure is necessary to prevent the clothing in which the corpse is dressed from igniting. All being in readi-

ness, the catafalque, on noiseless casters, is placed in front of the retort. A cable is then attached to the crib, the retort door is opened, a signal is given, and the catafalque with its burden gently approaches the open retort; when near, it stops, and noiselessly the corpse is moved into the retort, impelled, as it were, by an unseen agency. When it is in the proper position, a signal is given, the machinery in the rear and out of sight stops, the door is closed air-tight, and the mechanical process gives way to the chemical.

When the retort is opened, the cold air rushing in, the cold body, crib, and alum-sheet chill for a few moments the inner surface of the retort; in a few moments the retort regains its heat; a fine mist commences to arise from the body, which gradually becomes thicker and more dense, until the inside of the retort has the appearance of dense white mist. The idea of fine snow or fog is suggested. This appearance remains until the soft tissues are reduced to ashes. Then the interior of the retort gradually becomes more clear. The alum-sheet will be seen to be in the same position as when put in; perhaps slightly sunken. A blue flame will be seen arising through the sheet; about six inches above the body it becomes extinguished. This continues until the bony structure is completely cremated, when all is white as snow, and nothing can be seen inside the retort, the ashes having fallen through the crib and the alum-cloth collapsed. The oxygen by the intense heat has been made to unite with the carbonaceous elements of the body, and the resulting carbonic acid gas, ammonia, and water are driven off through the retort walls into and through the flues to the air without, where they mingle with the elements of nature. In the

retort are the ashes, consisting of pure oxide of lime.

It is plain from the above that the corpse does not come in contact with the flames, that is, the fire, in this apparatus. There is no burning. The body is simply oxidized, and the union of the oxygen and the organic matter composing the body is so complete that what nature has so perfectly formed in life appears to gently, quietly melt away in death, and becomes resolved into its original elements.

The record of the Davis furnace has been so far entirely satisfactory. The Lancaster crematorium contains two of these furnaces. This crematory has no smoke-stack; that is, the chimney reaches but several inches above the roof of the building.

On Nov. 23, 1885, Prof. T. R. Baker, Ph.D., of the Millersville State Normal School, collected 30 jars of gases from the escape-flue of the Lancaster crematorium, with a view of analyzing them, to ascertain the nature of the products of combustion of the human body during incineration. Many persons have contended that poisonous gases are given off, thereby polluting the air; and it was with a view of clearing up this phase of the subject that the experiment was undertaken. The apparatus used to collect the gases consisted of an iron gas-pipe, five feet being bent two feet from one end at right angles. The long end was passed down the escape-flue from the furnace. To the other end was attached a glass tube, which ran to a U-tube surrounded with ice, to condense vapors. The gas was collected in a jar. Fifteen jars were thus collected before the body was introduced into the retort, and 15 at various stages of the incineration. The body was

that of a man who had died from dropsy. Below will be found Dr. Baker's report.

STATE NORMAL SCHOOL,
MILLERSVILLE, Pa., Dec. 7, 1885.

DR. M. L. DAVIS:—

Dear Sir: I have completed the examination of the gaseous products recently obtained from the chimney of the Lancaster crematorium, and will now report the results of my investigation. The escaping products were tested at the crematorium for water and for gases readily soluble in water, and several bottles of these products were collected before the body was put in the retort, as well as during the cremation.

Water, etc., were tested for by passing several gallons of the escaping products through the U condensation tubes, surrounded by ice, and then through distilled water. The estimated amount of water in the products escaping before the body was put in the retort was .0011 of a cubic inch to the gallon, while during the cremation it was .0044 of a cubic inch to a gallon.

The water through which the gases were passed, both that used before the body was put in the retort and that used during the cremation, had a distinct acid reaction, quickly reddening blue litmus paper. I could not, however, detect any difference in the degree of acidity of the waters, and their reaction did not indicate that the gases which had passed through them were more acid than the gaseous products passing off from ordinary coal fires. The waters were found to contain traces of the mineral acids generally found in very small quantities in the products of the combustion of mineral coal. They gave no reaction for salts of ammonia, nor for sulphuretted hydrogen.

The gases collected for laboratory examination were tested especially for carbonic acid (CO_2), illuminating gas, oxygen (O), carbonic oxide (CO), and nitrogen (N).

The method of examination employed was that generally followed in gas analysis, namely, the absorption of the gases by liquid reagents. Carbonic acid was absorbed by potassium hydrate; illuminants by bromine; oxygen by phosphorus; and carbonic oxide by cuprous chloride dissolved in hydrochloric acid.

The estimated amounts of the gases enumerated above are as

follows, the values indicating the parts of a cubic inch to the gallon; the estimated water being also included in the table:—

	H ₂ O	CO ₂	Illuminat- ing Gas.	O	CO	N
Before Cremation,	.0011	.00080	.000	.0080	.0000	.016
During Cremation,	.0044	.00091	.012	.0065	.0017	.015

It will be seen by a comparison of these results that the gaseous products of ordinary coal combustion are modified to only an inconsiderable extent by matter passing through the walls of the cremation retort. Illuminating gas is a variable mixture of hydrogen, marsh gas, olefiant gas, and other gases, and is entirely harmless when produced in the small quantities indicated in the table, and so thoroughly distributed through the air. That so much free oxygen passes off with the escaping products is an indication of the thoroughness of the combustion, and the complete oxidation of the oxidizable products.

In conclusion, I would say that not any of the many and various tests, either at the crematorium or in my laboratory, of the products under consideration, indicated the presence of anything that would pollute the air. The burning of the body produces no material difference in the gases escaping from the chimney. The volume of the chimney products did not seem to be increased by the burning of the body, and the products had precisely the same odor during cremation that they had before the body was put in the retort.

I might add that I also made a test of the temperature of the products issuing from the chimney, and found it to be about 300° F. This is surprisingly low, considering the high temperature of the retort (2500° to 2800° F.), and indicates a most excellently designed furnace, utilizing as it does so large a percentage of the heat. About one-fourth of the heat of boiler furnaces goes up the chimney.

The process of cremation invented by Joseph Venini, of Milan, Italy, is used in the crematorium of Buffalo, N. Y. The process consists of two parts: first, the generation of gas; and second, the cremation proper.

The apparatus is constructed with a gas generator (A), which is a simple fire-pot about four feet in a vertical measurement and two laterally, and is located in the basement of the crematory. The air for combustion is admitted through a grate in the bottom, and is not sufficient to allow of the combustion of the entire mass of small wood which is heaped on the fire. The result is that the fire at the bottom distils the wood at the top, and the gases of distillation and combustion of wood are carried to the back end of the incinerating chamber (B), which is on the main floor. Here these gases are met by air heated in a chamber (C) outside of the furnace, where the two are ignited by a fire (D) which is kept burning just under their point of union. The Bunsen flame (E) thus produced is thrown quite across the incinerating chamber; thence it is carried back beneath the retort by the flue (F) into the basement to a chimney, which is about 40 feet high, and so to the open air. A certain amount of gas is also burned in the flue (F) beneath the incinerating retort and also at the bottom of the chimney. It will be seen from this description the Bunsen burners play directly upon the subject, and by their heat liberate the gases of the body, which gases, being burned in the retort, are carried into the flue beneath; here another Bunsen flame (H) ignites such combustible material as has not been consumed in the retort, and at the foot of the chimney the third Bunsen burner, which is not represented in the illustration, finishes the combustion. To heat the apparatus requires an hour and a quarter, and when the temperature is 2500° to 3000° F., the body is placed in the furnace, and in about an hour is cremated. The

amount of fuel used is little more than half a cord of wood, or its equivalent.

The furnace which will be used at the Cincinnati crematorium is on a novel system devised by Mr. M. R. Conway. After the fire is lighted, steam is generated by means of pipes situated in the flues; this steam passes up through the center wall of the furnace and is distributed over the incandescent coke. In its passage it gathers air enough to supply the required oxygen. It also brings with it the gases generated from the body being incinerated, and all these gases are regenerated into an intense heat in the combustion chamber; making a perfectly odorless furnace.

I quote from a pamphlet written by an "eye-witness" of cremation, who had before looked upon it with repugnance, but who on witnessing it became a most earnest advocate:—

"A furnace fire is built and kept burning for 20 or 30 hours before the cremation is to take place. Immediately above the fire is placed in a horizontal position a cylinder of clay called the incinerator, three feet in diameter by seven feet long. This fire-clay incinerator, the walls of which are from one to two inches thick, receives to itself the intense heat of the fire below, but does not admit the flames. The consequence is that the body, when placed in the incinerator, is not, in a proper sense of the word, burned. It is reduced to ashes by the chemical application of intense heat. Gases are driven off or absorbed, and being carried down into the fire from the incinerator and led back and forth 25 feet through its flames, are utterly consumed. Even the smoke of the fire is consumed, and nothing can be seen issuing from the chimney but

the quiver of the heat. The process might be called, as we have said, the spiritualization of the body, the etherealization or sublimation of its material parts.

“When the incinerator has been raised to a white heat, it is ready for the reception of the remains. As the cover is removed from its mouth, the in-rushing air cools it from a white to a red heat, and the whole inner surface is filled with a beautiful rosy light which is fascinating to the eye. It looks like the blush of dawn upon the sky, or like the exquisite tints which sometimes flicker along the aurora borealis. There is nothing repulsive about it, and nothing, as has been said, to suggest the idea of fire except the intense heat.

“The body, being decently clad for burial and tenderly laid in the crib provided for the purpose, is wholly covered with a clean, white sheet which has been dipped in a solution of alum. The effect of this is to entirely prevent smoke or fumes or flame, which would otherwise arise from putting anything inflammable into the midst of such a heat; but, under its protection, even the extraordinary heat of the incinerator does not produce upon the body the appearance of scorching or smoking or anything of the sort. There is no such impression as that of burning made upon the eye. The sheet, saturated with alum, retains its original position over the crib, and conceals the entire form until nothing but the bones are left; and when the eye first rests upon the remains after they are left in the rosy light of the cylinder, it sees nothing but these bones gently crumbling away into dust under the mystic touch of an invisible agent, whose only appearance to the eye is like the tremor of the northern lights in the sky; or,

more exactly, the radiation of heat from the earth beneath the summer's sun.

“You have laid a white-robed form within the rosy cylinder, and have turned away to think with gratitude that all is well. You have let your imagination dwell lovingly upon the pleasing sentiment that whatever may be left — beside the calcined bones, most pure and clean — has gone to mingle with the upper air and dwell with sunshine, birds, and flowers. The darkness and the dampness of the earth have been escaped, and so have the perils of grave-snatching, the indecencies of a possible dissecting-room, and the nameless horrors of putrefaction. You have pleasant memories to cherish of the ‘last sad hour,’ which, instead of ‘breathless darkness’ and the ‘narrow house’ and the dreadful thud of falling earth upon the coffin, presents to mind a lovely bed of rosy light, and a peaceful form clad in virgin purity resting within its soft embrace. If a lily had been laid upon a bed of pinks or roses, in the summer, and you had seen its fragrance and its beauty all exhale amid the shimmering beams or radiated heat beneath the touch of some invisible and gentle agency, you would have had a not dissimilar experience. And this is neither painful to the eye, nor distressing to the sensibilities, nor ungrateful to the memory.”

The following beautiful description of a cremation of the future is from the *Modern Age* for January, 1884, a journal which, alas! was discontinued for lack of support: —

“It is not a disagreeable journey on which we now propose to take our readers. It is to witness the final disposition of a friend's remains in the ideal crematory of the future — science having already perfected the

mechanical appliances necessary in conducting it in the way we describe. Our friend has died, and through the usual announcements we learn that the last rites will be performed in the columbarium at a given hour. Repairing thither at the appointed time, we first pass through a grove of stately trees, the soothing murmur of whose rustling leaves brings peace and quiet into the hearts of those who mourn and gather to pay the last tribute. Within the grove stands a massive building of gray masonry whose architecture shows no striving after ornamental effect, and whose solid proportions give a sense of eternal permanency. A few small windows in a simple frieze which crowns its walls do not destroy this effect, and their plain stained glass clashes in nowise with the harmony of color between the sky, the trees, and the gray stone of the temple of rest. About the Doric pillars of its portico green vines twine fondly as if they, too, would do their share in robbing death of all its hideousness. To this place loving hands have borne the body of our friend. No coffin lends its horror to the journey from this earthly home to here, where eternal sleep awaits him. A flower-strewn bier gives poetic carriage for this short and final journey. Entering the broad portal, the soft, deep notes of an organ charm the ear. The eye takes in a most imposing sight. The entire interior of the building is one impressive room, with walls, floor, ceiling, all of white and spotless marble. The view is not a dazzling one, for the light is subdued and comes in varied color through the windows at the top. On either side of the chamber stand a few memorial statues, — real works of art, — each one of them keeping alive the memory of some one who in his life was either good or great.

Many of the marble slabs in the sides and floor of the temple bear in plain, sunken letters, a name and two dates. Behind or beneath them are niches containing urns where rest the pure white ashes of the beloved dead. On a simple dais in the middle of the room lays the body of our beloved friend. The hour has come, and about it are gathered those who knew and loved him while he lived. The scene, the surroundings, the subdued music of the organ, the absence of everything to jar upon the taste or senses, brings on a mood of solemn contemplation. No thought of physical corruption jars upon our memories of the dead. The opening words of the speaker are said, a hidden choir harmoniously chants of hope and life, and now the end has come. With the words 'ashes to ashes' a white pall is thrown over the dais, and we have looked upon our friend for the last time. The dais noiselessly sinks from sight, a short hour is spent in listening to a funeral oration, or in contemplation, until the dais, still covered with the pall, rises from below. The pall removed, we see upon the dais an urn — provided beforehand, and containing the ashes of our friend. This is now sealed into one of the niches, and the ceremony is over. This is not pure imagination. Modern invention has now robbed incineration of all its objectionable features. Never till of late years could the world well and simply solve the problem of what to do with its dead. The whole process is carried on as we have pictured, and without a single revolting feature in any part of it."

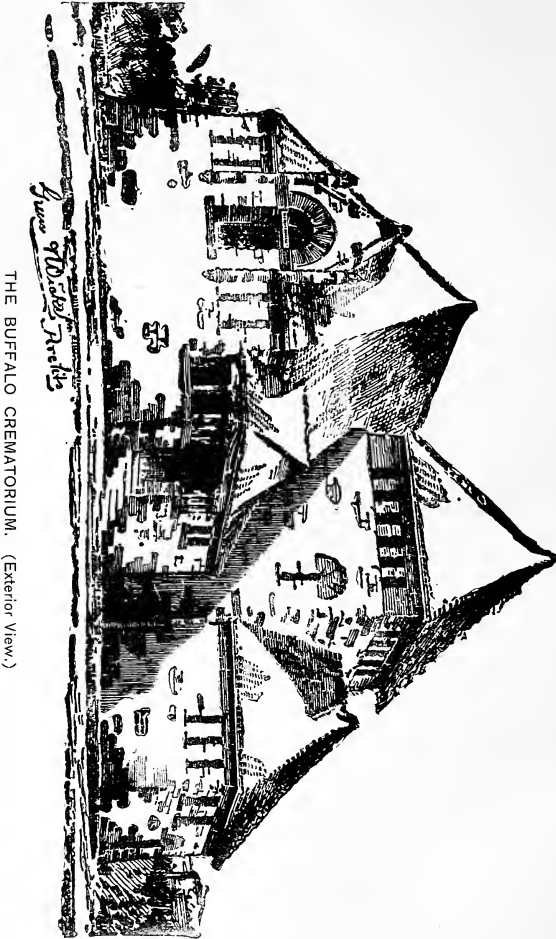
CHAPTER V.

THE MEDICO-LEGAL ASPECT OF INCINERATION. — THE OBJECTIONS TO CREMATION.

THE battle between torch and spade is not new; it has been going on since early times. Tertullian, a writer of the second century, declares that many of the Gentiles were opposed to cremation on the score of the cruelty which it did to the body, which did not deserve such penal treatment. This is exactly what some are asserting now. The work of an ancient Greek poet even contains a passage requesting Prometheus to take back the fire which he had procured them. There was a time when the Pagans were disputing the propriety of burning the dead upon any consideration whatever. Heraclitus advocated cremation; Thales and Hippon, earth burial. In the war which a few Christians are now waging against incineration, we therefore only have another illustration of how history repeats itself. Peoples are still contesting the point in lands which are painted in Pagan black upon the maps of the missionaries, and where Christians as yet have no footing. Some sects in Japan bury and some burn their dead; some of the Hindoos practice interment, others incineration.

The injudicious promoters of cremation are among the greatest enemies of the reform. The utterance that incineration should be obligatory was extremely unfor-

tunate, as was the idea of producing illuminating gas for general use from the combustion of corpses, some-



THE BUFFALO CREMATORIUM. (Exterior View.)

thing after the fashion of the twelfth century's *lanternes des morts*. The fancy of Sir Henry Thompson to use

the ashes resulting from cremation as a fertilizer was also a mischievous idea, and did much to delay the progress of incineration in Great Britain.

The abhorrence entertained by many of cremation depends, to a very great extent, on the universal tendency of individuals and peoples to resent any interference with established customs; to reject any innovation, simply because it is an innovation. For instance, if cremation should be the customary practice at the present time, a proposition to re-establish inhumation would meet, I am certain, with the most violent opposition.

The cremationists are now charged with enthusiasm and fanaticism by individuals who would be content that science should "stand at gaze like Joshua's moon in Ajalon." Most of the progress in all departments of learning has been made by enthusiasts, and a man must be an enthusiast indeed to withstand the prejudice "dry as dust" which yields the ground slowly and grudgingly, but which is certain to be defeated in the end.

The first question that comes before us for consideration is, Would not cremation destroy the evidence of crime? This refers not only to cases of poisoning, but also to those instances where persons meet with a violent death by being shot, stabbed, or otherwise severely injured. This is the only tangible objection that has ever been made by the anti-cremationists. It is of great importance, and unless we are able to show that it can be obviated, we must admit that it constitutes a serious drawback to cremation. This, as Dr. J. O. Marble appropriately remarks, is, in fact, the one and only real lion in the way of the progress of in-

cineration as a substitute for inhumation, and unless we can muzzle this lion, he may frighten away the pilgrims.

If the charges made by the anti-cremation party were true, incineration, if established, would offer facilities for the commission and concealment of hideous crimes. A victim could be destroyed by poison, the dead body carried to a furnace and reduced to a small heap of ashes in a short space of time, and the crime thus forever placed beyond the reach of detection. The cremator, then, would become the instrument and accomplice of the murderer. It is urged that the agents employed in the commonest form of secret murder — poisoning — are often of a novel, subtle, and various character. We are apprised that it is extremely improbable that the physician called in, if he be called in, has ever seen their effects, either on man or animals; that care will be taken that he shall not see them; that the poisoner has the advantage of preparation on his side; and finally, that discovery, when made, is generally made at some variable period after death, and then rather in consequence of an aggregation of suspicious collateral circumstances pointing to the commission of other crimes of a like nature than of any possible observations at the bedside of the murdered person. Indeed, a formidable array of arguments, which can be, nevertheless, overcome in several ways. The question now before us for solution is not of recent date, but has already agitated the minds of the ancients, who, most probably, investigated the cause of death before they consigned their dead to the funeral pyre. Tacitus, the Roman historian, relates that the corpse of Germanicus lay in state in the forum of Anti-

och, a place fixed for sepulchral rites, but that "whether it bore the marks of poisoning yet remains undecided," for the people were divided in their opinions, some pitying Germanicus and suspecting Piso's guilt, others prejudiced in favor of the latter.

Pliny also relates in chapter 71 of his Natural History, lib. xi: "It is claimed that the heart of those who die of *morbis cardiacus* (organic heart disease) cannot be destroyed by fire, and the same is said to be true of the heart of poisoned persons." An oration of Vitellus is extant in which he accuses Piso, the physician, of having poisoned Germanicus, since the heart of the latter would not burn. Piso defended himself by describing the disease of which the emperor had died.

Dr. J. O. Marble, who has written of this subject, affirms: "It must be admitted that cases of criminal poisoning, such as would be detected by an exhumation and examination of a buried body, are very rare, for in our day Lucrezia Borgia and Brinvilliers are few and easily detected. In a community like ours cases of this kind are extremely rare. In a vast majority of cases the cause of death is perfectly evident to any intelligent physician. No doubt obscures the case. The list of causes of death, perfectly evident even to the friends and non-medical persons, embraces probably at least nine-tenths of the whole mortality. Doubtful cases have generally been visited by more than one skilful physician. The fraction in which crime of any sort might have been perpetrated becomes thus very small. Moreover, in the present state of chemical analysis and expert medical testimony, the advantages of the posthumous examination of a body with a view to

the detection of crime accrue less to justice than to the lawyer for the defense.”

The medico-legal objection, as it is called, does not apply in every case, since every day individuals die of easily determined causes, such as small-pox, consumption, hemorrhage from the lungs or stomach, drowning, or other accidents, and suicide; in short, in such a way as to place the cause of death beyond cavil and dispute.

It is true that a regular proportion of bodies are dug up every year on suspicion of foul play; but, aside from the fact that that proportion is very small, how many of these cases justify the exhumation? So uncertain and inaccurate is the post-mortem evidence of criminal poisoning, that no bodies have been exhumed for forensic purposes in Vienna, Austria's capital, since 1805.

Tarchini-Bonfanti, for 26 years *perito-medico* (medical expert) at the tribunal of Milan, Italy, declares that during this time, although many thousands of litigations came before the court which was requested to pronounce judgment upon them, only in ten cases was it necessary to resort to exhumation. Only ten cases in 26 years, out of several thousands of lawsuits, and four only out of the ten exhumations led to the detection of the crime and the criminal. These four cases, however, occurred in a single lawsuit — that of Boggia. In this instance the disinterment would have taken place, even if cremation had been at the time an established and universal custom, for Boggia had buried his victims in his own cellar. Tarchini-Bonfanti asserts that exhumations for forensic purposes are extremely rare, and that those which are made yield either negative, or at best doubtful results.

Disinterment, instead of furnishing an explanation,

instead of shedding light upon some mystery, more often is followed by confusion, and may give rise to erroneous conclusions. It would be next to impossible to cremate a murdered person in a furnace of the ordinary kind. As to the poor and ignorant murderer, the regulation of cremation would make him shrink from submitting his victim to the authorities of a crematorium, and he would find it far more convenient and safe to inter the corpse secretly, as these criminals generally do at the present time.

There are many poisons which, by a rapid change of their substance, are extremely difficult to detect in the human body after death, even after a short time, sometimes but a few days; for instance, cyanide of potassium, prussic acid, and at certain times phosphorus. But when a careful inquest, such as the cremationists propose, is held, poisoning by these agents cannot so easily escape detection. In poisoning by phosphorus, the yellow hue of the face of the victim would excite suspicion and lead to a post-mortem examination, when the characteristic sign of phosphorus poisoning in the fatty degeneration of the liver would be discovered. An autopsy would speedily make evident poisoning by pure prussic acid, for the open cavities of the body would exhale the odor of bitter almonds. Poisoning by cyanide of potassium can, of course, only be detected by a chemical analysis of the contents of the stomach, intestines, etc.

I think I may safely affirm that it is impossible for the best of anatomists to determine the lesions, if there be any, of a decomposed body.

All vegetable poisons, except the alkaloid of strychnia, decompose with the body; it is extremely rare that

any alkaloid can be discovered in the body posthumously. Mineral poisons, such as antimony, lead, copper, combinations of baryta, and many others, are indestructible, and can be detected in the ashes. It may even happen that, by some extra care, the process of incineration may be the most efficient means of detecting poisoning by arsenic and mercury. Of course we should not forget that, without some precaution, the salts of arsenic and mercury would be volatilized; but while they are volatilized, they must also, at a reduced temperature, be again deposited, and it remains for the chemist to determine the most efficient contrivance for recognizing its deposition.

Direct experiments instituted by M. Cadet and verified by MM. Doursant and Wurst, even prove that the salts of arsenic can be detected in the ashes after incineration.

As matters stand to-day, it is puerile to think that we can prevent the rich and skilful poisoner from committing crime as long as we permit him to employ undertakers, who, without restraint of law, inject arseniate of soda and corrosive sublimate into the body of his victim, and thus remove all traces of the crime.

Dr. Cameron, in a speech before the House of Commons of England in 1884, declared:—

“Numerous modern researches have shown that putrefactive fermentation in decaying animal matter gives rise to the formation of sepsine and other alkaloids, some of them intensely poisonous. Little or nothing is known in this country concerning the products of putrefaction. *Ptomaines* is the general name which has been given to them abroad, and I don't know that I ever saw it printed in the English language. Little is known of

these ptomaines even by those who have studied them most closely, but enough has been discovered to show that we must be very careful as to how far we rely upon what are called physiological tests for poisons in the case of bodies which have been exhumed; and that the fact that frogs, rabbits, or dogs are killed by the action of matters extracted from the viscera of a putrefying body can no longer by itself be held as proving that those viscera contained any poison before putrefaction commenced."

Is it surprising, when the above is taken into consideration, that the testimony of chemists at trials for poisoning should vary so much and be so contradictory in nature?

Sir Henry Thompson, in his admirable exposition of cremation, which was translated into almost every civilized language of the world, thus disposes of the medico-legal objection:—

"It has been said, and most naturally, what guarantee is there against poisoning if the remains are burned, and it is no longer possible, as after burial, to reproduce the body for the purpose of examination? It is to my mind a sufficient reply that, regarding only 'the greatest good to the greatest number,' the amount of evil in the shape of disease and death which results from the present system of burial in earth is infinitely larger than the evil caused by secret poisoning is or could be, even if the practice of the crime were very considerably to increase. Further, the appointment of officers to examine and certify in all cases of death would be an additional and very efficient safeguard. But—and here I touch on a very important subject—is there reason to believe that our present precautions in the matter of death certificate

against the danger of poisoning are what they ought to be? I think that it must be confessed that they are defective, for not only is our system inadequate to the end proposed, but it is less efficient by comparison than that adopted by foreign governments. Our existing arrangements for ascertaining and registering the cause of death are very lax, and give rise, as we shall see, to serious errors. In order to attain an approach to certitude in this important matter, I contend that it would be most desirable to nominate in every district a properly qualified inspector to certify in all cases to the fact that death has taken place, to satisfy himself as far as possible that no foul play has existed, and to give the certificate accordingly. This would relieve the medical attendant of the deceased from any disagreeable duty relative to inquiry concerning suspicious circumstances, if any have been observed. Such officers exist throughout the large cities of France and Germany, and the system is more or less pursued throughout the provinces. In Paris no burial can take place without the written permission of the '*médecin vérificateur*'; and whether we adopt cremation or not, such an officer might with advantage be appointed here."

Sir Henry suggests that in suspected cases the "dead officer" should retain in sealed vessels the stomach and other portions of the viscera for future examination. But I think it next to impossible that such an officer could execute duties so burdensome and so averse to the genius of the people.

Let us for a moment turn to our dear American commonwealths. Do our burial laws aid in the detection of crime? In the majority of states a death certificate, signed by a physician, must be filed with the health

officer, who issues a burial permit. This is all which is required. Generally it makes no difference whether the physician or surgeon who affixes his name to the document is reputable or not. The burial permit is looked upon as a mere formality, an unnecessary institution, that owes its origin to some whimsical law-maker. How often do even the most zealous of health officers investigate the causes of the deaths that are reported to them? The doctor's certificate is put upon record; that is satisfactory, and no more is asked for. The rest is silence—like that which reigns under the turf, where the undetected victims of the poisoner lie.

Now, if our faulty burial laws, if the indifference of our officers of health, are not a direct incentive to the foulest and most insidious forms of crime, I do not know what is. Were I a secret assassin, I certainly would wish for no more encouragement. As matters now stand, any evil-doer, with the help of some unscrupulous medical man, may commit murder daily without fear of detection.

I propose to show that if incineration were established, the careful scrutiny of corpses and official examinations in suspected cases, which would precede the reduction of the body to ashes, would rather assist in the detection of murder than hinder it.

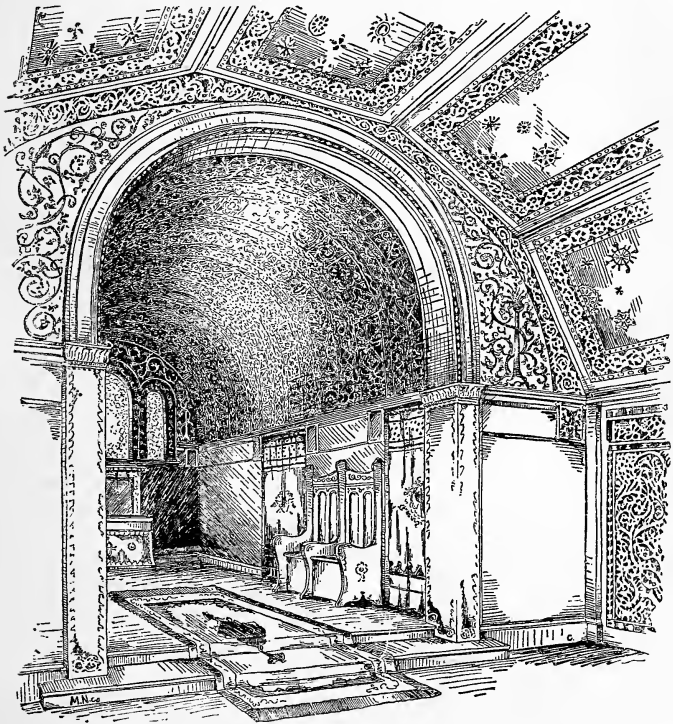
Mr. W. Eassie, in a lecture delivered at the International Health Exhibition last year, expressed himself anent this question as follows: "With regard to doubtful deaths it would be necessary to make sure that the body exhibited no traces of poison, or that certain small portions of the body should be removed therefrom and kept for a few years. For instance, a small portion of the stomach and intestines and their contents in case of

vegetable poisoning, and a small portion of the liver, should mineral poisoning be suspected. There is no difficulty in dealing with this matter in other countries where cremation has become permissive; and it is upon record that the examination of the body of a child in Italy, which had been made in the ordinary way demanded by the authorities previous to the cremation, proved that the child had been poisoned apparently by sweetmeats, and this would not have been revealed had an ordinary burial in the earth taken place."

I must here repeat what I have already said regarding Sir H. Thompson's intimation that part of the bodies about to be cremated might be conserved for future examination: The strong dislike of the public would never allow of such a measure.

Lord Bramwell, the eminent English lawyer, in a letter to Sir Spencer Wells concerning incineration, states: "I wish you success in the promotion of cremation; I think it is right, and what is very rare, with no drawback. It is the cheapest, the most wholesome, and to my mind, the least repulsive way of disposing of the dead and those we have loved. That it is legal there is not a doubt. The only objection, that murders might go undetected, I believe to be more than unfounded. You have surrounded the thing with precautions. I have heard it suggested that there are many murders which escape detection for want of suspicion and consequent inquiry. How that may be I know not, but it will not be the case with those bodies cremated under the regulations of the Cremation Society of England. The English society requires such undoubted proofs of natural death that a criminal would not dare trust his victim to the flames."

To cut a long story short, let me say that cremationists meet the medico-legal objection by a demand for a careful inquest over *every* dead body, and a post-mortem



THE BUFFALO CREMATORIUM. (Interior View.)

examination, including a chemical analysis of all the viscera, in every instance where death by toxic agents is suspected.

In many cities of Europe the dead are examined by physicians appointed by the government. The result has been that, as for instance in Dresden, Leipsic, and

Frankfort, Germany, no exhumation took place after the inquest became obligatory and was practiced in every instance of decease.

In Bavaria, Saxony, Nassau, and Baden, there are regular coroners whose duty it is to inspect every corpse, while in England the coroner's jury only convenes in cases where the cause of death is not apparent.

With us the office of coroner is not an important one. Generally laymen are appointed to it, men who have done some work at that awful power, the political machine. This is wrong. The office of coroner should only be vested in medical men, and only in such who have shown that they are qualified to fill such a position of consequence. Every candidate for coroner should be examined in forensic medicine and pathology, and should give an ocular demonstration of his capability to make a thorough autopsy. Only those who have graduated from a medical school of repute, recognized by law and all the boards of health of the country, should be eligible.

The coroner should have power to demand an explanation of the cause of death from the physician who attended the deceased in his last illness, and whenever such explanation is unsatisfactory, or there are other reasons which lead him to suspect that the defunct has been foully dealt with, to order a complete post-mortem examination. He should, furthermore, have the right to summon before him any witnesses whose testimony might clear up the case in hand.

The coroner should issue the burial permits, the health officer being notified only when persons have died of an infectious or contagious disease.

To make this scheme successful, it is essential that

the practitioner of medicine who assumes the coronership should receive adequate payment for his services, such remuneration in fact as would enable him to give up his whole time and talent to his office.

Beside the advantages which I have already indicated, a system such as this would doubtlessly enrich the mortality statistics as well as forensic medicine and pathological anatomy. That it would be an efficient safeguard against crime, I think every unprejudiced person will admit.

If this were not so, I could but indorse the Rev. H. R. Haweis, who declares honestly: "For so grand a benefit to mankind, a few more cases of poisoning would be a small price to pay. In the great progress of social and sanitary reform I cannot conceive what it signifies whether or not an additional Smith or Jones gets poisoned here and there."

Dr. Purdy says: "Indeed, we have not in man's history any great benefit resulting from a system or practice but it is attended by its consequent minor evils; no great public good but has its attendant drawbacks."

For these reasons the following saying of the celebrated Professor Coletti, of the University of Padua, Italy, will always be recognized as a truth of unusual stability: "The health of whole communities is of far greater importance than the possible escape of a few criminals."

The enemies of cremation inquire: Would not incineration deprive the schools of medicine of anatomical material, the phrenologists, craniologists, and last, but not least, the anthropologists, of the basis of their investigations; namely, the human skeleton?

Objections of this nature can only provoke a smile. In a country like ours, where many of the cadavers which are dissected in our medical schools are stolen from the graveyards, the proposed introduction of cremation must, no doubt, raise a storm among teachers of anatomy, who are fearful that the supply of corpses will be cut short by the reform. It is not to be wondered at, that the anatomists raise a cry of alarm, for, indeed, I know of no other method of disposal of the dead that is as damaging to their relations with the defunct as cremation. Even a professor of the Jefferson Medical College, a man who ought to have known better, joined the anti-cremationists for these reasons. Every educated person knows that a thorough knowledge of anatomy is essential to the successful practice of medicine and surgery, and that a familiarity with the internal workings of the human system can be gained in no other way under the sun. But although I belong to the medical fraternity, I can but wish that such a terrible and desecrating practice as grave-robbing be put a stop to. It is for the government of each state to provide fully for the dissecting-rooms of the medical colleges, to deliver to them all who die in prisons and poor-houses. Prisoners should not be given up, even when claimed by relatives or friends; the idea that the commission of crime may land one on the dissecting-table may deter many from trespassing the laws of their country.

What difference it makes whether future generations know, or do not know, how our skulls compared with that of a gorilla, I cannot conceive. Let the craniologists and allied scientists make their investigations

now and record them in books. Printed matter of value is immortal.

How the archæologists and anthropologists, ignoring the printing press, can imagine (for such fears only dwell in their imagination and have no real foundation) that without the records of the tombs the present age, its acts and deeds, might pass away from the ken of posterity as completely as the ancient civilizations of Central America and Malacca, I am unable to explain. But even if dire oblivion should be the ultimate doom of the nineteenth century, the opinion of the world two thousand years hence is of little consequence when compared with the health of those now inhabiting it. In the words of the learned rector of the University of Padua, Professor Coletti: "Man should disappear and not rot; he should no more be transformed into a mass of corruption—the source of filthy and injurious exhalations—than into a grotesque mummy, a shapeless mixture of pitch, resin, and perfumes; man should become a handful of ashes and nothing more."

"Would not cremation rob nature of its supply of ammonia?"

This, one of the most discreetly urged weapons against cremation, was that promulgated by Professor Mohr, who asserted that if incineration were practiced to its full extent, an interruption to the order of nature would ensue, since the supply of ammonia would be arrested or greatly curtailed.

Dr. Mohr's objections to the cremation of the dead principally rest upon the following bases:—

1. That ammonia is the most important form in which nitrogen is taken up by the plants.

2. That free nitrogen does not, or at any rate in sufficient abundance, return to the organized world.

3. That in cremation the ammonia is entirely destroyed, and the nitrogen entirely liberated.

4. That the nitrogen of buried corpses is entirely converted into ammonia.

Mohr soon had many followers who imagined that if the bulk of all animal remains should be burnt to ashes, the mischief produced by the loss of ammonia would be incalculable. They claimed that it is as necessary to vegetable life as is the air we breathe to us; that there is no counterbalance in nature whereby this ingredient can be supplied from other sources; and that by cutting off a large proportion of the supply of ammonia the loss would be quickly felt throughout all the animal kingdom, and would soon be followed by an appreciable diminution of animal life on the globe.

Dr. Mohr's objections were met by the eminent Professor Franchimont, of the University of Leyden, Holland, who proved that the views held by his *confrère* were both erroneous and absurd, and concluded his *exposé* as follows:—

1. That it is not proved that ammonia is the chief nitrogenous constituent of plants.

2. That it is proved that free nitrogen returns by many and various routes to the organic world.

3. That it is not certain that by interment all the nitrogen becomes ammonia, and that probably a portion of this ammonia is temporarily taken out of circulation; and, finally,

4. That it is not proved that the nitrogen is completely set free during cremation. And even if this were so, its quantity, in comparison with that of the

ammonia now yearly produced by the dry distillation and combustion of coal, is so small that the loss of it cannot be advanced as any really serious objection to the practice of cremation.

I must here add that the explanations given by Professor Franchimont are held to be perfectly satisfactory by seventeen professors and teachers of botany and chemistry in the Dutch universities, whose names are well known in the scientific world.

Students of agricultural chemistry, and others interested in the subject, should not fail to read Mr. Eassie's excellent article on the asserted loss of ammonia caused by the cremation of bodies, in the *London Sanitary Record* of Jan. 18, 1878.

It must be remembered that all animals—from the smallest insect to the largest beast—excrete a great amount of ammonia during lifetime, which passes off with the fecal matter, urine, and transpiration.

Besides, it cannot be denied that ammonia is formed spontaneously, during the great electrical processes which take place in nature, from the nitrogen and water of the atmosphere. The smoke that emanates from the chimneys of factories all over the world supplies more ammonia to the vegetable kingdom than the decomposing animal bodies ever could. And, finally, it must be kept in mind that we can generate ammonia artificially; therefore, should a dearth of ammonia ever occur, which is not very likely, this expedient would still be left to us.

There is no recorded evidence to show that any damage was done to the Egyptian vegetable world by the mummification which was carried on for thousands of years in the land of the Pharaohs. On the contrary,

the country was in a more flourishing condition than than now.

The sentimental objection to cremation I have already treated of in a previous work; but since I have something to add to what I then remarked, I will revert to the topic.

The subject at first glance is revolting. To some persons there may be something in the idea of reducing one's friends to ashes that is repulsive. Yet, when one makes a careful study of the question, that prejudice or repulsiveness wears away entirely, and makes way to a feeling that cremation is correct both in theory and practice. One should not listen to the emotions in a matter like this, but study incineration to be able to judge of it; objections founded on sentiment only are sure to be wrong.

If the general public knew, as a physician does, the many changes a body undergoes in the process of decomposition,—putrefaction and most disgusting changes,—I think a great deal of their objection to cremation would be removed. I fancy if people in general could see the ordinary process of decomposition, they would be in favor of the quicker and more scientific method of cremation.

The Bishop of Lincoln intimated that incineration would keep all future great ones out of the silent company of those who have in former times added lustre to England's name. It will do no such thing. I cannot comprehend what obstacles could stand in the way of the entombment of an urn containing the ashes of some illustrious personage who chose to be cremated instead of buried, in Westminster Abbey.

Mr. William Eassie says:—

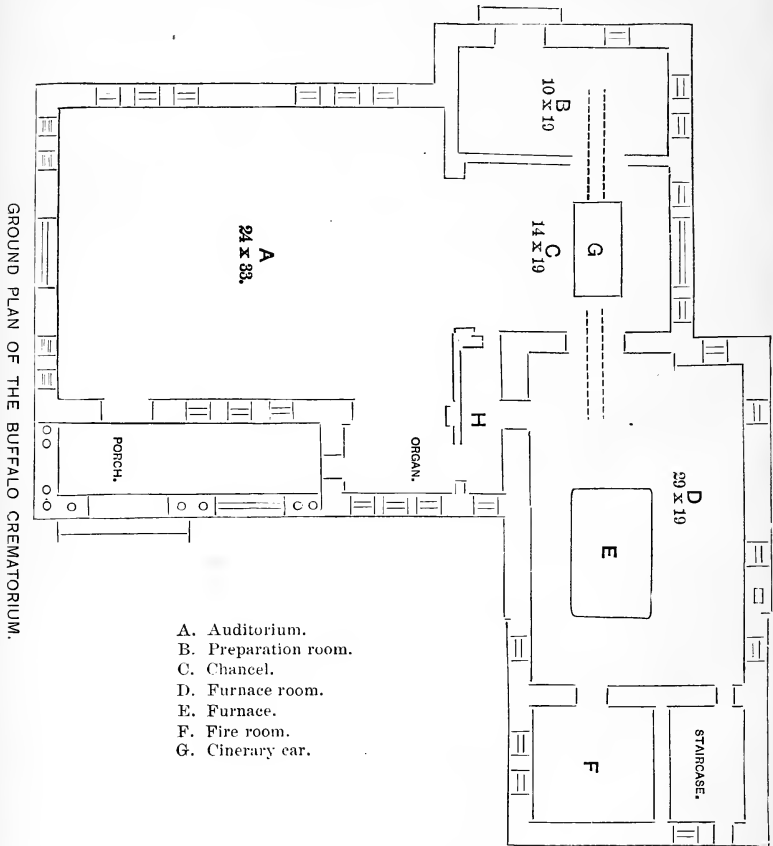
“In the play of ‘*Virginius*’ the body of Virginia is represented as having been placed in an urn, and when the distraught father inquires for his missing daughter, the vase is placed in his hands by the sorrowing lover. When this scene is presented, the thrill which seizes the audience is succeeded by a sensation of admiration at the eminently superior system of the ancients. I have seen the actor Brooke, in this tragedy, and the effect which he here produced was inexpressible. Many whom I have consulted as to the feelings engendered at this point have invariably declared that they were at the time complete converts to cremation, and that the sense of approval only left them when they began to realize how impossible were funeral pyres in this country. Happily the Siemens apparatus is now at hand, and its suitability proved beyond cavil.”

An eye-witness to the process of incineration says: “I have stood before the crematory with a faltering heart. I have trembled at the thought of using fire beside the form of one whom I had loved. But when, in obedience to his own dying wish, I saw the door of the crematory taken down, its rosy light shine forth, and his peaceful form, clad in white, laid there at rest amid a loveliness that was simply fascinating to the eye, and without a glimpse of flames, or fire, or coals, or smoke, I said, and say so still, this method, beyond all methods I have seen, is the most pleasing to the senses, the most charming to the imagination, and the most grateful to the memory.”

“Is cremation illegal?”

This interrogation I am obliged to answer with a most decided “No!” In our country, it is true, the legal status of the question is somewhat unsettled, but

I do not believe that any action taken in our American courts could prevent any persons from cremating a dead body who wished to do so, provided it was not contrary



to the expressed wishes of the deceased. In England it is only illegal to burn a corpse in cases where an inquest ought to be held or has been ordered. In other

cases, if the burning is conducted in such a manner as not to cause a nuisance or offense against public decency, there is no rule of law to prevent this mode of disposing of a corpse being adopted. Some time ago a rajah, who consulted Mr. Eassie as to burning the body of his *raneé*, had to be told that what he claimed as a right in India could not be accorded him in the capital of the Empire except at a risk of scandal. Thanks to the decision of Sir James Stephen, the honorary secretary of the Cremation Society of England would not now be forced to make such a humiliating admission.

There are, I am sorry to say, individuals who think that those who are cremated let themselves be burned only because they are anxious to create for themselves a little notoriety after death. I can but pity the people who believe that Dr. Gross and Garibaldi, for instance, adopted such a means to attract public attention after decease. Those who now order their bodies incinerated after that mysterious power called life is fled, have the courage of their opinions, recognize the many advantages of incineration, and allow their convictions to triumph over local and even family prejudice; they are the true martyrs of cremation.

CHAPTER VI.

BURIAL ALIVE.—CREMATION FROM AN ÆSTHETIC AND RELIGIOUS POINT OF VIEW.

OUR great American poet, Edgar Allan Poe, says: "To be buried alive is beyond question the most terrific of all extremes which have ever fallen to the lot of mere mortality."

Is any death more horrible than this? To be embraced, unprepared, down in the deep dark grave! To awake again with the greatest longing for life, suffering the most severe bodily tortures, in the coffin! To realize that there is no escape from inevitable death! Who can conceive the feeling of finding one's self in the grave, the blood rushing to the head, the body trembling convulsively in the vain endeavors of casting off the oppressing weight, the organs of respiration laboring without avail for air, the muscles of the whole body working without result, and above all, being mindful of certain death near at hand?

From time to time anti-crematists, advocates of earth burial, of course, assert that cases of burial alive are exceedingly rare and occur very seldom. This is very erroneous. Our newspapers teem with the reports of such cases, and one must be a careless reader indeed not to observe them. As I am a daily peruser of some specimen of the secular press, and hardly anything of importance escapes my notice, I succeeded in making a

collection of cases of burial alive, from which I will cite some striking examples. A Wheeling, W. Va., special despatch to the *Chicago Tribune* relates the terrible fate of a young married lady as follows:—

“One of those ghastly stories of interment before life has become extinct, which cause an involuntary shudder of horror to pass through the reader, is current in this city to-night. The victim, so the story goes, is a young married lady of 20 years. In May of last year, three months after her marriage, the lady was taken violently ill, and after lingering for ten days, apparently died. There were certain peculiarities about the appearance of the supposed corpse, however, which caused a suspicion in the mind of the attending physician that his patient might be in a trance, but after keeping the body for four days with no signs of returning life, the remains were consigned to the grave, temporary interment being made in the family lot in an abandoned graveyard. A day or two ago the body was disinterred prior to removal to another cemetery. To the surprise of the sexton the coffin-lid showed signs of displacement, and on its being removed the grave-digger was horrified to find the remains turned face downward, the head filled with long tufts of hair torn from the head, and the face, neck, and bosom deeply scratched and scarred, while the lining of the coffin had been torn into fragments in the desperate efforts of the entombed victim to escape from her horrible fate. Since the discovery the young husband has been prostrated, and his life is despaired of. The names are withheld.”

The sequent curious case of premature interment occurred at Leipsic, a small town in the state of Ohio. A lady who was pregnant died suddenly. She was put

in a coffin and placed, temporarily, to await the burial-day, in a vault. Some of her relatives, however, thought that she had been disposed of too hastily and caused her coffin to be opened. When the air struck her body, she revived. She was taken home and recovered entirely, being soon after delivered of female twins.

A despatch from Woodstock, Ont., dated Jan. 18, 1886, to the *Detroit Evening News* states:—

“One year ago a girl named Collins died, as was supposed, while playing on the street. The body was moved last week from where it had been buried in the family plot, and the parents wishing to view the remains, had the coffin opened, when to their horror they discovered that a dreadful struggle must have taken place after burial. The shroud had been torn to shreds, the knees were drawn up to the chin, one arm was twisted under the head, and the features bore evidence of dreadful torture,—all unmistakable proofs that the girl had been buried alive.”

The celebrated English anatomist, Winslow, is said to have been twice nearly interred alive.

The Marquis D'Ourches, courageous in all other respects, had the greatest fear of premature burial. He recorded all the stories of burial alive; he believed in them, and even asserted that one of his uncles had awaked under ground.

“I have seen death in every aspect,” said a general to Dr. Josat, a gentleman rewarded for a book on mortuary houses, “and it has never had any terrors for me; but I own that I shudder at the notion of finding it at the bottom of a ditch in the cemetery.”

Incomplete death, or trance, as it is called, stands midway between death and life. During this state the

senses cannot receive impressions; they are inactive, paralyzed, as it were. Yet the spark of life is still there and can, under proper care, be retained until the natural condition is restored. Yet almost always trance ends through ignorance and carelessness in complete death.

It is an established fact that there is no certain sign of death, none but the beginning of decomposition. To prevent premature burial the body must be retained until the commencement of decay is visible. Incineration protects from the horrors of burial alive. Even if a person in a trance should be introduced into a cremation furnace, the intense heat to which the body would be subjected would extinguish life immediately and painlessly.

It is alleged by some who are more impressed by prejudice than reason, that cremation is heathenish, brutish, pagan, atheistic, — in short, contrary to Christian practice.

This I deny! To be sure the heathen did practice it, — the ancient Asiatics (Oriental peoples in general), Romans, Greeks, Teutons, and Etruscans, — but at the same time they executed grave-burial; and yet I have never heard anybody decry the latter as abominable, disgusting, and heathenish. It must be kept in mind, that the first Christians were compelled by their heathen persecutors to adopt burial. They were forced to inter their dead secretly in the catacombs; they could not, even if they had chosen to, burn their dead, as the smoke from the cremation pyre would have betrayed them.

Why inhumation should have become so universal among the Christians, that it is looked upon as a neces-

sary part of the religion, and all other means of disposal of the dead as heathenish, is not entirely plain. There is no condemnation of cremation in any of the dogmatic teachings of the apostles. The early Christians, whether in Judæa, Greece, or Rome, were mainly of the poorer classes, who had to bury their dead. The mere fact that the richer and more educated classes, who were the most difficult to proselytize, universally practiced cremation would probably cause that custom to be associated with their other heathenish practices.

The Romans regarded the early Christians as a new sect of the Jews and called them "Nazarenes." And, in fact, Christianity was born of Judaism; for Jesus, the founder, himself says (Matthew v. 17): "Think not that I am come to destroy the law, or the prophets: I am not come to destroy, but to fulfil." It is easy to understand how, being an offspring of Judaism, Christianity should adopt that method of disposing of the dead then prevalent among the Jews. At first, as Dean Stanley avers, the breach between the heathens and Christians was not an utter one. According to this great divine the early Christians inhumed in the same places as the heathens, and even painted and engraved upon the catacombs representations of the pagan gods. Later on the breach widened, however, and the Christians, as intimated above, were forced to bury their dead in seclusion.

It is alleged by some eminent writers on theological subjects that in the beginning Christians were even cremated.

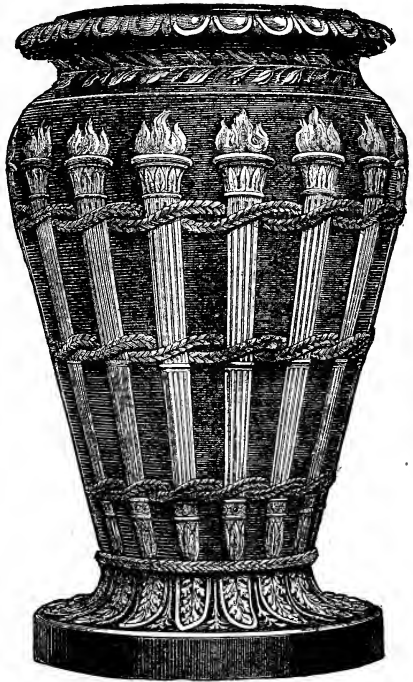
Merivale, the historian, holds that letters inscribed on many of the Christian tombs in the catacombs imply that the early Christians sometimes burned their dead.

Nevertheless, at the end of the fourth century Christians heard of burning with horror, and finally becoming inimical to the practice, although it was nowhere forbidden in the New Testament, made haste to abolish it in Europe.

At the time of Pope and Dryden a classical reaction set in, and now again may be seen in every churchyard the broken shaft, the inverted torches, and innumerable marble urns which "in pride of place" rest upon the monuments in our cemeteries.

The phrase "ashes to ashes, dust to dust," which occurs in almost every funeral sermon preached by modern clergymen, is but an allegory which was derived from the ancient custom of cineration. It is impossible to imagine ashes without the act of burning.

The inscription "peace to his ashes" which so often is found, in black or golden letters, on the tombstones



THE BLACK AND WHITE JASPER URN.

(Barlow Collection.)

of the present time, preaches incineration in our burial-grounds.

When the Romans embraced Christianity, it was transformed completely, and represented a strange commixture of rites partly of pagan and partly of Hebrew origin. The dalmatica of priests, utensils for celebrating mass, frankincense, etc., were derived from the Jews; whereas many other things, as for instance the worship of images, sprung from heathenism. The papal tiara has a remarkable resemblance to the historical conical cap of the Roman Pontifex Maximus; and to this day the Latin appellation of the Pope is identical with that of his pagan predecessor. The derivation of the crosier, the pastoral staff of the bishops, from the crook of the augurs is undeniable.

The mummy graves and representations upon the vessels of clay which were deposited in the sepulchres with the mummies testify that the cross (and indeed the upright cross) was one of the oldest and pre-Christian ornaments in the hands of the gods of ancient Egypt. It was not before the twelfth century that it was erroneously made a specific Christian symbol, ostensibly to demonstrate that although the cross was most contemptible, yet Christ himself had elevated it into dignity. Thus the sign of the cross became the symbol of Christianity. Such wooden crosses, history tells us, were also placed as a memorial upon the mounds of heathen graves.

If we would not want to imitate heathenism any more, we would have to quit eating with knives and forks, stop wearing boots and pantaloons, and do away with surcoats and rings. With the exception of steel pens and matches, but little would be left of our daily neces-

sities of life that would not be an imitation of paganism.

The perpetual lamp burning at the ideal grave of the Saviour on the altars of Catholic churches is an imitation of the lamps which were lit on the memorial days of the deceased in the columbaria of ancient Rome, and by whose maintenance slaves, according to testamentary directions, attained the position of freedmen.

The decoration of our burial-grounds with flowers on the memorial days of the dead is copied from the analogous usage of the heathenish Romans.

The enemies of incineration say that every Christian is bound to practice interment because the Bible (I. Moses iii. 19) prescribes:—

“In the sweat of thy face shalt thou eat bread, till thou return into the ground; for out of it wast thou taken; for dust thou art, and unto dust thou shalt return.”

The above has no value whatever as evidence for inhumation; since at the times when the books of Moses were written the inurned ashes were also deposited in the dust, *i.e.*, the earth. The preservation of urns above ground is a much later custom. The above citation has no reference to the destruction of a body by fire or decay, but directs simply that the final remains of man, the dust, be placed in the earth. At least, this Bible passage might be urged against columbaria, but it has no bearing whatever on cremation.

If we should have to follow the Bible in all things, we would have to give up most of our modern inventions. For instance, the day of agricultural machines would be over, and we would have to tread out corn with oxen as of yore.

It must be remembered that the early Christians practiced many things which Christians now do not practice; and they abominated some things which Christians now universally practice. For instance, the early Christians did not worship in temples or churches: they abominated temples as either pagan or Jewish; they hated art and condemned statuary and painting, especially in connection with religion; they destroyed many masterpieces of ancient art which were not religious, besides some that were; and they burned all books save the Bible. But these notions are no longer a part of Christianity, and were never part of its true faith.

When the Romans and Greeks knew better than we know, we exercise no compunction in adopting their practices. Our boys are taught from the classics; artists study the models of Greek, that is, pagan, art; much of our philosophy is heathen, and more of our jurisprudence. The ancients were wiser than we in practicing incineration. Why not, then, imitate them in this respect? Granted even that cremation were a "pagan custom," not to adopt it when it has been conclusively demonstrated to be superior to burial, simply because it is of heathenish origin, shows nothing but miserable narrow-mindedness.

If cremation is a "pagan custom," how about interment? Earth-burial to-day is practiced by more heathens than Christians. Or are not those whom we choose to style pagans in the majority? Would it not, therefore, be far more correct to denominate inhumation a pagan custom?

Dr. Neil declares:—

"It was once considered an eminently Christian virtue, entitling him who practiced it to the honors of

canonization, to discard the use of soap and water; and this kind of mediæval piety prevails a good deal yet, notwithstanding the good old Roman practice of ablution. I do not find, however, that even Christian sanitarians object to the more frequent use of the bath because it was the pagan practice."

Inhumation is claimed to be the Christian method of disposal of the dead *par excellence* because Christ was so disposed of.

"By the same sort of reasoning," says the *Medical Times and Gazette* of London, England, "might it not be held that crucifixion has been so consecrated that it ought to be the mode of capital punishment in Christian countries?" Moreover, as the Rev. H. R. Haweis informs us, "Christ is no example to us, for according to Christian belief he rose from the dead and saw no corruption."

It is exceedingly interesting to read what Christ himself said about burial.

Jesus, being a Jew, like the Hebrews in general had little regard for burial and the grave. Among the Jews contact with the dead was considered an act of defilement that had to be soon atoned for.

From the following passage (Matthew viii. 21, 22) it is plain that Christ was no friend of interment:—

"And another of his disciples said unto him, Lord, suffer me first to go and bury my father. But Jesus said unto him, Follow me; and let the dead bury the dead."

By the dead (*i.e.*, spiritually dead) the Saviour, according to the best exegesis, meant the outside world, and he wanted to intimate that burial was fit work for them, but not for the Christian or disciple.

See also St. Luke ix. 59.

Christ disparaged the importance of burial more than once. Indeed, it seems that he paid little attention to the disposal of the dead. We find him, during his ministrations on earth, healing the sick, turning water into wine to make glad the hearts of guests at a wedding feast, administering to the wants of the indigent, and cheering the down-trodden; but never at funeral ceremonies. It was he who declared:—

“God is not the God of the dead, but of the living.”

Dr. Le Moyne says:—

“So far as we have knowledge of New Testament history, we find no command given anywhere which was a ‘thus saith the Lord’ for any mode of burial. The Christian world was left to choose a mode of burial.”

When Jesus distinguished between cave and earth burial, he considered the latter the most despicable mode of burial, to which he compared the scribes and Pharisees; for when he reproved them by rebuke and disparagement, he said (Matthew xxii. 27):—

“Woe unto you, scribes and Pharisees, hypocrites, for ye are like unto whited sepulchres, which, indeed, appear beautiful outward, but are within full of dead men’s bones, and of all uncleanness.”

The above shows in what estimation the founder of Christianity held inhumation.

It seems Christ himself gave the preference to cave-burial, for so he was disposed of. He was placed (*vide* Matthew xxvii. 57–60) in the rock-hewn tomb of Joseph of Arimathea, which was open in front, and the door of which was closed with a stone.

Christ was not buried in the earth, but was placed in

a sepulchre because he was a Jew. Had he been an Egyptian, he would have been embalmed after the fashion of a mummy. It was merely a matter of custom, and is not necessarily a precedent to be followed. It is evident that to be buried as Christ was, Christians would have to be deposited in rock-hewn tombs.

The assertion of certain religious fanatics, that cremation interferes with the Christian doctrine of the resurrection, proves untenable enough when one but remembers that both interment and incineration lead to the same result; namely, to the total destruction of the body. In the case of cremation this takes place within an hour; in earth burial the process may last for centuries until completed.

Professor Max Müller, the famous linguist, in his biographical essays, writes:—

“I often regret that the Jews buried and did not burn the dead, for in that case the Christian idea of the resurrection would have remained far more spiritual.”

Cannon Liddon believes that:—

“The resurrection of the body from its ashes is not a greater miracle than the resurrection of an unburnt body. Each must be purely miraculous. Faith in the resurrection would have been as clear and strong if the Jews had burnt their dead, as it is when, as a matter of fact, they buried them.”

Dr. Le Moyne says:—

“Some religionists object to cremation because it might possibly throw obstacles in God’s way of collecting the particles which once formed the body. They seem to forget that the dispersion of the atoms which compose the human body is just as wide and perfect by inhumation as by cremation.”

Napoleon I., the Great, was a firm believer in cremation. On Dec. 14, 1816, five years before his death, he conversed freely with his surgeon, Barry O'Meara, on various topics.

Mr. O'Meara ("Napoleon in Exile; or, A Voice from St. Helena." By Barry E. O'Meara. W. Gowans, New York, 1853, Vol. I. p. 277) says:—

"He afterwards spoke about funeral rites, and added, that when he died, he would wish that his body might be burned. 'It is the best mode,' said he, 'as then the corpse does not produce any inconvenience; and *as to the resurrection, that must be accomplished by a miracle, and it is easy to the Being who has it in his power to perform such a miracle as bringing the remains of the bodies together, to also form again the ashes of the dead.*'"

During another talk with his medical adviser the emperor said, "that he had ordered the slain burnt after the battle at Wagram."

I clip the following from the *Medical Herald*, and commend it to the notice of opposers of cremation on the ground of religion:—

"The most prejudiced religionist cannot offer one valid objection, for if God is to call up the scattered remains of the dead from both land and sea on the day of final resurrection, the ashes shall be as easily resolved from the urn as from the débris of a building in which bodies may have been accidentally consumed by fire."

I should like to see the Christian who believes that God will not take unto himself the soul of the brave fireman, who rushes courageously into a burning building to rescue his fellow-beings, and has the misfortune to fall and perish in the flames, while an indolent crowd

is looking on below. Nay, nay! I believe that he will be twice as welcome in the kingdom of heaven.

At the opening of the Bolton cemetery in 1874, Bishop Fraser combated the anti-cremation movement, based upon the doctrine of the resurrection, with the sequent vigorous language:—

“The ancient Romans believed in immortality, and yet they believed in burning the bodies of their dead. Urn burial was certainly quite as decent as the practice of interment; and urns containing the ashes of the dead were more picturesque than coffins. Can any one suppose that it would be more impossible for God to raise up a body at the resurrection, if needs be, out of elementary particles which had been liberated by the burning, than it would be to raise up a body from dust, and from the elements of bodies which had passed into the structure of worms? The omnipotence of God is not limited, and he would raise the dead whether he had to raise our bodies out of churchyards or whether he had to call our remains, like the remains of some ancient Romans, out of an urn in which they were deposited 2000 years ago.”

It is a clerical duty to dispel superstitions. “Superstition,” well says Sprengel, “is the grave of science.” But it is not only the grave of science, but of all progress. The clergy should aid the latter and not place obstacles in its way.

Colonel Olcott says:—

“I am too firm a believer in the immortality of the soul, to view with patience the inconsistency of those who behave over the dead bodies of their friends as if the immortal part were being laid away in the ground. The more I might love my dead, the less willing I

should be to leave the fair form that had once held an immortal spirit to turn into putrid carrion under ground, and breed a myriad of loathsome creatures out of its own rottenness. The attempt to substitute the scientific, poetical, and rational system of cremation has my earnest sympathy. I pray heaven that it may be possible to commit my body or that of any of my beloved to the pure flame, that in one short hour will purge them of dross as gold is refined in the furnace seven times heated."

Even the organ of the Mormon hierarchy, *The Deseret News*, that believes in an absolutely literal interpretation of the Bible, reasons thus:—

"Some object to cremation on the ground of its inconsistency with the Christian doctrine of the resurrection. We do not see any force in that. No particle of matter is destroyed by fire; it is merely changed in form and reduced to primitive elements, or in their direction, for it is not clear that the action of fire extends so far as to resolve organized matter into its primal atoms. The same power that can call forth from the tomb a body that has decayed and gone to dust can quicken the dried ashes and draw from the elements the gases that have been dispersed by the flames of the crematory. How much of the actual particles that are seen now by the natural eye is necessary to the re-formation of the human frame into a spiritual body with flesh and bones does not at present appear. But this is certain: the power that can resurrect the body from the grave or from the sea can bring it forth from any place or condition in the universe. Belief in the resurrection implies belief in God, and with him all things are possible."

Kate Field, who of all Americans probably is best acquainted with Mormon life and doctrines, points out that when the literal Mormon abjures literalness, it is high time for orthodox Christians to cast away the above-mentioned sacrilegious objection.

How, by the way, about those who fall overboard and are swallowed by the fishes, or those who are blown up by an explosion? Are they to be consigned to eternal damnation simply because they happened to meet with an accident? Are they not to be raised hereafter?

The absurdity and unreasonableness of this erroneous notion was tersely and happily expressed by the Earl of Shaftesbury during a conversation with an eminent (Sir T. Spencer Wells, I believe) promoter of the present cremation movement. He said:—

“What would in such a case become of the blessed martyrs?”

Many of them have been reduced to ashes, and still these are held sacred.

I would advise the person who holds the opinion that the resurrection cannot take place after cremation to seek quickly the nearest physician who makes a speciality of insanity. I wonder if such persons are conscious that they commit a sacrilege in doubting that God is omnipotent.

From a purely catholic point of view it is urged that incineration would destroy the relics of individuals who might afterward be canonized.

This is the most ridiculous objection of the whole lot! Are not the ashes of a saint as venerable as his bones? When such ashes are kept in a sealed urn, we may be certain of the genuineness of the relics. To-

day, there is no guarantee whatever of their genuineness — many cities claiming to possess the only real relics of this or that saint.

There is no relation between cremation and religion. They are independent of each other. No passage in the Holy Bible prohibits incineration. The Christian religion does not oppose it, nor does the Jewish, as I learnt from an article in the *Jewish Chronicle*.

Some newspapers seem to think that cremation is contrary to the Jewish doctrines.



THE PORTLAND VASE.
(Originally a Cinerary Urn.)

Our brethren at Gibraltar and in the north of Africa bury their dead in quicklime. No one can deny the orthodoxy of the Jews on the shores of the Mediterranean, yet more than once have some of their number been disposed of in the manner related above; the method being carried out but lately at Mile-end. Among the Jews at London, instances of cremation are not unknown.

A Swiss clergyman, the Rev. Mr. Lange, declares

that our Saviour never spoke a single word in condemnation of incineration. Dr. Altherr, *Religious Journal for the People* (No. 11, 1874), also entertains the same opinion.

An English Catholic pointed out that cremation would once more enable us to bury our dead in the churches, not only in the crypts of the sacred edifices, but also along the sides of the body of the churches.

Rev. Henry Ward Beecher had a word to say about cremation in a recent sermon of his. He thought that the universal Christian teaching of the resurrection of the body would prevent any general acceptance of it while that teaching prevails. Of course, a man of a "classical" education cannot reject incineration altogether, especially when he considers it from a hygienic point of view.

I have always been of the opinion that a great many clergymen fear to state their real views concerning cremation, lest their congregation might discharge them and engage the services of some other theologian; and I still have the same impression.

The so-called religious objection to cremation is wholly unsound, as even a great many anti-cremationists admit; it is therefore not surprising that "religious" opposition is fast weakening and waning wherever it has existed at all.

A late writer in the *Church Review* advises us to take care that incineration does not fall into infidel hands, and so become at last a symbol of irreligion.

The cemetery is regarded, in general, as a permanent resting-place of the dead, where they may sleep undisturbed. Man of the present time puts his beloved into

the dirty, dark ground, and hands them over to the foul putrefaction; he places upon their graves large, heavy monuments, as if to keep them down and prevent them from finding their way back again into this sinful world. But he thinks not of the festering mass of corruption hid away under the tombstone; to him the departed is more like one asleep, like he or she was when death claimed the mortal body. He fondly imagines that his dear ones shall remain there forever, that their quiet rest shall be unbroken. From year to year, however, bodies are added to those already buried, the disgusting state of overcrowding which I described minutely, with all its evils, shows itself, and then one of two things happens: either the remains of those buried before are ruthlessly dug up by the sexton's spade and thrown into the mud whenever a new grave is made, or all of the bodies are exhumed and taken away; the soil is parcelled, and the new generation takes possession of the "city of the dead."

In some cemeteries corpses are allowed to remain in a grave only a stipulated time; in English burial-grounds, where a freehold right is not secured, the remains may rest undisturbed but seven, in France five, years.

The sentiment of the public is expressed in the sequent extract from a lecture by the Rev. Brooke Lambert: —

"There is no subject on which people feel more deeply than the disturbance of the remains of their ancestors, and even the displacement of effete memorials of them. I find that the prevailing feeling is that the dead ought never to be removed, nor the position of their monuments changed even by a hair's breadth. Now *whilst*

our present system of burial remains, such changes in their places of interment must occur."

When Mr. Walker, the surgeon, inspected the Portugal Street Cemetery at London, England, on April 27, 1839, he discovered that two graves had been opened, the bones of the remains exposed to view; and a lot of coffin-wood, some quite fresh, intended (as he was informed) for fire-wood.

A gentleman who visited the same burial-ground some time before (*vide Times*, June 25, 1838) wrote: "I was shocked to see two men employed in carrying baskets of human bones to the back of the ground through a small gate. I have 12 of my nearest and dearest relatives consigned to the grave in that ground, and I felt that I might perhaps at that moment be viewing, in the basket of skulls which passed before me, those of my own family thus brutally exhumed."

A correspondent to the *Weekly Despatch*, of September 30, 1838, thus describes St. Giles' Churchyard, where he had just been:—

"What a horrid place! It is full of coffins up to the surface. Coffins are broken up before they are decayed; and bodies removed to the bone-house before they are sufficiently decayed to make their removal decent! . . . The bone-house is a large, round pit. Into this had been shot from a wheelbarrow the but partly decayed inmates of the smashed coffins. On the north side was a man digging a grave. He was quite drunk. So, indeed, were all the grave-diggers we saw."

Walker saw the tin plates removed from the coffins broken up, and witnessed how many wagon-loads of bones were taken to the charnel-houses.

Lord Ronald Gower writes in *Vanity Fair*:—

“The other day I came across a somewhat rare little brochure, — an account of the violation of the royal sepulchres of St. Denis, during the first French Revolution. The work of destruction and sacrilege commenced early in October, 1793, and lasted all the month. The first corpse found was that of Henry IV, the once beloved Henri de Navarre. Some curiosity, if not affection, still seems to have lingered even among those patriots who have constituted themselves body-snatchers, and the bearnais was propped up against the church wall in his shroud, and became quite an attraction for the crowd. One of the republican guards even condescended to cut off the king’s gray, upturned moustache, and place it on his lip; another removed the beard, which he declared he would keep as a relic. After these marks of attention were exhausted, the body was thrown into a huge pit filled with quicklime, into which successively followed those of its ancestors and descendants.

“On the next day the corpses of Henry IV’s wife, Maria de Medicis, that of his son, Louis XIII, and that of his grandson, Louis XIV, were added to this. The body of the sun-king (as Louis XIV’s courtiers loved to call him) was as ‘black as ink.’ What a contrast to that majestic, bewigged head, as we see it on the canvas of Le Brun and Rigault, must not that poor blackened skull have been! The body of the Grand Monarch’s wife and that of his son, the Dauphin (father of Louis XV) followed; all these, and especially the latter, were in a state of shocking decay.

“The following day poor harmless Marie Leczinska’s body was torn from its resting-place, as also were those

of the 'Grand Dauphin,' the Duke of Burgundy and his wife, and several other princes and princesses of the same race, including three daughters of Louis XV. All these were in a state of terrible decomposition, and in spite of the use of gunpowder and vinegar, the stench was so great that many of the workmen were seized with fever, and others had to continue the grewsome work. By a strange chance, on the very morning that Marie Antoinette's sufferings came to an end on the Place de la Revolution, the body of another unfortunate queen saw the light of day, — it was on the 16th of October that the body of our Queen Henrietta Maria, who had died in 1669, was taken from its coffin and added to the ghastly heap in the 'Ditch of the Valois,' as the pit into which these royal remains were hurled was called; that of her daughter the once 'Belle Henriette' came next, and then in quick succession the bodies of Philippe D'Orleans; that of his son, the notorious regent; of his daughter, the no less notorious Duchesse de Berri; of her husband; and half a dozen infants of the same family. On the same day a coffin was cautiously opened. This was found at the entrance of the royal vault (the customary position for that containing the latest deceased king), and contained the remains of Louis 'le bien aimé.' No wonder that the body-snatchers hesitated before withdrawing the corpse from its enclosure, for it was remembered that Louis had perished of a most terrible illness, and that an undertaker had died in consequence of placing the already pestilent corpse in its coffin. Consequently it was only on the brink of the ditch that the body was removed and hastily rolled over the edge, but not without the precaution of discharging guns and burning much pow-

der, and even then the air was terribly tainted far and near.

“I turn the page and find that we are only in the thick of all these dead men’s bones and uncleanness, for the republican resurrectionists began by the Bourbons and had still to disentomb all the Valois, and further back, up to the Capetian line, and are not content until the almost legendary remains of Dagobert and Madame Dagobert reappear. Suffice it to add, that after Louis the Well-beloved had been disposed of, came in succession, like the line of royal ghosts seen by Macbeth, Charles V, who died in 1380, whose body was one of the few well-preserved, and was arrayed in royal robes, with a gilt crown and sceptre, still bright; that of his wife, Jeanne de Bourbon, who still held in her bony hand a decayed distaff of wood; Charles VI with his queen, Isabeau de Bavière; Charles VII and his wife, Marie D’Anjou; and then Blanche de Navarre, who died in 1391. Charles VIII, of whom nothing but dust remained, Henry II, Catherine de Medicis, Charles IX, and Henry III, were disinterred on the morning of the 18th; ‘after the workmen’s dinner,’ Louis XII and his queen, and among other less interesting royal remains, the bones of Hugh, Comte de Paris, father of Hugh Capet; and so on the work went, till one tires even of the details of the preservation of this or that king or queen. Can anything be more shocking than to know that all the horrors of decay and decomposition will remain even after two or three centuries have passed over the lifeless form, and that, supposing one has the ill luck to be thus confined and one’s body removed, ‘a black fluid, emitting a noxious smell,’ will run from out our last home, as was the case with those royal remains

during that hot summer month at St. Denis in 1793?"

The Rev. H. R. Haweis says:—

"You cannot preserve the buried dead securely from the outrages of the living. The people who dig graves, or are employed to remove bones, are not as a rule scrupulous, but they are very often drunk. The other day only a number of wild Irish were so employed at New York; the bodies were offered for sale on the ground to a party of medical students. These young fellows had the grace to shrink from the horrors they then witnessed. One coffin was found full of a heavy decomposed mass, like spermaceti; it was used to grease the axle-tree of the cart. Another coffin contained the body of a woman, aged 20, as the inscription announced. She had rested for 107 years—laid there with what tears, what tender regrets of husband, or lover, or mother! But now her head was rudely seized and kicked like a football from one ruffian to the other."

But the "sweet sleep and calm rest" of the dead was not only broken by the ruthless hand of man, but was even disturbed by the elements.

On the 26th of August, 1854, at Herrnlauersitz (Guhrauer Kreis) more than 100 corpses were washed out of their graves by an inundation. Many of them remained in their coffins. They were found afterward in gardens, yards, fields, in the woods, and even in houses, whither they had floated. Sixteen days passed before the bodies were all collected; some were recovered whole, others in parts; then they were buried in one large pit forever (?), as the officiating clergyman announced.

"I was long since cured of a belief in earth burial,"

says a very intelligent army officer, "by an appalling sight I witnessed when going down the Mississippi. There had been a great freshet, during which the river had so changed its course as to invade a cemetery and dislodge its occupants, who, in various stages of decomposition — the coffins having rotted or been torn asunder by the torrent — were floating down the stream. It was a ghastly spectacle."

I don't think that the people along the banks of the mighty river were particularly edified with the sight. And if, at the time, they would have known of some other mode of disposing of the dead, I am sure they would have adopted it without hesitation.

A similar occurrence happened at Kansas City, Mo., in February, 1886. The Missouri River being blocked by ice, caused the channel to rise and sweep the lower part of an island away that lies opposite the city, and upon which is the small-pox hospital. About 20 graves were in this part of the island; they were opened by the flood and the corpses that had been interred in them swam down the river in their coffins. These bodies had been buried only since one year. The people on both sides of the Missouri, from which the city derives its water-supply, were quite agitated over this affair.

At the same time the cemetery at Copiano, Chili, was inundated; many of the vaults were full of water and the coffins were floating around, while many of the common graves had been completely cleared of their contents.

The most horrible feature of the situation was that the water which flows from the cemetery goes into the river which supplies the inhabitants with water for domestic purposes.

The *Quarterly Review* (No. XLII, p. 380) states:—

“Many tons of human bones every year are sent from London to the North, where they are crushed in mills constructed for the purpose, and used as manure!”

And a correspondent of the *Times* writes to his journal from Alexandria:—

“The other day at Sakhara, I saw nine camels pacing down from the mummy pits to the bank of the river, laden with nets in which were femora, tibia, and other bony bits of the human form, some two hundred-weight in each net, on each side of the camel. Among the pits there were people busily engaged in searching out, sifting, and sorting the bones which almost crust the ground. On inquiry, I learned that the cargoes with which the camels were laden would be sent down to Alexandria, and thence be shipped to English manufacturers. They make excellent manure, I am told, particularly for Swedes and other turnips. The trade is brisk and has been for years, and may go on for many more. It is a strange fate to preserve one’s skeleton for thousands of years, in order that there may be fine southdowns and cheviots in a distant land!”

Gen. W. T. Sherman once visited the catacombs under ancient Syracuse. His guide informed him that there were a million interments, but that the contents of every chamber had been sold for manure. The general asked him if a single grave had been spared; not one.

Only a short time ago a London florist bought two cart-loads of mould, and found it full of legs, arms, skulls, and other human bones. He brought an action against the person from whom he purchased the soil for misrepresenting his “goods.”

On Feb. 9, 1874, the railroad tunnel under the ceme-

tery of Père la Chaise at Paris, France, caved in with a thundering crash, forming a pell-mell mass of coffins and bodies, earth and débris.

In our own country the rest of the dead is fast becoming from year to year more insecure.

The *Medical Herald* affirms: "As the increasing necessities of man create new demands for space, graveyards are demolished and converted to other uses. In Louisville, Ky., within the past fifteen years, two extensive cemeteries have thus been transformed, — one on Portland Avenue into a common, and one in Jefferson Street into a park, called Baxter Square.

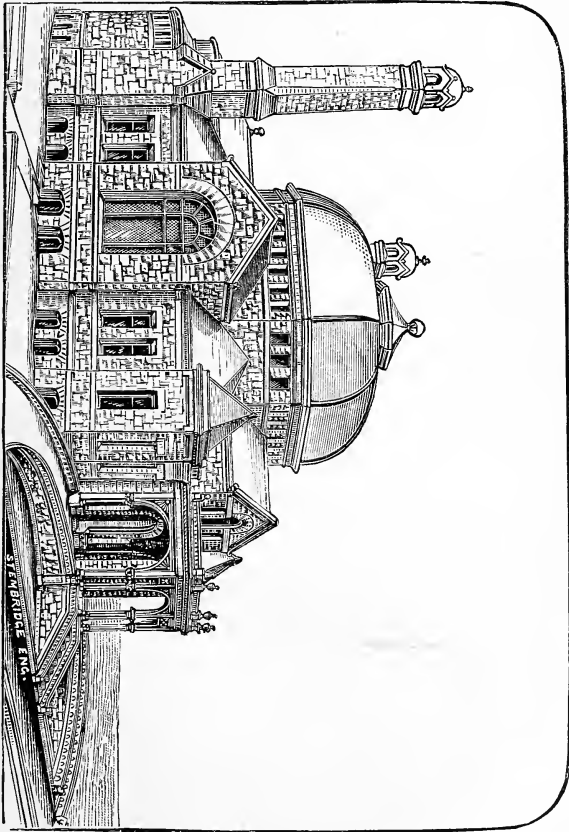
"Now the youth stroll along the graded walks and sit in the shaded nooks, upon the very ground in which the bodies of their ancestry have decayed. The sacred spot of last repose of grandparents is now the mirthful scene of the nocturnal orgies of irreverent grandchildren. Cremation would render this impossible, and place any profanation of the sacred memorials of the dead beyond the public eye."

Recently two burial-grounds, — one in New England, the other in Pennsylvania, — caved in, and the thickly crowded bones of many generations were exposed to view.

In my native city, Detroit, four cemeteries, to my knowledge, were closed and given up to the living. In every case save one these burial-grounds were excavated, the coffins, bones, semi-decomposed bodies, etc., carted away, and business blocks erected in their stead. In one of these cemeteries a brother of mine was buried; what became of his last remains I know not. Possibly they were used to fertilize a field; or perhaps cupidity tempted men to steal his body for the purpose of dissec-

tion ; or an unscrupulous grave-digger may have sent his bones to a bone-mill, vended his coffin-plate, and used his coffin for firewood. Who knows? I would

THE PROPOSED DETROIT CREMATORIUM.



give a great deal if the relics of my brother, decently inurned, could be with me ; but alas ! I must give up expectations of ever finding any trace of him again.

Within a quite recent period at least two graveyards in Montreal have been torn up to make public squares; and it is not likely that any more respect will be shown to cemeteries in the future than there has been in the past.

Dr. Wm. Porter says: "I well remember, when a boy, seeing our old sexton exhume a body buried for several years, — that of a strong man called away in the prime of life. The rotting coffin was slowly lifted from its damp bed, and the lid being broken, we saw within a horrible mass of putrefaction. Matted hair and decomposing grave-clothes but poorly covered the blackened skeleton as it lay in the once handsome casket, now reeking with the emanation of its loathsome contents. Yet this had been a beautiful grave; roses had blossomed upon it, and the arbor vitæ had whispered to it. There would be but little plea for the grave on the ground of sentiment could we see the changes there taking place; there would be few, if any, who would not choose that the body, after faithful service, should be purified by fire, rather than rot in such a grave."

We are accustomed to consider sacred the venerable remains of our dead, and the simplest memorial of a departed friend makes us, if but for moments, sad. Therefore, all who lay any claim to civilization or humanity must be vehemently opposed to the profane exhibition of the bones of the deceased in bone-houses, where they lie pell-mell in a heap, or catacombs, where they stand braced against the wall, lie in their coffins, or are put away in niches, *i.e.*, on the shelf, and where any dawdling fool may inspect them for a small sum of money.

The Rev. H. R. Haweis states: "Where are the thou-

sands who were laid in the heart of Paris, and who slept for centuries in the graveyards of the Innocents, St. Eustache, St. Etienne de Prés? Every tourist who takes a return ticket to Paris may gaze upon their bones, speculate upon their skulls, and finger their dust. By order of the minister of police they were all dug up in 1787 and carted off to the catacombs. The bones were cleaned and arranged in grim and picturesque symmetry. In one gallery are the arms, legs, and thighs intersected by rows of skulls; the small bones are thrown in heaps behind them. Whose dust is separate there? whose ashes are sacred? And yet they were borne to this grotesque sepulchre with priests and tapers."

As regards disrespect and insult to the dead, a correspondent of the *Medical Times and Gazette*, writing from Bordeaux, says:—

"The earth around one of the oldest churches in Bordeaux seems to have something peculiarly antiseptic in its nature, so that the bodies buried during ages were converted into mummies. During some alterations at the beginning of this century these bodies were laid bare, and instead of being decently buried again, they were taken out of their resting-place and ranged upright in a row around a crypt under the bell-tower of St. Michael. Here they constitute a disgusting and demoralizing show, which is visited by crowds of people, and I am afraid that the clergy of the church are not ashamed to pocket the profits. A rough fellow, a candle on the end of a stick, such as they have in wine-cellars, goes round as showman. He taps and thumps the bodies to show that they are perfectly sound, tough like leather trunks, and not the least brit-

tle. 'See here, gentlemen, is a very tall man; see how powerful his muscles must have been, and what excellent calves he has now! The next is the body of a young woman. Remark the excellent preservation of her chemise, though it was buried 400 years ago; and see, it is trimmed with lace. The next, gentlemen, is a priest; you can see his soutane with the buttons on it. There is a woman with a dreadful chasm in her breast; she had a cancer. The next four are a family poisoned with mushrooms; observe the contortions of their faces from the coliques they suffered. See, next, a very old man with his wig still awry upon his pate. The next is a poor misérable that was buried alive. See how his head is turned to one side and the body half turned round, in the frantic effort to get out of the coffin, with his mouth open and gasping.' (It is quite true that the attitude is singular, but it does not warrant the inference which the showman draws.) But enough of this disgusting mercenary exhibition of the human body in its lowest state of humiliation. If the guardians of consecrated sepulchres, in which people have paid an honest fee to be buried, are to dig them up and cart them off as in England, or make a show of them as here, why, I can only say that cremation will gain a good many converts. Any one would prefer urn burial to the chance of being thus made a spectacle. So good, too, it must be for the rising population to take off the edge of any salutary horror they may feel at death and decay, or of reverence for the dead."

There are many such shows where the human corpse is used for the purpose of eliciting money from a public loving horrible and sensational sights. I need but mention the catacombs of Rome, or the Bleikeller of Bremen,

to conjure up before your mind all the terrible scenes which the clerical and medical gentlemen whom I have just cited have pictured.

There is another way in which the dead are insulted, another mode by which their graves are desecrated. The monuments which are erected upon the last resting-place of the deceased to perpetuate their memory are sometimes moved about till they no longer mark the spot where the person whose name they bear was interred. Here, then, all the good intentions of friends are set at naught; their expense, their attention, is all in vain. The tombstones are moved, and when they become yellow with age they are broken up to act as headstones for some public highway. That this does not hold good of European countries only, but also of American ones, is proven by our honored and beloved "autocrat of the breakfast table," Oliver Wendell Holmes, who declares: "The most accursed act of vandalism ever committed within my knowledge was the uprooting of the ancient gravestones in three at least of our city burial-grounds, and one at least just outside the city, and planting them in rows to suit the taste for symmetry of the perpetrators. The stones have been shuffled about like chessmen, and nothing short of the Day of Judgment will tell whose dust lies beneath any of those records meant by affection to mark one small spot as sacred to some cherished memory. Shame! shame! shame! That is all I can say. It was on public thoroughfares, under the eye of authority, that this infamy was enacted. I should like to see the gravestones which have been disturbed or removed and the ground levelled, leaving the flat tombstones. Epitaphs were never famous for truth, but the old reproach of

‘Here *lies*’ never had such a wholesale illustration as in these outraged burial-places, where the stone does lie above, and the bones do not lie beneath.”

Now be candid! Do you not think that facts like these go a good way to endorse cremation? There would be no need of disturbing the dead, there would be no vulgar exhibition of the deceased, after incineration would have been introduced. There would, in fact, be nothing to do violence to that most sacred and deep-rooted feeling of humanity,—respect for the dead.

Among all the outrages on the dead, that committed by the hand of ghoulish desecration is, by far, the worst. Body-snatching, for providing anatomical institutions with material, has become a business in the United States; love of gain being, as usual, the cause. And not only are bodies abducted to supply medical colleges, but persons are liable to be murdered for the same reason. In February of 1884 two negroes were arrested at Cincinnati, who, after a severe examination, confessed to having killed an old man, his wife, and his adopted daughter; after which they sold the corpses to the Ohio Medical College, receiving \$15 for each.

But some grave-robberies are perpetrated simply for revenge, or else for pure deviltry. A special despatch to the *Detroit Free Press*, from Point Pleasant, W. Va., relates an instance of this kind as follows:—

“Salt Creek, a small stream, empties into the Ohio River three miles south of this. Two miles from the mouth is a church called Pisgah, attached to which is a burying-ground. This morning when the sexton went to dig a grave, he was horrified to find half a dozen graves open and the bodies taken from their coffins and

stretched on the ground. In one or two instances the limbs were severed from the bodies. The graves had been opened without regard to family. The bodies lay in one place arranged in the shape of a Greek cross. There is no clue to the perpetrators of the sacrilegious offense, and no reason can be imagined. The bodies evidently had been exposed for a day or two."

The funeral car of the late A. T. Stewart was followed by six carriages laden with gorgeous floral offerings; yet in spite of the more than regal magnificence of his funeral, and of his great wealth, only a few days later his body was stolen by sacrilegious robbers, and has never been recovered. Need I remind you of the mortification our nation felt on hearing that guards had to be set to watch over the graves of our lamented presidents, Lincoln and Garfield.

Not only in our country is body-snatching a frequent offense, but also in England, as will be seen by the sequent quotation from Mr. Walker (p. 202):—

"An undertaker who had charge of a funeral went with a friend into the vault of a chapel. A coffin recently deposited was taken under his arm with the greatest ease. His friend, doubting, poised the coffin, and was affected to tears from the conviction that the body had been removed. Several other coffins were in the same condition."

The corpse of the late Earl of Crawford was stolen from the Dun Echt mortuary chapel in Aberdeen.

There is one case of outrage on the dead on record that, for hideousness and devilishness, surpasses all others. I refer to that grave-digger of Koenigsberg, Prussia, who fed his swine with human bodies.

One of the most abominable modes of outrage on the

dead is that where men (beasts is the proper designation for them) have gratified their animal passions by outraging the fresh corpses of young and pretty women. It seems incredible, but this violation was known in the most ancient times, and is not yet extinct in the present age.

Herodotus already reports in the 89th chapter of his second book, that the Egyptians of old did not deliver up the bodies of ladies of quality or the remains of young and beautiful women to the embalmers until decomposition had set in, so that these men could not have coition with them. For it was said that an embalmer had once surprised a colleague in the act of outraging the corpse of a youthful woman, and had reported the case to the authorities, who punished the inhuman offender promptly.

The evening edition of the *National Zeitung* (published at Berlin) of Nov. 21, 1874 (No. 544), relates that in Lichtenberg, which is situated near the capital of the German Empire, in the night from the 4th to 5th of November, two children, recently buried, were disinterred and removed from their coffins. On the morning of November the 5th the corpses were found on the ground near the graves, — the shrouds were torn, — and one body, that of a little two-year-old girl, bore all the signs of a recent outrage.

All these sacrilegious outrages on the dead could be obviated by incineration. The avaricious would not be tempted by a small quantity of ashes in a plain urn. There would be no valuable clothing and no costly jewelry, ordinarily inhumed with some bodies, to excite rapacity.

Furthermore, cremation promises the greatest possible

security from vandalism. When the urn containing the remains, *i.e.*, ashes, of our friends or relatives is placed in a niche in the columbarium, it can be easily guarded. One watchman, in communication (by electrical alarm) with the police department of the city, will suffice to protect the urn-hall of a columbarium. The same cannot be said of a cemetery; it would take at least a company of watchmen to properly guard the grounds of a medium-sized graveyard.

Some day we will have Westminster Abbeys on a small scale, where, amid grand monuments and costly urns, the simple tablet of wood shall have its place, its inscription remaining legible, not being blotted out by the elements, as it is to-day. Each church could have its own urn-hall, and the burial ceremonies could be conducted according to the belief of the deceased.

The greatest foe incineration has to contend with is the widespread antipathy against it, entertained and nursed by people who are governed more by sentiment than by reason. Which is the most poetical mode of disposal of the dead, cremation or burial? Think! think!! think!!! and you cannot fail to find out.

Mr. W. Robinson, F.L.S., says:—

“The simplest urn ever made for the ashes of a Roman soldier is far more beautiful than the costly funeral trappings used in the most imposing burial pageant of modern times. Of urns of a more ambitious kind, the variety and beauty are often remarkable, as may be seen in our national and various private collections. It would be a gain to art if some of the money spent on coffins, which rot unseen in the earth, were devoted to such urns, which do not decay, and which might be

placed in the light of day, and perhaps teach a lesson in art as well as bear a record."

And the *Medical Herald* declares:—

"An urn of granite, alabaster, malachite, or one of the precious metals, with the life-sized statue of great men placed in the halls of state, would much more befittingly express the state's regard, and preserve and perpetuate the grateful tribute a Christian people would pay their memories, than any number of columns and shafts reared in cemeteries, which must in time be demolished."

Which is the more æsthetic, a small heap of pure, pearl-white ashes, or a grim skeleton? Certainly those who have seen a decomposing body, or human remains in the state of adipocere, would not call them æsthetic. Contrast with the ghastly skeleton, now commonly employed as an illustration of death, the representation of death by the ancients,—the boy with the inverted torch. Which is the more refined?

The strong tombs, of such a grandeur and beauty — proof against the gnawing teeth of time — mortuary monuments, — as we shall not be able to leave to our offspring, testify to the pious veneration for the dead of the ancients. I need but remind you of the grand pyramids, the extensive necropolis at Thebes, the mausoleums and columbaria of the Via Appia in Rome, to cause you to perceive the truth of my statement.

The ancients thought of the dead as being turned into shades; when we think of them we imagine rattling skeletons. The stupid and disgusting glorification of the skeleton did not originate with Christ; it is a product of the Middle Ages, as are the many tales of witches

and ghosts that are related, especially in connection with churchyards, and still cling to them to-day.

The cremationists of to-day, who propose to substitute a decent æsthetic and sanitary mode of disposal of the dead for the present harmful and loathsome custom of inhumation, are repulsed, met by sentimental objections, are even called monsters without religion, without reverence for the dead.

But the apostles of incineration are as far removed from striving to suppress and murder such sacred feelings as is Dan from Beersheba. On the contrary, they believe that cremation is far more conducive to a pious veneration for the dead than interment.

What would you rather look upon, that horrible remnant of mortality, for which, as Bossuet says, "there has been found no name in any human language," or the innocuous, pearly ash in the memorial urn of marble, alabaster, or one of the precious metals?

Cremation is humane, healthful, and, most of all methods, consonant to the natural impulse of Christianized veneration for the dead; serving and honoring that impulse by preventing the exposure of the dead to those visible elemental and chemical conditions and operations which breed a revolt of the feelings, and tend to surround the subject with an atmosphere of abhorrence.

Undoubtedly, one result of adopting generally the incinerative burial, will be a disassociation in our ideas from that existing and shocking conception of horrible bodily decay, in which almost every thought bestowed upon the dead is necessarily enveloped, and we will learn to contemplate the body with the cheerful philosophy of the Persian poet, Omar Khayyam:—

“’Tis but a tent where takes his one day’s rest
A Sultan to the realms of death address;
The Sultan rises, and the dark Ferrash
Strikes and prepares it for another guest.”

At a burial there is but darkness, at a cremation rosy light unaccompanied by fustiness; the dead is really reduced to ashes, and with him the time-honored saying, “Peace to his ashes,” is not a hollow phrase, as it is with those who are interred.

Those who do not wish to miss religious and other ceremonies at incinerations may use any form of burial service they like, and those who desire to dispense with them may do so. And those who already have beloved dead in the cemeteries may rest by their side when the end is come, for the ashes can be interred as well as the body.

A Sicilian poet suggested that along with the ashes thus buried might be deposited the seeds of some flower, — such as heart’s-ease, violets, or forget-me-nots, — so that when it sprung up, the friends and relatives might gather the blossoms from year to year as a dear memorial of the life that lasts beyond the tomb; and Tennyson’s (“In Memoriam”) poetic verses would be realized: —

“ And from his ashes may be made
The violet of his native land.”

Only when cremation is practiced, can a family obtain the remains (ashes, of course) of its friends and relatives who have died in a foreign land; only then it is possible to deposit such remains with those of the ancestors.

With the Chinese it is customary to always inter the

dead in their native land; when they are far away from home they inhume their deceased temporarily, but at the earliest opportunity remove them to China, — a usage that deserves to be imitated.

The small urn containing the parental ashes may be taken by migratory man into the new world or the old, always preserved as the most sacred relic of the family.

How much more beautiful and better would it not be to have the remains of our kin near at hand, in the house. Only then we would be reminded of them every day. Every building could be made to contain a mortuary chamber. Then we would know our dead shielded from the elements. Now, when the storm rages and the rain pours down in torrents, we imagine that he or she whom we have recently buried is yet subject to the inclemency of the weather. Maxime du Camp relates a touching example of the power of illusion. On one of his walks in the Paris cemeteries he discovered a young lady kneeling before a tombstone, who was singing (interrupted frequently by her sobs) an aria from an opera. When she observed him, after she had finished she said, excusing herself involuntarily: “There my dear mother lies buried! She loved to hear this aria!”

That these questions which I have just briefly considered are of considerable moment is demonstrated by the experience of the Rev. Brooke Lambert, who says:—

“It has been my misfortune to lose four of my nearest relations in different parts of the world. It has been also a subject of regret to me that their remains lie so far off. I care little for the fate which happens to their bodies; and yet, had such a practice as crema-

tion been in use, it would sometimes have been a comfort to feel that I had their ashes with me. Collected in an urn, they might either repose in columbaria, like those at Rome, or in a mortuary chapel in my own house."

This citation brings to my mind a beautiful epigram of Count Platen, who, as you undoubtedly know, was called the favorite of the ladies. It is impossible to translate it, and therefore I will content myself with mentioning the contents. It entreats the sacred flames to return, and to purify the air which death has contaminated; it requests those about to bury to reduce to ashes the body of their friend; and it rejoices that the remains of our beloved will again rest in a clean and decent urn near our abodes.

There are many authors who, in their works, have expressed themselves in favor of cremation. Among the first to do this was A. F. Ferdinand von Kotzebue, a German writer of note, who glorified incineration in his novel "Die Leiden der Ortenberg'schen Familie."

There are those who are afraid that cremation will do away with all that is mortuary in poetry and song. For instance, they say: "What will become of Gray's *Elegy in a Country Churchyard*? Allusion to burial runs so inseparably through its verses that nothing would be left of them were it eliminated." As a work of art Gray's masterpiece will live forever; but if reason or common sense is applied to it, I doubt whether it has a right to exist, even now. I admit that the poem is beautiful, that it is grand; but it is all sentiment—nothing more.

There is now already a new literature, prose as well

as poetry, accumulating. The "Cremazione dei cadaveri" already has its poets — principally in Italy. Professor Giambattista Polizzi of Girgenti dedicated (in March, 1873) a poem on cineration to Signora Emilia Salsi when her husband, Doctor Giuseppi Salsi, died and was cremated. He praised incineration as the best mode to dispose of the dead, and to preserve the remains of the departed. In January, 1874, Civelli's printing house at Milan, Italy, turned out 22 stanzas on incineration, in the Milanese dialect. The anonymous author is a patron of cremation. Dr. Moretti of Cannero published an excellent poem on cremation in the *Annali di Chimica* of 1872. A German author, writing under the pseudonym of "Dranmor," sent forth some very good verses on the same subject, as did also the celebrated Dr. Justinus Kerner.

Mr. William Eassie laments:—

"It is a matter of regret that those of our own poets who have been in favor of burning the dead did not enshrine their proclivities in verse. Southey, for instance, wrote that the custom of interment 'makes the idea of a dead friend more unpleasant. We think of the grave, corruption, and worms; burning would be better.' But he left us no poetry on the subject."

The objections to cineration put forward by the sentimentalists are really of no consequence at all; they are far too trivial to be worth even only superficial consideration. I have only mentioned them, because I am aware of the strong hold that sentiment has on most people, and because they allowed of a comparison between burial and cremation, which is decidedly in favor of the latter.

Dr. E. J. Bermingham of New York City hits the nail on the head by saying:—

“We believe the abhorrence entertained by many, of cremation, depends to a very great extent on the universal tendency of individuals and nations to resent any interference with established customs, to reject any innovation simply because it is an innovation.”

Sentimental objection to incineration resolves into this: We are the slaves of custom. We love to walk in the old wornout paths, and when some one discovers a new way that is much shorter, and by which the destination is reached much sooner, we are loathe to use it. First only a few adopt it, then more and more travel over its surface, until finally the old path becomes obsolete.

To what an extent people are governed by their time-honored customs was illustrated by the ancient historian Herodotus (see *Muses*, Book III, chap. 88), as follows:—

“If all people were to choose the most beautiful among the customs, they would after close examination select their own, because every nation believes that its own customs are the best and the most beautiful. One therefore cannot imagine that anybody but a madman would ridicule such matters. When Darius reigned he summoned the Greeks then in his land, and when they came, he requested them to name the price they would take to eat their deceased parents. They replied they would not commit such a crime for all the gold in his empire. Then he caused the Kalatians (natives of India), who were in the habit of eating their parental dead, to appear before him; when they arrived, he questioned them (in presence of the Greeks, to whom

every word was interpreted) how much remuneration they would want to burn their dead. They cried aloud, and bade him not to think of such a sacrilege. Thus custom rules. I believe Pindar to be right when he asserts in one of his poems that custom is the king of all."

CHAPTER VII.

ECONOMY OF CREMATING THE DEAD. — THE PRESENT STATE OF THE CREMATION QUESTION.

DR. F. JULIUS LE MOYNE, speaking of the great expense often lavished on funerals, says:—

“The aggregate of such questionable expenditures over the United States would amount to billions of dollars, a sum truly alarming in size; and this criminal expenditure has been an important factor in conducing to the monetary panic¹ still prevailing. This is one of the many extravagances which account in a great degree for national financial difficulties. The average expenditure for each body by the system of inhumation may be placed at \$100. The average expense by the cremation plan would not exceed \$20,—showing what an immense national saving would be gained by substituting cremation for interment.”

It must be kept in mind that the expense of a modern funeral consists of the purchase of a lot in the graveyard, the funeral expenditure, and the outlay for the customary tombstone or monument.

The cost of a cemetery to the community is tremendous. The cost of a plain furnace with a columbarium does not exceed \$5000, a mere trifle when compared with the price of a burial ground.

Imagine what a lot of valuable land—the best soil is always selected for cemeteries—is lost by our present

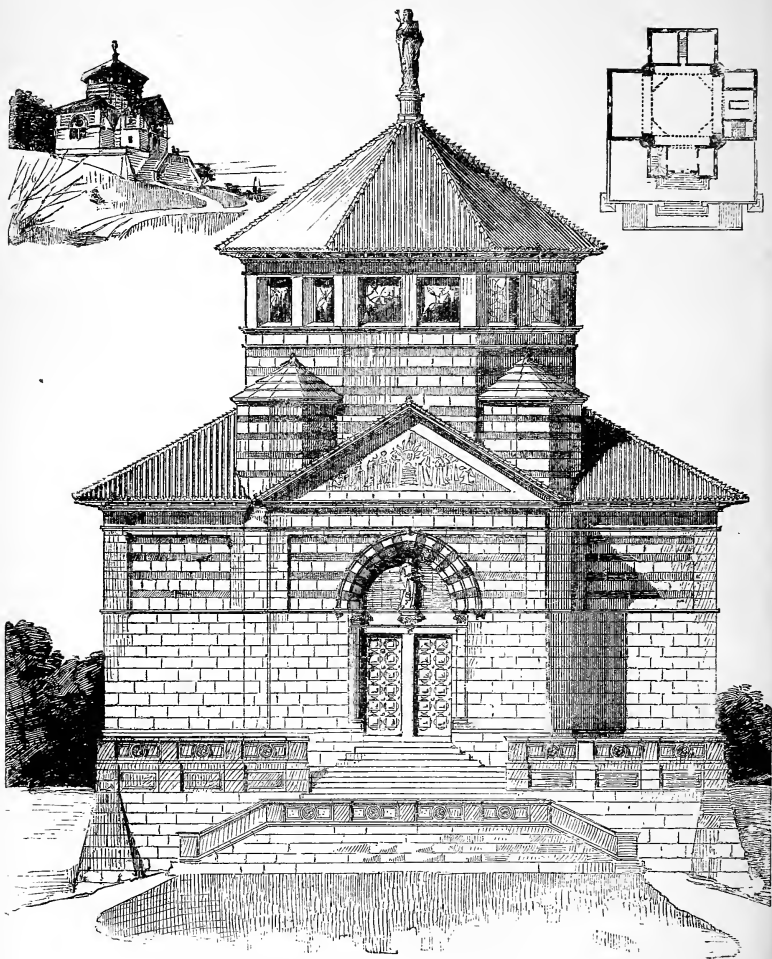
¹ Dr. Le Moyne's paper was written in 1878.

method of disposing of the dead. I firmly believe that graveyards are often a hindrance to the growth of a city; but progress cannot be stopped forever; it may be delayed for a short time, but finally it will overcome all obstacles, the dead are carted away, and a world of activity takes their place.

Graves are not houses which last till doomsday. In this country where cities grow so rapidly, graveyards are soon surrounded by dwellings, and a cemetery which was once far outside of the city limits finally is almost in the centre of the city. It then becomes necessary to remove the dead. They are dug up and carted away, and are, perhaps, quietly dumped into some swamp to fill it up and assist in the generation of malaria. Business blocks are then erected in the place that was once sacred to the dead, and the peace of the burial ground is changed for the din of traffic.

The following citation from an editorial of the *Detroit Free Press* will serve to elucidate what I have said:—

“The interment of the numerous dead of a large population in the midst of a large population is very serious. To it are attributed the constant outbreaks of cholera in India, and the increase of leprosy in China, and it is certain as anything can be that the existence of cemeteries in crowded communities is meeting with an increasing prejudice. The people of large cities are already forced to seek, at some distance from their limits, suitable places for interment. And the existence of great cemeteries in the suburban communities themselves is provoking vigorous opposition. At Newton, Long Island, there are 13 cemeteries, in which 30,000 bodies of people dying in New York and Brooklyn are buried annually. There are, therefore, 60,000



THE PROPOSED CREMATORIUM AT CINCINNATI, OHIO.

live people in one part of the town, the rest being occupied by 3,500,000 dead ones. Property is depreciating and taxes are increasing. People are not at-

tracted to a town of this sort, and the real estate of the village has been falling in value for some time."

But the financial deterioration is nothing when compared with the effect which the aggregation of many dead produces upon the health of the surrounding population.

In and about New York, Brooklyn, and Jersey City, 4000 acres of valuable land are taken up by cemeteries. It is calculated that with the probable increase of population in the next half a decade, 500,000 acres of the best land in the United States will be enclosed by graveyard walls. Think of it! Five hundred thousand acres of soil that might contribute towards the maintenance of the living given up to the "cities of the dead." It is an outrage!

Now, let us compare the cost of burial with that of incineration. As I have mentioned before, there is an immense saving of valuable land when cremation is adopted. Millions of acres now uncultivated, and simply used for burial to the detriment of the living, would be changed into food-bearing land and furnish additional means for the maintenance of the people. A crematory connected with an urn-hall would not occupy more space than 360 to 400 square feet, and would last for centuries. There would also be a diminution of funeral expenses. The average expense of cremation in the United States is \$25. Contrast this with the ordinary funeral expense, and you will agree with me when I assert that the present waste of money for burials is as enormous as it is unnecessary. Some author has said justly that the difference in expense would often equal one-half the proceeds of a life insurance policy. It is plain that the expense of

the burning of single bodies will be very much *reduced* by the general use of the system. The annual expense for the cremation of 7000 bodies in Bombay, India, amounts to \$15,000 only, which is but \$2.50 for each corpse.

The cost of incineration in our own country has varied. It is, of course, impossible to estimate the expense of the earlier cremations.

The furnace at Washington, Pa., was erected for the use of Dr. Le Moyne only, and those of his friends who concurred with him in this reform. The public at one time believed that this furnace had been built for its accommodation, and that the owner followed cremation as a business, and charged fees for the use of his crematory. During the lifetime of the doctor no fee whatever was charged for incineration in his furnace. After his death the trustees of the crematorium were obliged to charge the moderate sum of \$45 to compensate them for their time and trouble. This included all expenses after the body reached the railway station at Washington, — a hearse, carriage, and box to contain the remains, as well as fuel, attendance, etc.

The building at Washington was put up at the least possible expense (as economy was one of Dr. Le Moyne's principal arguments), and cost in all about \$1500. Compare this expenditure with that of purchasing a cemetery, not taking into consideration the improvements which must be made on a graveyard before it can be opened to the public.

It will prove interesting to consider the present state of the cremation question, and to note the progress which the reform has thus far made in various countries of the civilized world.

Incineration is making great headway in Europe. In Germany, societies were organized at Coeln, Hainichen, Bonn, Frankfort on the Main, Potsdam, Liegnitz, Chemnitz, Heidelberg, Elberfeld, Eger, Breslau, Nordhausen, Rheda, Kollberg, Bremen, and Schleswig.

Since Prince Bismarck declared that he would not be adverse to a law regulating and permitting the practice of cremation in all parts of the empire, the leading physicians of Berlin and the members and officers of all the cremation societies of Germany have petitioned the national parliament—the Reichstag—to permit incineration in all cities of the empire, not restricting cremation to Gotha, as has been done heretofore.

In Austria, opinion is about evenly divided for and against the practice. A deputation from the “Urne” Society of Vienna waited on the president of the Austrian cabinet to ask that cremation should be authorized. This society now comprises 800 members, amongst whom every class is represented; they have collected sufficient funds for the construction of a crematory apparatus. And what was the answer of the government to this request? The Minister of Austro-Hungary replied to the Urne Society for the Propagation of Cremation that incineration is forbidden in the empire because public opinion is against it.

The committee of the Belgian chamber has favorably reported upon a petition for a law making cremation optional.

The municipality of Paris lately decided to cremate the bodies which have been used at the School of Practical Anatomy and at Clamort. Over 3000 bodies

a year are received at these two institutions for the purpose of dissection.

The Municipal Council of Paris also recently authorized the erection of three crematories in the Père la Chaise Cemetery, according to the Gorini system, which are to be used for the purpose of cremating the remains of those persons who die of infectious or contagious diseases. They will be heated with wood, and are calculated to be capable of reducing the bodies of 50 persons per day at a cost of 15 francs inclusive of personal expenditure and the cost of an urn for the reception of the ashes. The Prefect of Police of Paris has endorsed the decree of the municipality, laying stress especially on the many advantages—sanitary and economical—of cremation. He stated that sufficient testimony had been recorded by Kuechenmeister and many other scientific authorities to demonstrate beyond a doubt that cremation is a protection against cholera, yellow fever, and small-pox epidemics. The furnaces at the Père la Chaise can be used eight hours a day. The total expense is estimated at 50,000 francs; and preparations will be made to burn 4500 bodies a year. The establishment of these crematories was brought about mainly through the efforts of M. Koechlin-Schwartz, mayor of the eighth ward of Paris; and the plan for their construction was submitted to the municipality in the name of the Commission of the Assistance Publique by M. Chaisoing.

The French Chamber recently enacted the following: “Any adult or free minor, capable of being a testator, may freely determine the mode of his sepulture. He may elect inhumation or incineration, may will his body or any part thereof to institutions of public

instruction or to learned societies, and may regulate the conditions of his funeral, notably in regard to its civil or religious character.”

The privilege of cremation in the crematories at the Père la Chaise is now granted to any one who asks for the same.

The Paris Municipality will at a future sitting vote the construction of a sort of lay temple, where families will be allowed to keep urns or other funereal vessels, containing the ashes of dead relatives. This will not necessarily do away with any religious ceremony short of that of consigning the dead to consecrated ground; but, as M. Koechlin-Schwartz says, there is no reason why urns may not be consecrated, or why Protestants, Catholics, Jews, and Free Thinkers may not build a vast mausoleum in which the ashes of thousands could be deposited in beautiful vessels without injury to the living.

It is probable that crematories being now legal in such an art center as Paris, new and beautiful forms of artistic decoration will grow out of it.

Altogether, cremation is progressing so favorably everywhere that one may be hopeful that comparatively soon it will be adopted by every country in the world.

Public opinion in England has undergone a wonderful change, and now is universally in favor of cremation. Even so great a newspaper as the *Times*, once a vehement opponent of the reform, has come around, and now upholds incineration.

The crematory belonging to the Cremation Society of England, erected by them at St. John's, Woking, Surrey, was made use of for the first time on the 26th

of March, 1885. The body upon which the rite was performed was that of Mrs. Pickersgill, of London, aged seventy-one — a lady well known in literary and scientific circles. She had previously become a member of the society, with a view of supporting the reform, in which she took great interest. The form of declaration drawn up by the society had been signed by her, and, after the medical certificates had been duly filled up by registered medical men and an application from a representative of the deceased, the cremation was allowed to proceed. An autopsy had been previously carried out by the medical attendants of the deceased.

The body was conveyed to the crematory from London in a suitable hearse; and the cremation, which lasted one hour, was attended by two friends of the deceased, who expressed themselves perfectly satisfied with the system employed. The cost for fuel was under ten shillings altogether; and during the time of the cremation, no smoke escaped from the chimney-shaft, whilst the ashes were of a purest white and small in volume.

The Italian government ordered the building of a crematory, on the Gorini-Gozzi system, for the cholera hospital at Varignano, which was completed in the summer of 1885.

A crematorium was erected at Florence, on the Venini system, which cremates a body in 70 minutes, and the cost of which was 4500 francs. Crematories are building at Pisa and Como.

On the 23d of June, 1885, the crematorium at Livorno was dedicated with appropriate ceremonies. It contains a Spaciani Mesmer furnace.

General acquiescence in the process of cremation is

steadily growing among us; and I verily believe that the time is not far distant when crematories will be established in every state and territory of the Union. The fact that one was recently erected in New York City, one has been built at Lancaster, and one has just been completed at Pittsburg, certainly proves that cremation has found a foothold in this country.

The New York Cremation Society was organized in the city of New York on March 8, 1881, under the presidency of the Rev. Dr. J. D. Beugless, and was incorporated on the 26th of March in the same year. The objects and purposes of this society are to disseminate sound and enlightened views respecting the incineration of the dead; to advocate and promote in every proper and legitimate way the substitution of this method for burial; and to advance the public good by affording facilities for carrying cremation into operation. The members of the society consist of three classes: active, associate, and corresponding members. Active members are subdivided into annual and life members, of whom the annual members pay the regular dues, and the life members the amount of \$30 in one sum. Those who have paid the regular dues for twelve successive years also become life members. No further payment is then required from such member. These payments for twelve successive years entitle an active member to all the privileges of the society for the remainder of his life; and an associate member to the benefit of the incineration fund without further charge.

Only active members are qualified for election or appointment to any official position in the society; to vote at any election; and to debate and vote at any

meeting; corresponding members are chosen from among those who have distinguished themselves by rendering service in the promotion of cremation; and they may reside in any part of the world, except within a radius of five miles around the city of New York. At present, the New York Cremation Society numbers 470 members, of whom 400 are active and 70 passive members.

The United States Cremation Company, incorporated under the laws of the state of New York, is in no manner connected with the New York Cremation Society, although many members of the latter are stockholders in the former. This company was founded for the purpose of acquiring land, and erecting thereon the necessary buildings, works, and other appliances for carrying cremation into operation. It was incorporated under the general business act of 1876 of the state of New York, with a capital stock of \$35,000, divided into 1400 shares of the par value of \$25 per share; \$28,200 worth of stock has already been taken. Among the stockholders of the United States Cremation Company are such persons of note as Andrew Carnegie, Professor H. H. Boyesen, the distinguished author, Professor Felix Adler, and Courtlandt Palmer.

Early in 1884, the company purchased a fine site on Long Island, about 45 minutes' drive from the city. The cremation temple was erected upon the summit of a hill at Fresh Pond, Long Island. The site is bounded by Olivet, Evelin, and Summit Avenues respectively on the east, south, and west, and commands an unobstructed view of the cities of New York and Brooklyn, from the center of population in either of which it is about five miles distant. It lies between two cemeteries. The grounds are high and picturesque. This

place of rest will be, if present plans are carried out, more complete than anything of the kind in the world. It is expressly wished to deprive it of the mournful aspect usually associated with burial-grounds. To this end there are no yew or willow trees, nor any emblems of mourning. The grounds are tastefully laid out, and adorned with flowers.

The corner-stone of the crematory at Fresh Pond was laid on Nov. 20, 1884. Prof. Felix Adler conducted the services, the principal speeches being made by him and the Rev. Howard Henderson.

The directors of the United States Cremation Company fixed the charge for the incineration of bodies at \$25. The crematorium was finished in the latter part of October, 1885. Experiments were made with the bodies of a number of the lower animals, in order to perfect the workings of the machinery. On Nov. 10, 1885, a dressed ram, weighing 75 pounds, together with the skin, shank, and hip bones of an ox, was introduced into the furnace. With a temperature of 2000° F. the incineration was completed in two hours. A strong wind greatly retarded the process by interfering with the draught of cold air. The defect was remedied at once by altering the flues and the insertion of a steam jet at a point above the entrance of the flues.

The site was selected in order to carry out the first plans of the edifice, which were those of a Grecian temple. The plans have been modified and modernized so that only a remnant of the classical design is left. The front portion of the building will be, when finished, two stories high. The rest of the structure is one story high, and is built of plain red brick. The dimen-

sions are 38×74 . Light is admitted to the interior of the building by skylights in the roof, as well as by the half-dozen windows on each side.

Cremation in New York has been advancing steadily, although perhaps slowly, in public favor. The first body was incinerated at Fresh Pond on Dec. 4, 1885, and since then more than 100 persons have been cremated there.

Cremation is spoken of with respect, and the stage of smiling and joking over it in New York passed away long ago.

It receives the unanimous support of the press and the medical profession. The Society of Medical Jurisprudence and State Medicine appointed early in 1886 a committee to consider the subject. The report of that committee, which was adopted, declared cremation to be "a sanitary necessity," and recommended that all persons dying of contagious diseases should be cremated under direction of the medical authorities.

The cremation of Dr. Dio Lewis, the famous health reformer, in the latter part of May, 1886, and that of Mr. Henry Dodge, of one of the leading banking firms on Wall Street, in the early part of June, attracted wide attention.

The first one to advocate the adoption of cremation in Buffalo, N. Y., was, to my knowledge, Dr. Frederick Peterson, who championed the reform in an article written for the *Buffalo Medical and Surgical Journal*. Many years passed, however, before his ardent advocacy was followed by practical results. The Buffalo Cremation Company (Limited) was incorporated in July, 1884, under the law of 1875, — the so-called limited liability act.

At a meeting held May 18, 1886, the first board of directors was elected, with Dr. Charles Cary as president. The gentlemen constituting this first board managed the affairs of the company so well, and agreed among themselves so perfectly, that they were re-elected, and are still in office.

At this meeting committees were appointed on the purchase of real estate for a suitable site for building a crematorium, also for plans for the erection of a furnace for the incineration of bodies. Subscriptions came in rapidly, and those who had strong faith in the ultimate accomplishment of this work were gratified by the realization of their hopes. Any one who takes a look at the crematorium of Buffalo to-day, must acknowledge that the crematists of this city have a right to be glad and proud to behold at last the practical outcome of their work.

At a meeting of the board of directors in the early part of August, 1885, the committees appointed for the purpose rendered their reports in reference to a site for a crematorium and a cinerary apparatus. In accordance with these reports the directors purchased a site on Delavan Avenue, near Delaware Avenue. The dimensions are 181 feet front, 161 feet rear, and 148 feet in depth. The property was bought at a cost of \$20 per foot, and on very favorable terms.

Originally the capital stock was \$10,000, divided into 400 shares, of the par value of \$25 per share. This was afterward increased to \$15,000, divided into 600 shares of the same par value. This stock when once paid up is non-assessable, and not liable for the debts of the company.

The Buffalo crematorium, which was finished re-

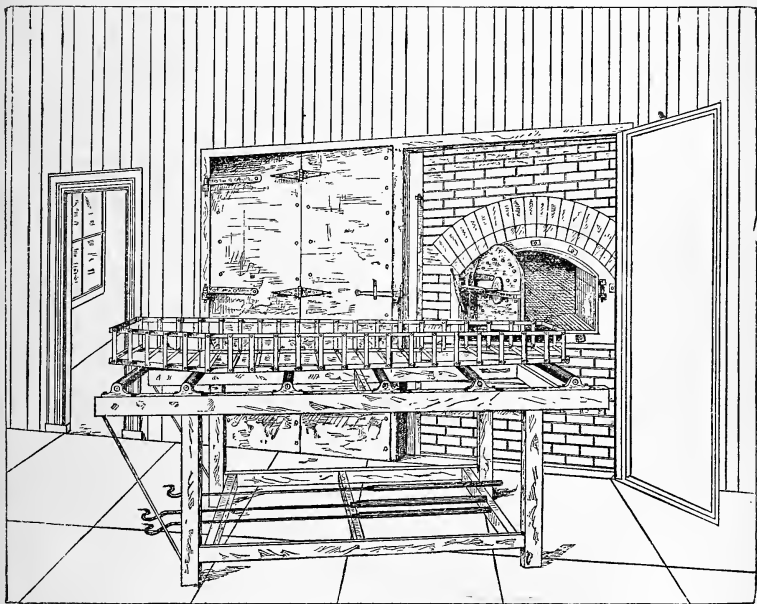
cently, is of a composite style of architecture, and is constructed of Medina stone, with a slate roof. The outline of the building is a pleasing one, and the architecture is of such a character that it resembles a church more closely than a place where any mechanical operation is carried on. The grounds of the company are entered from Delavan Avenue by a spacious roadway, running to a porch and then passing around the building to the door of the mortuary chamber, on the east side. Those who accompany the body alight at the porch, and pass thence into the auditorium. The body itself is removed from the hearse at the door of the mortuary chamber.

When the coffin containing the body is received in the mortuary chamber, the body is removed and placed on the car which awaits its reception. The car is then moved by machinery, and without noise, into the chancel, where, if it is desired, the body may remain in sight of those in the auditorium during the progress of such service as the friends and relatives may wish to have performed. At the proper time the same mechanism moves the car noiselessly behind the doors which cut off the incinerating room from the sight of the audience.

The building itself is some 70 feet in width, by 60 feet deep. The construction throughout is of the most substantial character. The lot is graded and seeded, and trees and shrubs were planted, so that the appearance of the crematorium and its surroundings is most pleasing to the eye.

On Dec. 20, 1883, Mr. John Storer Cobb, who was one of the projectors and founders of the New York Cremation Society and the United States Cremation

Company, requested Bostonians (in the columns of a leading newspaper) who were in favor of substituting incineration for inhumation as a means of disposing of the dead, to furnish him with their names and addresses. After the receipt of these names he called a meeting,



CREMATORIUM AT LANCASTER, PA. (Interior View.)

which took place Jan. 24, 1884, and the result of which was the organization of the New England Cremation Society. Organization was effected under Chapter 115 of the Massachusetts Public Statutes; but the commissioner of corporations refusing to allow such incorporation, the society not wishing to organize under the general corporation law, whereby the par value of

shares must be \$100, and all stock subscribed for and paid in before it could commence operations, applied for a special charter, embodying its views and needs. But the time for the introduction of new business having expired, it was obliged to wait till the next session of the legislature. Early in the session it presented a bill for incorporation, which took the form of a general law, authorizing the formation of cremation societies.

It was the intention of the society to at once incorporate under this act, place the stock of the society on sale, and as soon as possible erect a crematorium in the near vicinity of Boston. The bill passed both houses of the legislature, but was amended, so that now the par value of shares must be either \$10 or \$50, and, as under the general corporation law of Massachusetts, the whole capital stock must be subscribed and paid in before the society can commence operations.

The capital stock of the society is \$25,000, distributed into 2500 shares, each of the par value of \$10. At present the society numbers about 75 members. The officers are: John Storer Cobb, president; Charles A. Holt, treasurer; and Sidney P. Brown, secretary.

Inspired with the necessity of a better method of disposing of the dead, Dr. John O. Marble began the agitation of the question in Worcester, Mass., in November, 1884, by reading a paper upon the subject before 25 of the most prominent physicians of that city. Much to his surprise and pleasure they heartily approved of the plan of cremation as a substitute for the present time-honored, but, to the living, dangerous custom of earth-burial. At the solicitation of one of

them, who is the enthusiastic president of the Worcester Natural History Society, the doctor delivered a lecture upon the subject of the "Disposal of the Dead, Cremation Preferred," before a large audience in the hall of the society on the evening of Dec. 4, 1884.

The people of the conservative city of Worcester seemed to appreciate the sanitary necessity, and began intelligent inquiries, which Dr. Marble answered in eight communications in the *Worcester Daily Spy*. The movement was favored by almost all of the best citizens, and, after considerable hard work on Dr. Marble's part, took shape in the organization of a society. The constitution was signed by, and the society is composed of, persons of the very highest position, socially, professionally, and in every respect. The society is not yet quite ready for the erection of a crematory, but it is expected that such result will follow in the near future.

The Cincinnati Cremation Company was incorporated on Oct. 18, 1884; it was organized two or three weeks later. The capital stock of the company is \$25,000, divided into 1000 shares of the par value of \$25 per share. No member is permitted to own more than 20 shares. In the spring of 1885, the company purchased a site for the erection of Cincinnati's crematorium. The site is on a commanding eminence on Dixmyth Avenue, west of Burnet Woods and within a quarter of a mile of the terminus of the Clifton line of cars. The property is within city limits; it is easily accessible, being on a fine drive; its elevation will give the crematorium a distinguished prominence, while the view to the west and south is extended and beautiful. The front measurement of the site is some-

what over 300 feet, with a depth of 350, comprising an area of more than two and a half acres, at a cost of \$4000. The basement of the Cincinnati crematorium has been finished; the furnace is being erected, and will be completed in a short time. At present, the company counts 325 stockholders, with quite a representation of ladies. About \$15,000 of the stock has been subscribed for.

A crematory on Sixth Avenue, in the centre of the city of Pittsburg, Pa., was completed in January, 1886. The furnace (constructed by Dr. M. L. Davis) is heated by natural gas to at least 2200 degrees. The apparatus is owned by Mr. H. Samson, the ex-president of the National Funeral Directors' Association, who is a wide-awake man, and thinks the funeral directors (*vulgo*, undertakers) are very short-sighted to allow cremation associations to be organized; they should be willing and prepared to take care of and make such disposition of the dead as the people want. The use of natural gas enables Mr. Samson to have his furnace in the basement of his business house. The first cremation in this apparatus took place on March 17, 1886, when the remains of Milton Fisher, of Columbus, O., were incinerated. The body was placed in the retort at 7.30 o'clock, and in less than an hour was reduced to ashes. This was the first time that natural gas had ever been used for cremating purposes; and its advantages were apparent at once.

The National Cremation Association, which was organized and incorporated Feb. 10, 1883, has so far met with success, as its object to make propaganda for the principle of cremation and keep its ideas before the eyes of the public has been fully sustained, as the

discussions and arguments pro and contra in the press of Philadelphia, Pa., where it is located, will prove. According to its constitution, this association agrees to cremate the remains of any active or passive member in good standing at death, when so desired. The expenses of the funeral and cremation are carried by the association.

Since the incorporation of this society, one of its members died, May 10, 1884, and was, in accordance with his wishes, cremated. The body was transferred to Washington, Pa., on the 13th of the same month, and there reduced to ashes, which were returned to the care of the family of the deceased.

Since the incorporation of the association, the number of members has risen from six to 59 and will soon, no doubt, be a full hundred.

It is now the main object of this association to secure the erection of a crematory in or near Philadelphia. For this purpose subscriptions were received and stock issued. As soon as the necessary capital is obtained the crematorium will be built.

In the medical school of the University of Pennsylvania the bodies which have been utilized for dissection are burned instead of being buried as heretofore.

The Lancaster Cremation and Funeral Reform Society at Lancaster, Pa., originated in this wise: Early in 1884, a few gentlemen interested in the matter agitated it among their friends; and a list of members of a proposed society was made. On May 27, these subscribers met at the office of Messrs. Steinmann and Hensel (both of whom were members), and, calling D. G. Eshleman to the chair, a temporary organization was effected. A committee was appointed to report on

a proper location for a crematory, also a committee on charter and by-laws. These committees reported June 6, when the amount of stock was fixed at \$5000 in \$10 shares.

At the third meeting, June 13, a permanent organization was effected by electing a board of directors.

The board organized immediately upon the adjournment of the stockholders' meeting, and chose D. G. Eshleman, Esq., president; Dr. Henry Carpenter and Rev. J. Max Hark, vice-presidents; J. D. Pyott, clerk; H. C. Brubaker, Esq., corresponding secretary; Geo. K. Reed, treasurer. Mr. Middleton was placed on the committee on ground and building in place of Mr. Hensel, whose engagements prevented his acting; and this committee was instructed to report June 20, at which time the site now occupied was selected and the committee ordered to purchase. On the 30th of June, the stock subscribed was called in, and building proposals asked for. On the 11th of July, bids were opened; on the 14th of July, the contract was awarded to Mr. Dinkelberg, and the building was immediately begun. On the 10th of September, the building was completed; and the retort builders having failed to come to time, the committee were authorized to construct one on plans of their own. This was done; for Dr. M. L. Davis devised and built a furnace from his own designs, and on Nov. 1 the board met in the crematory building, and provided for the improvement of the grounds.

On the night of Nov. 4 or the morning of the 5th, the furnace went to white heat, despite predictions of experts to the contrary, and justified the plan of construction. On the evening of the 17th of November,

the body of a sheep, two ox-heads, and several sheep-heads were enclosed in a wooden box and placed in the retort at red heat, the company present being unwilling to remain later. Some smoke, of course, was made; but when white heat was reached, the cremation was perfect, as specimens of the residuum amply proved.

The crematorium was dedicated on Tuesday, Nov. 25, at 2 P.M., when the body of a lady from Jersey City, N. J., was incinerated. It must be remembered that this society was organized on May 27, 1884, purchased land, erected its building, and had its first cremation within the period of six months, while several other societies organized much earlier had not yet advanced much beyond laying the corner-stones of their respective buildings.

The dedication exercises were opened by a prayer by Rev. Geo. Gaul, of St. Paul's Methodist Church. Thereupon, the building was delivered to the society by Dr. M. L. Davis, chairman of the building committee, who discussed the subject of cremation from a sanitary standpoint.

The next oration, preceding the benediction, was delivered by Rev. J. Max Hark, pastor of the Moravian church, one of the vice-presidents of the society, who treated the subject from a theological standpoint.

The benediction over, the participants in the dedication ceremony dispersed. The incineration that took place on this occasion was entirely satisfactory.

The whole ceremony was solemn, and produced a profound impression upon the intelligent and thoughtful audience, among whom were many guests from other cities.

The rules of the Lancaster Cremation and Funeral

Reform Association are very stringent and well calculated to meet all demands. All applicants for cremation of bodies must present a certificate of death, signed by the physician attending during the last illness, whose standing as a reputable practitioner must be attested by a magistrate or notary public. When brought from a distance, official board of health papers are also required. The rules request that the body should be dressed in a shroud of cotton or linen fabric; all metallic substances being avoided — hooks, buttons with metallic eyes, etc. The body should be enclosed in a plain wooden coffin; or, what is preferable, in a coffin made of sheet zinc. The cost of incineration is \$25.

The condition, financial and otherwise, of the society is excellent. Mr. H. C. Brubaker started the subscription shortly after Dr. Gross's demise, and succeeded in getting some 50 subscribers before organization. The society now numbers about 80 members, of the best thinking element in the community, male and female. So far, 51 cremations have taken place in the Lancaster furnace, every one of them to the entire satisfaction of all concerned.

Recently a second furnace was put in the Lancaster crematorium; and some important improvements were made by Dr. Davis in the process which was invented by him.

A single feature of the earlier incinerations seemed out of harmony with the character of the occasion — it was necessary to force the receptacle with the body into the retort by direct pressure. This was sought to be remedied by drawing it in by a wire cable; but the latter proving unreliable, the body, enclosed in the alum-saturated cloth, is now laid in a cradle consisting

of a steel frame covered with asbestos and fire-clay, which is suspended from an extension arm, operated by a quick-thread screw extending lengthwise of the catafalque, by which the cradle is placed silently in the retort and the arm withdrawn. The incineration being completed, by reversing the process the cradle with the ashes is extracted intact and allowed to cool.

It is to be remembered that these Lancaster people had almost everything to learn. Dr. Le Moynes, of glorious memory, had devoted his labors to teaching the principle by precept and example; his method was necessarily primitive and crude. Lancaster added the required art, gave the principle an adequate process, and sent forth the body of truth suitably clothed. The record of their first cremation was published, with all sorts of comment, in every live paper of the land; and the impetus then given to the cause of reform, while it cannot be fully estimated, is plainly seen in the wonderful development of correct thought and sentiment on this subject which immediately followed.

In the list of persons cremated at Lancaster, the German element largely predominates; and practically the whole list is made up of residents in cities — showing that the centers of culture are also the nuclei of advanced thought on this question. Nor is this crematorium altogether without honor in its own country. One of the prominent members of the society (George Brubaker, Esq.) dying since its establishment, was incinerated; also Ex-Mayor Christian Kieffer, of Lancaster, and both parents of Mrs. H. C. Brubaker. The society is extremely fortunate in its personnel; from its president, a leading lawyer, its vice-presidents, in the front rank of medicine and divinity; its directors, active men

in all walks of life, the high school principal, leading journalists, bankers, managers of large business enterprises, the medical profession largely represented in the rank and file of its 80 members — its position in the community is assured, and its radical doctrine finds the most solid of “backing.”

The cremation society of New Orleans, La., was organized and incorporated on the 14th of February, 1884. It was established mainly through the efforts of Dr. Felix Formento. It was founded to ascertain and demonstrate, by scientific research and investigation, the importance and necessity of incineration to society as the best method of disposing of the bodies of the dead; and in pursuance thereof to make known to the people the dangers to public health resulting from the mode of burial generally practiced all over the country, more particularly the special dangers to a city like New Orleans, from the peculiar method followed there; to demonstrate the advantage of cremation over all other modes of disposing of the dead, in a sanitary, social, and economical point of view; to remove all prejudices which there may be against the introduction of cremation in the Crescent City, and to prove that cremation can be practiced without in the least wounding religious sentiment or susceptibilities; to obtain information in regard to the different methods; to obtain, if necessary, proper legislative enactments on the subject of incineration, providing for the disposal of bodies, especially those whose death resulted from contagious or infectious diseases, and especially in small-pox hospitals and other public institutions; to procure necessary funds for the erection

of a crematorium in the city of New Orleans, and for its management under proper sanitary regulations.

I regret to say that this society is no longer in existence. It went to the dogs on account of the apathy of the people of New Orleans. It started out with good prospects of success; a square of ground was even bought near the city, and it was thought that a furnace for the burning of the dead would be built without delay. But gradually the interest in cremation lessened in the Crescent City and, in consequence, the society went into liquidation.

At St. Louis, Mo., the propaganda in favor of cremation was carried on for years by Dr. Luedeking, who died, and was reduced to ashes in the Lancaster crematory. Thereupon the robes of an agitator for incineration were donned by Mr. Oscar Hoefer of the *Westliche Post*, an influential German journal, and Rev. Jonas, both of whom kept the interest in cremation alive by delivering lectures on the subject and by contributing articles to the daily press.

The Missouri Crematory Association was organized in the early part of 1885 for the purpose of providing and establishing in the city of St. Louis, a suitable building and other facilities for the cremation of the dead, and for the proper preservation of their ashes in a columbarium. The capital stock is \$25,000, divided into 1000 shares of \$25 each, ten per cent of which amount must be deposited by the subscriber immediately upon signing. Non-residents may become members of the association, and, for the purpose of cremation, the bodies not only from this city or state, but also from other states and locations may be received.

From the beginning the association encountered a

great deal of opposition. This was so strong that once the advisability of disbanding was seriously discussed. All agreeing, however, that it was too great a pity to abandon a project, for the execution of which there was enough capital on hand, concluded not to disorganize and to make more strenuous efforts to overcome the prejudice prevailing in the city council and among the citizens.

This proved to be temporary, for a bill, prohibiting cremation within the city limits, was repealed recently by both houses of the city council of St. Louis, and only awaits the signature of the mayor to become a law.

The association bought no less than three lots. With the last one, not very desirable in location, they are at length gaining success. When they had bought the first lot, the building commission issued a building permit to them, for which they had to pay \$5. After this, however, the municipal council enacted a law forbidding them to make use of that very permit, by prohibiting cremation. And the \$5 were never returned to them.

The association is in a prosperous condition, and will proceed at once, as soon as the present obstacles are removed, to carry out the objects for which it was founded.

The First Cremation Society of San Francisco was incorporated on the 17th of February, 1882, with 53 members. The directors of this society are: E. D. Wheeler, president; S. Heydenfelt, Jr., vice-president; E. A. Denicke, treasurer; Max Levy, recording secretary; George E. Voelkel, corresponding secretary; H. A. Cobb, J. Bayer, M.D., F. Schuene-mann-Pott, Dr. Wozencroft.

The law of the state of California provides only for the disposal of the dead by burial; therefore the society is now making the greatest efforts to induce the legislature to enact a law authorizing cremation, leaving the people free to choose as to the disposal of their dead between the two methods.

At the last annual meeting of the society, the secretary stated that the society now numbers 113 members, of which six are ladies. One of the original members died, another left the society, which makes an increase in membership of 62 persons.

The San Francisco Cremation Company was incorporated on the 10th of September, 1885, with 117 stockholders, representing 214 shares at \$50. The capital stock is \$25,000, divided into 500 shares of \$50 each. The object of the company is to erect a suitable crematorium for the immense population of the great city at the Golden Gate.

A lot has been purchased, and a crematorium will be erected capable of incinerating 40 bodies a day. The officers of this company are: Judge E. D. Wheeler, president; S. Henderfelt, Jr., vice-president; Max Levy, temporary treasurer and recording secretary; George E. Voelkel, corresponding secretary; C. W. Banks, General Cobb, E. O. Denicke, W. T. Trelan, Jr.

A cremation company was organized at Los Angeles, Cal., in the early part of September, 1885, with 152 members, of which 12 are ladies. This company intends to build a crematorium as soon as \$6000 have been subscribed.

Cremation companies were also recently founded at Sacramento and Stockton, Cal.

The Davenport (Iowa) Cremation Society was formed

on the 17th of February, 1885, and is still in existence. It counts about 120 members. It was founded to "enlighten the people on the subject of cremation." The annual dues are \$1.

The Northwestern Cremation Society of Davenport may be regarded as an offspring of the above. At a meeting held in April, 1885, a committee was appointed to obtain subscriptions for the purpose of building a crematorium. The committee reported May 6 that 100 shares, at \$25 a share, had been subscribed. At this meeting a committee was instructed to draft articles of incorporation, to be acted upon at a future meeting; and another committee was appointed to ascertain the cost of cremation furnaces. The committee reported on June 30; and the stockholders then proceeded to elect the directors of the organization. On the 3d of July, the board of directors elected the officers: H. H. Andresen, president; C. Stoltenberg, vice-president; F. G. Clausen, secretary; F. T. Blunck, treasurer.

The capital stock of this company is \$25,000, divided into 1000 shares of \$25 each. The stock is payable at such time or times as the board of directors may determine. Four thousand three hundred and fifty dollars have already been subscribed. A committee has been appointed to purchase a lot, and the crematorium will probably be erected in the course of this year.

In the spring of 1885, several citizens of San Antonio, Tex., circulated a list which read as follows:—

"We, the undersigned, believing cremation the proper, most healthful, and most satisfactory method of disposing of our dead, do therefore sign our names hereto, with the expectation of forming ourselves into a society, the immediate object of which will be the erection of a

crematorium in this city." This circular was signed by 95 persons, ladies as well as gentlemen.

A meeting was then called. At this gathering, three committees were appointed: one to obtain a charter, one to prepare the constitution and by-laws, and one, finally, to get subscriptions.

The latter made the round of the city with the following agreement:—

"We, the undersigned, do hereby agree to become members of the cremation society now being formed in San Antonio, Bexar County, Tex. Each of the undersigned hereby agrees to pay 50 cents down, as a contribution to the fund for defraying the preliminary expense in forming the society."

This list was signed by 107 persons of both sexes, and \$53 were collected to pay for printing, etc.

After this, another meeting was called in the latter part of May, and the company organized permanently. The organization is called the "San Antonio Cremation Company," and has the following officers: E. B. Hadra, M.D., president; M. F. Corbett, vice-president; F. Groos, banker, treasurer; A. Maverick, secretary.

The company was incorporated on the 18th of June, 1885. The amount of the capital stock of this corporation is \$50,000, divided into 5000 shares, of the par value each of \$10. So far, \$1480 have been subscribed by 60 shareholders.

An acre of land was donated to the company by Mr. A. Maverick. It lies east of the city, on a hill, in the neighborhood of the cemeteries; but the property lies east of them, so that the east and southeast trade winds, which blow in San Antonio during the summer,

reach the place first, and, consequently, do not fetch any bad odor from the graveyards.

The grounds will be beautifully laid out and planted with trees and shrubs in the near future. The view from this site is, very fine. Toward the north may be seen the government depot, with all its stately buildings, about two miles off; toward the east and southeast is visible a beautiful valley terminated in the distance by the picturesque blue mountains.

In the beginning the company was opposed by a Baptist preacher, who was soon silenced by the following declaration in one of the daily newspapers:—

“I have no doubt but that my good old Christian friend is in this world for doing good; but, by opposing cremation, he not only does harm to us all as long as he lives, but continues to injure us after he is dead and buried,” etc.

The cremation movement in the state of Michigan was begun by the author of this volume immediately after he returned from the incineration of his mother. By repeated newspaper articles I continued to awaken a lively interest in the reform at Detroit, and was supported in my undertaking by all the leading newspapers of the city; even a publication only a few days old declaring in favor of cremation. None but the purely religious journals opposed the scheme. On the 7th of August, 1885, a meeting was held at a public hall in the City of the Straits, for the purpose of discussing the question of cremation and of forming a cremation society. The meeting was well attended, nearly 100 persons being present. Dr. J. H. Carstens was chosen chairman, and Dr. H. Erichsen as secretary. The meeting was opened by Dr. J. H. Carstens. Two plans, he

said, had been proposed for the consideration of cremationists; one of these was the building of a crematory, the other, the formation of a society, each member of which would pledge himself to provide for the incineration of his body.

I then made the address of the evening, giving the main arguments for incineration as opposed to earth-burial. My statements were followed by remarks of a similar nature, made by several of the gentlemen present.

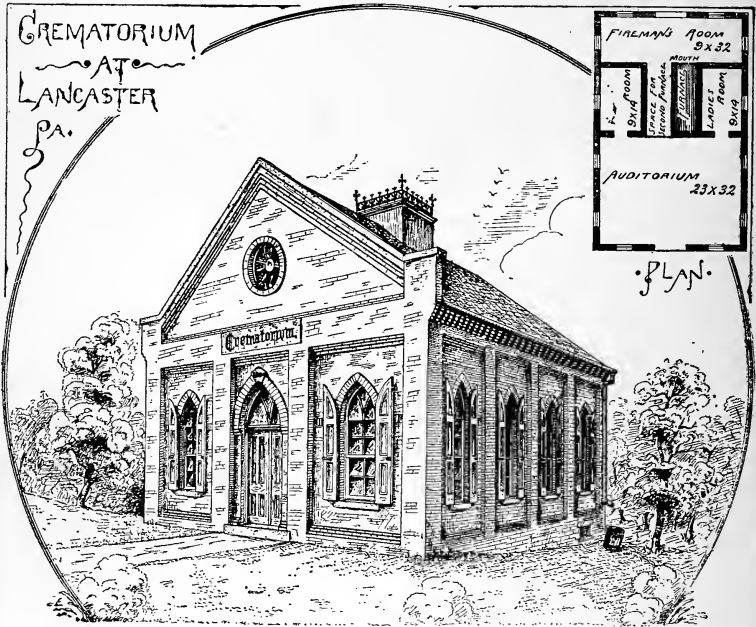
A motion was then made by Dr. J. E. Emerson, a prominent physician, that the chairman appoint a committee of three to prepare a constitution and by-laws for the organization of a cremation society in Detroit; and three gentlemen were appointed as such committee. The following agreement was thereupon prepared, and received 27 signatures:—

“We, the undersigned, do hereby unite ourselves into an association for the purpose of providing facilities for carrying cremation into operation.” Then the meeting adjourned, subject to the call of the committee.

The entire time of the committee was taken up by the formation of a stock company, which proposes the erection of a crematory. Influenced by flattering prospects, the promoters of the project had prepared by Messrs. Spiers and Rohns, architects, plans for a handsome crematorium. The chart shows three divisions, viz.: the exterior of the building, the main floor, and the basement.

The exterior view shows a handsome Romanesque structure of one story and a basement. The main height is 16 feet, which rises in four gables on the sides. A dome, 35 feet in circumference, attains a height of

65 feet. The drawing of the first floor shows an auditorium of octagon form. Back of the two rear niches are dressing-rooms for clergymen. Two handsome altars on which to hold religious services will front from these niches. Two rooms in the lower end of the building,



CREMATORIUM AT LANCASTER, PA. (Exterior View.)

on either side of the approach, are reserved for toilet rooms, one for ladies, and the other for gentlemen. In the center of the upper end of the auditorium is placed a catafalque, resting on an elevator. After a body has been properly prepared, it will be placed on this catafalque. When the religious services are concluded, the

body will be lowered to the basement, and the opening in the floor closed with a slide trap.

The plan of the basement shows the same divisions as are made on the main floor. On the left-hand side is a retiring-room. The front is divided into four rooms. An ice cellar, a frigidarium, which is calculated as a place in which to preserve bodies for several days; a calidarium, a heated room in which bodies can be placed for several days, to insure against cremation while in a state of trance; and a drug room, where restoratives will be kept. The right-hand wing is designed for a preparing room, from which the body is taken directly to one of the furnaces. The furnaces, of which there will be two, are not yet definitely designed. It is supposed, however, that they will be after the plan of the apparatuses at Lancaster, in Pennsylvania.

In the rear of the building it is proposed to build an addition, in the form of a three-quarter circle, which will be styled the columbarium. On the inside this will be divided by three corridors, and the walls divided into compartments for containing urns. There will be room in this limited space of 40×30 feet, it is estimated, for holding the remains of 8000 bodies.

The building is designed to be built of Ionia red sandstone. Two immense flue chimneys, one for ventilation, the other for the furnaces, rising to a height of 75 feet, will give character to the building. The front will be set off with a handsome porch supported by Roman pillars and approached by a half-circle road-bed, over which the hearse and carriages can drive up to the main entrance.

The Michigan Cremation Association was organized at Detroit on the 31st of March, 1886. Dr. H. Erichsen

was chosen temporary chairman, and Mr. A. N. Low secretary of the meeting. The documents of incorporation were signed. On motion of Dr. J. H. Carstens, a board of directors was elected. At the close of the meeting the directors met, and elected the following officers: President, James F. Noyes, M.D.; vice-president, Hugo Erichsen, M.D.; secretary, Mr. A. N. Low; treasurer, Mr. M. W. Field. The treasurer furnished a \$10,000 bond, as required by the original agreement.

The subject of cremation was first agitated at Baltimore, Md., in the winter of 1884, by Dr. G. W. Lehmann and Mr. J. R. Rennous, who were also the originators of the cremation company in that city. In 1884, two public meetings were held; but they were poorly attended, and the prospects gloomy in the extreme. But the two advocates of incineration worked steadily on until their efforts were crowned with success. The Cremation Cemetery Company of Baltimore City was incorporated on the 30th of March, 1885, with a capital stock of \$15,000, divided into 600 shares of the par value of \$25 per share. At a meeting of the stockholders the following officers were elected: B. F. Horwitz, president; J. R. Rennous, secretary; J. W. Middendorf, treasurer. The founders of the organization were obliged to call it "Cremation Cemetery Co.," to comply with the general laws of Maryland in obtaining the charter. \$9000 worth of stock has already been taken up, and the company expects to make such headway that it will be able to build soon.

When the La Crosse (Wisconsin) Cremation Society was founded in the middle of October, 1885, with Mr. John Pamperin as president, it resolved upon a full investigation of the subject of incineration and appointed

a committee to get reports from other societies. This committee having performed its work, a meeting of the committee was held at the residence of Mr. Gustav Carl, and these reports read, arranged, and discussed. The report from Detroit was particularly exhaustive. Davenport also furnished a report. The cremation society there had sent a representative to Lancaster, Pa., who had examined the cremation furnace there and had prepared a report, of which La Crosse was given the benefit. The result of the conference was that a resolution was adopted calling for a meeting of stockholders at an early date for permanent organization. The La Crosse Cremation Association filed articles of incorporation with the secretary of state on the 26th of November, 1885. The purpose of the association is to dispose of human bodies after death, by cremation, and it shall continue its business for 20 years, unless the holders of two-thirds of the stock consent to the dissolution of the association. Mr. J. Pamperin is the president, Mr. G. Carl, secretary, and Mr. J. Ulrich the treasurer of the association. A person wishing to become a member of this association may subscribe for one or more shares of \$25 each (not exceeding 50 shares) of the capital stock of the association, which is limited to \$8000. The shares so subscribed shall be paid in instalments. The first instalment must be paid at the time of subscription, and the balance in instalments, as called for by the directors, within one year thereafter; but none shall be called for until three months after the other. If any of the subscribers should die before the projected crematorium has been erected, and the deceased should have expressed a wish to have his body cremated, and provision is made by him or his family for the expenses in-

cident thereto, the officers of the society shall see that his will in this respect be carried out at the nearest convenient crematory.

The Kentucky Cremation Society, at Louisville, which was organized in the fall of 1886, has been steadily growing, and now counts about 70 members. The subscribed capital is sufficient to buy a lot and commence building, and the society therefore hopes to have a crematory ready during next year.

A license was issued on Jan. 2, 1886, to William Christian, of the *Chicago Tribune*, Elmer Atkinson, a lawyer, and David Hamilton, a real estate dealer, to build a crematory for the incineration of human bodies, near Chicago, Illinois. The capital of the company which they have organized, and which is called the "Chicago and Cook County Cremation Company," is \$40,000.

On April 6, 1886, Dr. O. W. Carlson read a paper advocating cremation, before the Academy of Medicine, at Milwaukee, Wis. At the close of the address the subject was discussed at some length by those present, and some very interesting facts were brought out. A proposition was made that the Academy of Medicine found a cremation society at Milwaukee, and, though no action in the matter was taken at the time, it is probable that steps will be taken by the members with that object in view.

Lately a cremation society was organized at Milwaukee, that has already secured a desirable site upon a local cemetery, and intends to erect a crematorium as soon as the necessary funds are obtained.

It is proposed to build a crematory at Toronto, Canada. The pastors of the leading churches, upon being

interviewed, almost unanimously expressed their opposition to cremation.

The newspapers state that a crematory will be erected at Atlanta, Ga.

This volume would not be complete without the mention of the *Modern Crematist*, a monthly journal devoted to the interests of incineration, and published by Dr. M. L. Davis of Lancaster, Pa. The *Neue Flamme*, a worthy German contemporary, is published at Berlin.

My native country was always eager to embrace deserving reforms; there is no reason why it should not adopt the superior system of incineration. Nay, I think it will become the standard-bearer of this sanitary reformation, and march in the avant-guard of this signal progress. The subject of incineration is already awakening much interest among us, as is evinced by a recent sermon of that eminent New York divine, Rev. Heber Newton, who spoke strongly in favor of the substitution of cremation for sepulture. He said the mode of disposing of the dead human body was only a form, and that mode was best which was best for the living. In England, only a few years ago, a dignitary of the national church dared to assert that cremation endangered the belief in the life to come. He knew, or ought to have known, that the same process of combustion is surely carried on, whether in the ground or in the crematory, and that if dissolution of the body imperiled the true doctrine of resurrection, then that doctrine was long ago hopelessly lost. These words from the lips of a famous American preacher are certainly proof that the antagonism of the clergy to cremation is waning.

There are other signs of approaching day. I refer to the constant discussion of incineration in the columns of the daily press, and to the fact that cremation was lately brought to the attention of the American Medical Association, while it met at St. Louis, Mo., on the 6th of May. The report of a special committee, appointed the year before, was read by its chairman, Dr. J. M. Keller, of Arkansas. The committee moved to amend the original resolution so as to read:—

Resolved, That cremation or incineration of the dead has become a sanitary necessity in populous cities, and that the Association advises its adoption.

The Association adopted the amendment by a vote of 159 to 106.

Cremation was also endorsed by the American Public Health Association at its last meeting.

I rejoice at the thought that most writers on the momentous subject of incineration were medical men. Who, indeed, would be better qualified for such a task than the man who may daily witness the pernicious effect which the dead exercise over the living.

Those who are friends of the reform should come out openly in its favor. Crematists who are on the fence, or who, perhaps, hide back of it, might just as well keep out of the combat between cremation and interment altogether; we have no use for them. If you believe in cremation, candidly say so, and tell your friends *why* you believe in it. Moral cowards do a just cause more harm than good. Those who have tried to propagate the idea of cremation in an underhand way have invariably failed; the public must be brought face to face with the question: cremation or burial? To spread the

reform in this country, I hope to see, before long, the birth of an American cremation association, to be composed of delegates from the various cremation societies of the United States. There is already a sufficient number of societies for the formation of a vigorous organization of the kind, that would undoubtedly aid greatly the progress of the reform.

This, then, finishes what I had to say about a hygienic reform that will be the leading one in the latter part of the nineteenth century. There will be a long and warm controversy before the people will generally abandon a custom of such antiquity as earth-burial; but cremation will supersede it in the end. The present style of burial does not do any one any good. On the contrary, it destroys hundreds, perhaps thousands, of lives every year. A good many deaths due to graveyard gases or water contamination by cemetery effluvia escape observation, since the real cause of the decease is seldom suspected. Incineration, however, does nobody any harm, and is in accord with the humane and progressive spirit of the age. Disadvantages it has none; and with the many arguments in its favor, it cannot fail to come out of the battle between torch and spade victorious in every respect. Moreover, it has the generous support of the scientists, physicians, and sanitarians of the times, which alone assures success.

I close this volume with a prediction which will soon be realized, namely, that cremation will make more progress in the United States than in any other country of the world. Indeed, the progression will be so rapid that old Europe will open its eyes wide in blank astonishment, and wonder how it is possible. When we

Americans once perceive the advantages and superiority of a reformation, we do not hesitate long to adopt it; and the time will come when incineration will be customary in the Union, and interment obsolete.











